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Asthma Management in Millennial College Students: Attitudes and Perceptions of Resources

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Abstract

Introduction: Traditional undergraduate college students, currently known as Millennials, are a unique population with specific needs for asthma self-management. During this transition period, adolescents face many challenges that can interfere with their ability to manage their asthma effectively. **Objective:** The purpose of this study was to describe Millennial college students' level of asthma control and their attitudes and perceptions of their asthma management. **Methods:** A survey to measure asthma control was used to describe students' perceived and actual control level. In addition, focus groups were used to describe resources currently utilized for disease management along with additional resources or adaptations needed. **Results:** The majority of respondents unknowingly established that there was a large disconnect between their perceived level of asthma control and the actual symptoms experienced. Additionally, most do not recognize the basic processes of the disease and were largely unaware of available campus resources. Millennial students have unique characteristics and described a variety of barriers and limitations that hinder asthma control, access to care, and adaptation to environmental changes. **Conclusions:** The combination of the transition to college and the Millennial lifestyle adds to the complexity of disease self-management. Millennial-specific asthma self-management strategies and the development of appropriate campus resources could contribute to better transitional asthma management. Ultimately, this would empower the student and allow for a shift in responsibility to the individual and increased accountability for asthma self-management. There is a need for RTs to develop and evaluate educational programming designed to specifically address the needs of this population.

Key Words: asthma, disease management, college students

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Introduction

Uncontrolled asthma continues to be a concerning health issue due to a decreased quality of life, socioeconomic burden, and increased healthcare utilization.¹⁻² College students are a unique population; transitioning to independence and facing many challenges that can interfere with the ability to manage their asthma effectively. The combination of increased independence and responsibility, along with demanding academic and social schedules, often results in a suboptimal environment for proper asthma management.³ Asthma management may be further complicated by a young adult's skewed perception of his or her functional health, difficulty coping with the unpredictability of college life, and an inability to establish new support systems and resources away from home.⁴ Complicating the situation further, the current generation of college students, the Millennial generation, has been known to be more sheltered and micro-managed by their parents.⁵ This may contribute to further difficulty in taking appropriate responsibility for the management of their asthma.

Despite the large number of people affected by asthma, the severity of the disorder is often underestimated due to its relatively low rate of mortality.¹ Uncontrolled asthma, however, has resulted in an increase in the number of urgent healthcare visits and hospitalizations, poor health outcomes and quality of life, and a greater chance of death due to asthma. Research illustrates there has been an increase in incidences and morbidity due to asthma by 100% over the past three decades, accounting for approximately 28 million physician office visits and 497,000 hospitalizations annually.^{4,6}

According to the CDC, the prevalence of asthma in 2012 was 7.7% in adults and 9.5% in children.¹ It is the most common chronic illness among children and adolescents and presents unique challenges for management. Research conducted by Berg, Tichacek, and Theodorakis notes "adolescents may be at a greater risk for poor outcomes because of the developmental issues of their age group...[they] lack understanding of the disease, are non-adherent to medication regimens, and experience developmental changes that interfere with asthma self-management" (29-30).³ Additionally, Jonsson et al. indicated adolescents' frustrations with self-management, highlighted by adolescent strategies which included non-adherence with prescribed medication regimen.⁷ A study of adults by Al-kalemji et al. corroborated this medication self-adjustment strategy, but also found that patients with asthma tend to manage symptoms by avoidance of trigger-inducing activity.⁸

The purpose of this study was to describe Millennial college students' actual level of asthma control and their

perceived level of control, as well as to explore their asthma management strategies.

Methods

Research Design

This was a descriptive study that utilized a mixed-method triangulation technique employing use of both an initial survey and follow-up focus group to optimize the objectives of the study. The study was approved by the university's IRB.

Study Population

The population for this study included all current first-year undergraduate students enrolled Fall term 2010 at a large Midwestern University who had a self-reported diagnosis of asthma. An email invitation was sent to all freshman students (n = 6,549) encouraging those who had been diagnosed with asthma to connect to an online survey questionnaire (delivered via SurveyMonkey). The percentage of students with asthma in the freshman class is unknown, but there were over 100 students that initiated the online survey (n=127). Students answered an additional question at the end of the survey reserving their space in a focus group should they choose to participate. Any student completing the initial online survey (n=106) in its entirety was invited to participate in a follow-up focus group, resulting in 10 participants in three focus groups.

Instrumentation

Multiple instruments were utilized in the survey portion of the study in order to identify first-year college students' actual level of asthma control and their perceived level of control. Demographic information was collected including age, gender, race, living arrangement and health history. The subjects' level of control was measured using the Asthma Therapy Assessment Questionnaire (ATAQ).⁹ This instrument has established validity and reliability and has been recommended by the National Heart, Lung and Blood Institute (NHLBI) for use with subjects aged 12 years and older.

Subjects' perceived level of asthma control was measured using the Perceived Control of Asthma Questionnaire (PCAQ).¹⁰ This is an 11-item instrument that assesses individuals' perceptions of their ability to manage their asthma. The PCAQ has been used in a variety of studies and has established validity and reliability (Cronbach's $\alpha = 0.76$). A higher score on the PCAQ indicates the perception of better control over one's asthma. In this study, the PCAQ items showed high internal consistency, Cronbach's alpha of 0.87) and therefore, a single PCAQ score was calculated.

Focus group questions were reviewed by a panel of asthma control experts prior to any of the sessions being conducted. Table 1 contains the questions used in the focus groups.

All focus group sessions were each facilitated by the same neutral, experienced researcher. All information obtained during the focus group sessions was audio recorded and then manually transcribed. Three experts in the field of clinical asthma management and health behavior research independently reviewed the focus group data prior to a joint review process. Using inductive analysis, the researchers identified three specific themes among freshman college students with asthma.

Results

Quantitative Data

Of the 106 survey respondents, the mean age was 18.4 years old, with students' ages ranging from 18 to 20 years.

Female students comprised a majority of the respondents (67%) and most students also identified as Caucasian (76%). Most (92%) currently lived on campus in dormitories.

Table 2 outlines a brief health history reported by the students. While approximately 21% of students answering the survey admitted to having smoked at some point in their life, only about 5% of students currently smoked. Of the students who smoke, they reported that they do not smoke more than one pack per day. Also, over 40% reported to having visited the Emergency Department (ED) for asthma and 28% of students responded that they have been hospitalized due to their asthma at some point in their life.

As Table 3 illustrates, approximately 60% of respondents admitted they did not have an asthma action plan. When asked where students seek routine asthma care, they were permitted to select more than one location: hometown healthcare provider; a provider in the off-campus care cen-

Table 1
Focus Group Questions

<p>1. Please describe any previous experience with asthma education you may have received.</p> <p><u>Secondary Questions</u></p> <p>A. Has any education been from a physician, nurse, respiratory therapist, or pharmacist?</p> <p>B. Has education mostly been one-on-one or in a group?</p> <p>C. Have you ever received brochures, handouts, or any written educational materials?</p> <p>2. Please describe how you manage your asthma?</p> <p><u>Secondary Questions</u></p> <p>A. Do you have an asthma action plan? If yes – how well do you follow your plan?</p> <p>B. Do you take medications daily or just as needed?</p> <p>C. Has obtaining your asthma medication changed since coming to campus?</p> <p>D. Are friends, roommates, or teachers aware of your asthma needs?</p> <p>3. Please describe any asthma symptoms that you have experienced since coming to college.</p> <p><u>Secondary Questions</u></p> <p>A. Have these symptoms changed since coming to campus?</p> <p>B. Are you able to self-manage these symptoms? If so – how?</p> <p>4. Have you had to go somewhere on campus for help due to shortness of breath? If so, where?</p> <p><u>Secondary Questions</u></p> <p>A. If yes - Please describe your experience at these facilities.</p> <p>B. Where else on campus would you like to go if you were having shortness of breath?</p> <p>5. Have you ever had questions or concerns about managing your asthma?</p> <p><u>Secondary Questions</u></p> <p>A. If yes - Where on campus would you like to go if you had questions or concerns about managing your asthma?</p> <p>B. Are there any additional services for students with asthma that you would like to see provided on campus?</p> <p>C. If you wanted to know more about managing your asthma, in what way would you like to receive this information? Written (brochures, handouts)? Verbal (individual or group)? Online (emails, discussion pages)</p>	<hr/>
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Table 2
Health History of First-Year College Students with Asthma

	n	%
Have you ever smoked?		
Yes	22	20.8
No	84	79.2
Do you currently smoke?		
Yes	5	4.7
No	101	95.3
Have you ever visited the ED for asthma?		
Yes	43	40.6
No	63	59.4
How many ED visits have you had since coming to college for asthma?		
0	102	96.2
1	4	3.8
Have you ever been hospitalized for asthma?		
Yes	30	28.3
No	76	71.7
How many hospitalizations have you had since coming to college for asthma?		
0	102	96.2
1	4	3.8

Table 3
Asthma Care Management by First-Year College Students with Asthma

	n	%
Do you have an asthma action plan?		
Yes	42	39.6
No	64	60.4
Do you have routine asthma care?		
Yes	81	76.4
No	25	23.6
Do you make routine visits to your hometown healthcare provider?		
Yes	75	70.8
No	31	29.2
Do you make routine visits to a provider in Columbus?		
Yes	10	9.4
No	96	90.6
Do you make routine visits to the student health center?		
Yes	5	4.7
No	101	95.3
How many routine appointments for asthma do you have per year? (24 missing)		
0	31	37.8
1	32	39.0
2	18	22.0
5	1	1.2

ter; or the Student Health Center (SHC). However, few participants selected multiple provider locations. Nearly a quarter of respondents reported that they do not visit any healthcare provider for routine asthma check-ups. Yet, of the remaining students, almost 38% stated they had not seen a healthcare provider for a routine asthma check-up in the past year.

The ATAQ assessed the student's level of asthma control as either "well controlled" or "not well controlled" as determined by their answers to four questions used to qualify one's level of control. Sixty-seven of the respondents (63%) were categorized as having well controlled asthma. The PCAQ scores of respondents ranged from 14 to 55, with a mean score of 43.14 (sd = 7.148), indicating that the majority of students participating had the perception of relatively high control of their asthma.

The students who had well-controlled asthma also had the perception of more control of their asthma, with a mean PCAQ score of 44.20 (sd= 7.025). Additionally, 39 students with asthma that was not well controlled had a PCAQ mean score of 41.38 (sd= 7.092). While students with well controlled asthma consistently scored higher on the PCAQ than those who were not well controlled, t-test results were not statistically significant ($p = .051$).

Qualitative Data

Examination of focus group data revealed three distinct themes which further elucidate students' perceptions of their disease, resources and their actions.

Understanding Asthma as a Disease

The majority of students unknowingly established that there was a large disconnect between their perceived level of asthma control and the actual symptoms they experienced. One first-year student in the focus group shared that asthma "hasn't been as big of a problem," however, later in the session the student admitted to recently having had a panic attack that led to an asthma attack. The student then stated: "I realized I need to actually bring my medicine around with me and be prepared if something were to happen." Also, this same student later explained that their asthma resulted in a visit to the ED when the student was at home on break. Similarly, one session began with a participant stating that he has not experienced any asthma symptoms since about the age of 15. However, he later commented that there have been times recently that he had chest tightness and was "able to hear [himself] breathing."

Further deficits in the knowledge of asthma were noted when students expressed the ability to manage their asthma through self-control mechanisms. Students in the focus groups noted techniques such as "control[ling] my muscles" or having a friend help them "relax" as a means of self-man-

agement. One student stated that "I just developed an ability to control it...I feel it getting really bad but it's not to the point where I can do an inhaler, so like I just put my hands up, breathe, and I can control it myself." In another case, the focus group facilitator asked students where they would go for help if they were having shortness of breath. One student's response was:

"I generally, if I would have any kind of [shortness of breath], it would be less than, like usually around maybe five to ten minutes of any significant difficulty breathing, so my only option is to find a warm place. Like I wouldn't have any time to get to a hospital...so [I'd] just get somewhere and be still I guess."

One similarity among first-year asthmatic college students with asthma attending the focus groups was that the students generally had an adequate understanding the basics of asthma. Many students knew proper medication terminology such as "rescue" and "maintenance" medications and understood specific symptom triggers such as smoke, dust, and exercise. When asked whether students would want more information about their asthma, many agreed that additional education would be helpful. However, one student commented: "like what would you target in a class...I feel like an actual activity would better than just being talked at because unless you've just been diagnosed...unless you're new to it, I don't feel like [bearing] 'this is what's happening to you', like I already know that."

Access to Care

Another theme identified as contributing to the mismanagement of asthma by the freshman college students was the issue surrounding access to care. In trying to determine students' perceived need of resources, it was evident that participating students with asthma are largely unaware of campus resources that are available for asthma management. Most students were unsure of where they would go for assistance with their asthma, even in an emergency.

"I don't know, out of habit I would think the ER (Emergency Room) because that's where I always went. It was never during my doctor's office hours, so I almost always went to the hospital. So, I don't know, I think it would be wherever my roommate took me because I wouldn't go by myself."

Two other students emphasized the convenience of the location as a determining factor of how they would choose where to go for help if they were having difficulty breathing. "I would probably go to the Student Health Center because it's closer than the medical center," noted one student.

Additionally, the biggest problems in terms of students' access to care were the healthcare facility or pharmacy location as well as insurance restrictions. This information was disclosed when an individual explained the difficulty that

arises when trying to determine where to go for help with her asthma.

"I don't know [where I would go] because I'm not covered by the school's health insurance, so I have to figure out the closest medical place that accepts my insurance...I think my mom told me that my insurance is not accepted by it [Student Health Center], so I don't think I could go there."

Though most college students are eligible to remain on their parents' health insurance while in school, the Student Health Center on campus is limited in the types of health insurance accepted. Similarly, several students explained the difficulties they experience when trying to obtain their medications. While the majority of students admitted to still relying on their parents to either send or bring them their asthma medications to school, the issue of pharmacy location was addressed by many students. *"The CVS closest to me doesn't have a pharmacy so that has been a big thing, like I have to walk a mile to get an inhaler."* Another student also confirmed, *"the most hassle is getting the prescriptions when I need them instead of going home...it'd probably be nice if they made a pharmacy on south campus."*

Adaptive Changes

Another issue that seemed to plague first-year college students with asthma is that they seemed to experience some degree of difficulty adapting to environmental changes after coming to college. These environmental changes ranged in prevalence and impact, yet each supports the conclusion that first-year students with asthma are significantly affected by their surroundings. One of the greatest changes in environment felt by the majority of students was the climate. Many students participating in the focus group sessions commented on the role climate plays in terms of their asthma control.

"My biggest problem is that I'm from California so I'm used to the warmer weather and coming here[University], when it started getting cold I noticed it a lot more walking to classes like "Oh, that actually kind of hurts". It's mainly just the lower temperatures that have been the biggest factor for me."

Other students also commented on the impact the climate has had on their asthma. One participant shared *"there would be a couple mornings where it would be pretty cold and I was kind of running late...I'd have a difficult time when I got there. There was twice when I had to take my inhaler when I got to class."* Another student also echoed the effect temperature has on his asthma, commenting; *"my chest tightens up when it's super cold."* Also, the students from all three focus groups indicated there were distinct differences in the weather between academic terms resulting in increased shortness of breath more during winter term than

autumn. For example, one student added, *"walking across campus has been a little bit worse this [term] because of the cold temperature."*

For this reason, many students indicated that when it comes to learning more about asthma self-management, it would be more beneficial for this type of education to occur during the fall term. Students even suggested incorporating asthma self-management into the First-Year Experience (FYE) seminar series. This series provides educational presentations spanning many areas associated with school and first-year students are required to attend several sessions during their first term at school. Many students also shared that their preference would be to learn about asthma resources on campus during orientation. This way, first-year students and their parents would both be able to adequately prepare for lifestyle changes prior to coming to campus.

While students largely discussed environmental changes pertaining to the cold weather experienced in the Midwest, many also commented on the impact other triggers such as allergies, smoke, and illness have on their asthma. One student in particular required regular visits to a healthcare provider for allergy shots. The student said, *"I used to only have exercise-induced asthma...and then over the summer, towards the end of last year I got pneumonia which branched from my asthma and allergies."* Another participant in the same focus group acknowledged that if the student anticipates they are going to be around allergens or smoke the student makes sure *"to have an inhaler nearby"*.

Exercise was also mentioned several times throughout the three focus group sessions as having an impact on students' asthma. One student gave the example of how s/he sometimes forgets an inhaler before exercising; *"I forgot my inhaler before...and went on a long run and then I got a few miles out and wasn't able to get my inhaler until I ran a few miles back, so that became a problem."* This transition was also evident when discussing possible locations for asthma resources and education. Students in the focus group sessions stressed the importance of having more support when working out for help with their asthma. Several students mentioned on-campus recreational facilities as a place to provide additional resources for students with asthma; *"Mine only acts up if I'm exercising or playing sports...so I think just have a trained person on staff...just to make sure there is someone that could handle the situation."*

Summary

The majority of respondents unknowingly established that there was a large disconnect between their perceived level of asthma control and the actual symptoms they experienced. Focus group data revealed participants had a significant misunderstanding of asthma "control" and a poor understanding of the disease. Additionally, most do

not recognize the basic processes of the disease and were largely unaware of available campus resources. Millennial students have unique characteristics and described a variety of barriers and limitations that hinder asthma control, access to care, and adaptation to environmental changes.

Discussion

Data from this survey indicated that while over 75% of the respondents indicated seeing a healthcare provider for routine asthma care, over one-third of those students had not visited their provider in the past year for a routine check-up. Similarly, Wodka and Barakat reported that 70% of participants visited a health care provider for routine care, but noted an additional burden may be present when college students must travel back to their hometown for this care.¹¹ Also, for college students with greater asthma severity, the ability to see a primary care physician on short-term notice may not be a viable option.⁴ Rather than suggesting students are neglecting the responsibilities of managing their asthma, this data may suggest the unique challenges that are presented by the transition to college life.

Students seem to misunderstand the term “self-management.” Inconsistent with guideline-recommendations, students in the focus groups noted they utilized coping strategies such as “control[ling] my muscles” or having a friend help them “relax” as a means of self-management. These responses and other similar statements are not only troubling, but indicate gaps in knowledge about the management of asthma.

Participants in this study were largely unaware of resources that are available for asthma management, an issue expressed in related literature.¹² Further, research has shown that even while college students are aware of resources, this does not always translate into utilization.¹³ Most students who took part in the focus group sessions were unsure of where they would go for assistance with their asthma, even in an emergency. Students stressed the need for closer, more convenient pharmacy services, as well as accessible on-campus healthcare facilities.

Attention focused on empowering college students with self-management prevention strategies is needed to not only decrease chances of an exacerbation or hospitalization or both, but also because mismanagement can have a negative effect on students’ participation in other activities. The results of this study indicate that there is an opportunity for respiratory therapists (RTs) to develop and evaluate educational interventions designed to specifically address the stated needs and characteristics of the Millennial college student with asthma. RT educators could engage students to further explore appropriate and desired mechanisms for providing relevant asthma disease management information. Since many current RT students are also part

of the Millennial generation, they are in a unique position to not only provide the perspective of the college student, but to also combine this perspective with their knowledge of the health care system and resources and their knowledge of asthma disease management when developing targeted educational interventions. RT educators have an opportunity to involve RT students in identifying and addressing a need within their own community, while aiding in the development of RT student leadership, communication and education skills.

In addition, RTs in hospital and clinic settings could aid in facilitating the transition from adolescent to adult for patients with asthma. Chronic disease management across age groups is challenging, and RTs have the ability to include the adolescent in disease management education and to address the importance of self-management as he/she transitions to college age. It is important for RTs in both pediatric and adult care settings to recognize the critical need for additional focus on this transition period and to work with patients to ensure they are ready to take responsibility for their care.

Limitations

There are several limitations to this study. The participants were asked to self-report their level of asthma control as defined by frequency of symptoms and frequency of quick-relief medication used. This information is purely subjective, and therefore may not be most representative of the target population. Finally, another limitation is that the sample was a convenience sample of first-year students enrolled at a large Midwestern university.

Conclusions

Students attitudes and perceptions revealed a variety of barriers and limitations that hamper asthma self-management such as appropriate access to care, and adaptation to environmental changes after coming to college, such as climate changes, living arrangements, or developing new routines. The combination of the transition to college and the Millennial lifestyle further adds to the complexity of disease self-management. Millennial-specific asthma self-management strategies and the development of appropriate campus resources could contribute to better transitional asthma management. Ultimately, this would empower the student and allow for a shift in responsibility to the individual and increased accountability for asthma self-management. There is a need for RTs to develop and evaluate educational programming designed to specifically address the needs of this population.

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Respiratory Therapy Students' Perceptions of Effective Teaching Characteristics of Clinical Instructors at an Urban University

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Abstract

Background: Respiratory therapy students' perception of the effectiveness of clinical instructors' behavior is an important indicator to modify and to facilitate effective clinical instruction. The purpose of this study was to identify the effective clinical teaching behaviors (ECTB) perceived by undergraduate respiratory therapy (BSRT) and integrated graduate respiratory therapy (MSRT) students and to identify any similarities in their rankings. **Method:** The study used descriptive exploratory design with a self-reporting survey. The survey was administered to a convenience sample of first and second year BSRT and MSRT students attending an accredited respiratory therapy program at an urban university located in the southeastern United States. The survey consisted of 35 teaching behaviors presented on a five-point Likert scale according to importance. Collected data were analyzed using descriptive statistics. Results: Seventy-two students were surveyed; 54 respondents studied were BSRT students with 42 females and 12 males. Graduate MSRT respondents accounted for 18 of the total sample, 9 females and 9 males. The study findings showed "respect student as an individual" and "be approachable" characteristics rated the highest by BSRT students with similar mean (M) score and standard deviation (SD), (M 4.89, SD \pm 0.37) with the MSRT students. The MSRT students valued "be supportive & helpful" and "be approachable" characteristics as the highest, M 4.94, SD \pm 0.24. BSRT students ranked the characteristic "evaluate students fairly" (M 4.87, SD \pm 0.34) second highest while MSRT students rated "demonstrate self-control & patience" (M 4.89, SD \pm 0.32) the second highest. Students' perceived 1:1 as optimal ratio for students per clinical instructor during clinical rotation. Conclusion: Although BSRT and MSRT students' perceptions demonstrated similarities, mean scores data between first and second year student show a shift in ranking between characteristics. In addition, results may assist respiratory therapy clinical instructors to appreciate students' views and acknowledge areas of success as well as areas needing improvement.

Key words: clinical instruction, effective clinical teaching behaviors, respiratory therapy, Effective Clinical Instructor Characteristics Inventory, clinical instructor, undergraduate respiratory therapy, graduate respiratory therapy

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Introduction

Curricula for nursing and allied health programs are primarily divided into didactic and clinical components. Aims of clinical education are to develop professional skills and knowledge needed for life-long learning and critical thinking along with promoting self-confidence.¹ For respiratory care programs, clinical education is a major component of their curriculum since it has a great impact on students' critical thinking and problem solving skills.² Respiratory therapy (RT) clinical instructors provide students with the opportunity to apply knowledge, skills and concepts learned in the classroom to actual care of the patient at the bedside. Clinical instructors must possess effective teaching characteristics such as professional knowledge, role modeling and clinical competence with communication skills to facilitate optimal clinical learning. There is a paucity of literature available to facilitate understanding of how clinical instructors' behavioral characteristics influence student learning. In contrast, this topic has been extensively studied in nursing education, both from the student and faculty point of view.³⁻¹⁰ An exploration of respiratory therapy students' perceptions may provide for greater understanding of preferred clinical instructors' behavioral characteristics. This information may be used to modify clinical instruction in respiratory therapy programs.

Review of literature associated with nursing education describe effective teaching characteristics, others ranked importance of characteristics and some sought to differentiate perceptions of clinical teaching effectiveness based on various qualities of the research subjects.^{4, 5, 11, 12} RT lacks specific research on clinical instructor behavior and effective characteristics. Research of student-instructor relationships has emerged as important to clinical education of nursing students.

According to Kube, student learning in the clinical setting is facilitated by a demonstration of effective teaching behaviors out lined in the literature.⁷ Effective clinical instruction in respiratory therapy requires clinical knowledge and clinical proficiency and skills in teaching students to assist learning by students by clinical instructors. The purpose of this study was to determine which teaching characteristics RT students perceived as being most effective.

Methods

Design

The study employed a non-experimental, descriptive exploratory design with a self-reporting survey. The Institutional Review Board approved the study. The survey consisted of a cover letter with an explanation of the study and the survey instrument. No identifying information was recorded on the survey to ensure anonymity of each participant.

Instrumentation

The survey instrument was modified from a form that was previously validated for use with nurses by Madhavanprabhakaran et al.¹³ The survey appears in Appendix A. The researchers distributed the survey to 72 students in various levels of their undergraduate BSRT and graduate MSRT respiratory therapy degree programs. One student volunteer collected all surveys in a manila envelope, sealed it and returned it to the researchers. All surveys were anonymous and no identifying information was collected.

The instrument for this study consisted of two sections. The first section collected demographic information, including age, number of clinical courses completed, gender, academic level in the program, educational level and ratio of students to clinical instructor. The second section listed 35 clinical instructor characteristics divided into three sub-scales. The sub-scales were: professional competence (15 statements), relationship with students (8 statements) and personal attributes (12 statements). A five point, Likert-scale ranging from 1 (unimportant) to 5 (most important) was used to assess respondents perceived level of importance for each clinical instructor characteristic.

Data Analysis

Data collected from the survey were analyzed using SPSS 22 (SPSS/IBM Corp, Chicago, Illinois). Descriptive statistics were used to address the objectives of the study.

Results

Demographic data presented in Table 1 shows the average age of 22.1 years for BSRT students and 26.5 years for MSRT students. The number of clinical courses reported by the students varied based on the students' level in the program. For example, second-year program students had completed more clinical courses than first-year students. Females accounted for more than half of the sample. A majority of the participants were enrolled in the BSRT program. Twenty-two percent (n = 12) of the BSRT students and 67% (n = 12) of the MSRT students indicated they had a previous degree.

Data results were tabulated (see Tables 2-7), including the survey item number, the teaching behavior description, and the corresponding category for each teaching behavior. Descriptive analysis presented in Table 2 shows a majority of BSRT students identified "respect student as an individual" and "be approachable" as the most important characteristic of a clinical instructor.

Table 3 shows mean scores (*M*) and standard deviation (*SD*) of the top 5 most important effective clinical teaching behavioral characteristics ranked by MSRT students.

Table 1

Demographic Data of Undergraduate Degree Respiratory Therapy (BSRT) and Graduate Degree Respiratory Therapy (MSRT) Student (n = 72)

Demographics	BSRT (n = 54) Mean \pm SD or %	MSRT (n = 18) Mean \pm SD or %
Age (y) N= 68	22.1 \pm 5.1	26.5 \pm 3.7
Clin. Completed (semester)	M = 1.5	M = 2
Female	57%	50%
Male	43%	50%
Education Level	75%	25%
Previous Education	22%	67%

The characteristics “be supportive and helpful” and “be approachable” under the category of relationship with students ranked the highest by MSRT students.

First and second year BSRT students demonstrated different perceptions of the most effective clinical teaching behaviors as shown in Tables 4 and 5. Second year students identified the behavior “be approachable” as the most effective. In comparison, first-year students rank this behavior fifth most effective. On the other hand, first-year BSRT students ranked the behavior “evaluate students objectively and fairly” highest, while second-year students ranked it sixth most effective.

First and second year MSRT students have varying perceptions of effective clinical teaching behaviors as shown in Tables 6 and 7. In comparison, first-year students ranked the behavior “demonstrate self-control & patience” as the most effective, while second-year students rank this behavior seventh most effective. Nonetheless, second-year students ranked the behavior “be supportive & helpful” highest, which was also ranked sixth most effective by first year students.

Discussion

The purpose of this descriptive study was to explore respiratory therapy students' perceptions to provide insights into the RT student-clinical instructor relationship with regard to effective clinical learning experiences. Clinical instructor subjective qualities such as approachability, demonstrate good communication skills, evaluate student fairly, and willingness to give guidance and feedback were perceived by students to contribute to effective clinical learning experiences for these students.

Important Characteristics of the Effective Clinical Teacher

Overall, BSRT students rated “relationship with students” as the most important category, and “respect student as an individual” and “be approachable” which are categorized as “relationship with students,” as the most important characteristics of an effective clinical instructor. These findings are consistent with previous studies reported in nursing and allied health professions. Nursing studies have reported that students rank interpersonal relationship with the clinical instructor as most important.^{4, 7, 8, 10, 14} Similarly, in athletic training, relationships with students are dynamic in clinical instruction and the instructor-student relationship should continue to grow during clinical training.^{15, 16} Radiography professionals have also reported that students rank competence and interpersonal relationship high.^{17, 18} Physical therapy students' have also ranked interpersonal relationships high.^{19, 20}

The current study clearly demonstrated that a majority of the most effective clinical teaching behavioral characteristics ranked by BSRT students were characteristics under the “relationship with students” category. These findings are consistent with findings from previous studies in which the interpersonal relations with students and professional competence categories were first and second most frequently selected characteristics, respectively.^{6, 12, 14, 18} In contrast, Madhavanprabhakaran et al., reported that undergraduate

Table 2

5 Most Effective Clinical Teaching Behaviors Ranked by BSRT Students Overall (n = 54)

Item No.	Behavior Description	Category	Mean	Standard Deviation
RS1	Respect student as an individual	Relationship with students	4.89	.37
RS8	Be approachable	Relationship with students	4.89	.37
PC13	Evaluate students fairly	Professional competence	4.87	.34
PC3	Demonstrate knowledge in the area of instruction	Professional competence	4.83	.38
RS4	Encourage students to feel free to ask questions or ask for help	Relationship with students	4.81	.48

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Table 3

5 Most Effective Clinical Teaching Behaviors Ranked by MSRT Students Overall (n = 18)

Item No.	Behavior Description	Category	Mean	Standard Deviation
RS7	Be supportive & helpful	Relationship with students	4.94	0.24
RS8	Be approachable	Relationship with students	4.94	0.24
PA3	Demonstrate self-control & patience	Personal Attributes	4.89	0.32
RS4	Encourage students	Relationship with students	4.89	0.32
RS1	Respect student as an individual	Relationship with students	4.89	0.32

Table 4

5 Most Effective Clinical Teaching Behaviors Ranked by First-Year BSRT (n = 31)

Item No.	Behavior Description	Mean	Standard Deviation
PC13	Evaluate students objectively and fairly	4.94	.25
PC3	Demonstrate knowledge of respiratory therapy in the area of instruction	4.93	.25
RS1	Respect student as an individual	4.90	.40
PA8	Be organized and well prepared	4.87	.34
RS8	Be approachable	4.87	.34

Table 5

5 Most Effective Clinical Teaching Behaviors Ranked by Second-Year BSRT (n = 23)

Item No.	Behavior Description	Mean	Standard Deviation
RS8	Be approachable	4.91	.42
RS1	Respect student as an individual	4.87	.34
RS7	Be supportive & helpful	4.83	.39
PC4	Show clinical skill competence	4.83	.49
RS2	Be realistic in expectations of students' performance	4.78	.42

Table 6

5 Most Effective Clinical Teaching Behaviors Ranked by First-Year MSRT (n = 12)

Item No.	Behavior Description	Mean	Standard Deviation
PA1	Communication skills	5.00	.00
PA3	Demonstrate self-control	5.00	.00
RS8	Be approachable	5.00	.00
PA11	Exhibits responsibility	4.92	.29

Table 7

5 Most Effective Clinical Teaching Behaviors Ranked by Second-Year MSRT (n = 6)

Item No.	Behavior Description	Mean	Standard Deviation
RS7	Be supportive & helpful	5.00	.00
RS1	Respect student as an individual	4.83	.41
RS4	Encourage students	4.83	.41
RS8	Be approachable	4.83	.41
PC3	Demonstrate knowledge	4.83	.41

nursing students rated professional competence of instructors as the most important characteristic and instructors' relationship with students as the second most important characteristic.¹³ This may be due to differing cultures as Madhavanprabhakaran's study was done in the Middle East, not the United States. The least important category as ranked by BSRT students was personal attributes. This finding is in contrast to a previous study by Berg et al., in which personality traits received the highest overall ratings.²¹

Overall, MSRT students ranked "be approachable" and "be supportive and helpful" as the most important characteristic which is similar to those findings in nursing by Brown, Bergman and Gaitskill.^{4, 22} Moreover, students ranked "encourage students to feel free to ask questions or ask for help" and "respect student as an individual," ranked fourth, and fifth respectively. This finding is also similar to that in nursing education where students identified interpersonal presentation including the instructors' positive, professional, and supportive attitudes as valuable.²³

Perception of Students at Different Academic Levels

The current study results show students' perceptions vary according to the amount of time they have spent in their program of study. First-year BSRT students ranked professional competence characteristics higher than both second-year and MSRT students, which is congruent with findings of Gignac-Caille & Oermann and Sieh & Bell.^{11, 14} In nursing, the differences in the perceptions of effective teaching characteristics among students' class levels have been highlighted in several studies. Significant differences were found between second and third year students in all except personality subsets.³ First-year (BSRT or MSRT) students also rated "relationships with students" higher than other groups which was found by Bergman & Gaitskill.²² Also, second-year BSRT students' valued "relationships with students" as a more effective teaching characteristic. Madhavanprabhakaran et al., however, reported that undergraduate students rated professional competence of instructors as the most important characteristic.¹³ On the other hand, first-year MSRT students rated "personal attributes" characteristics as more important than other categories. This finding is similar to Nahas et al. who suggested that as nursing students gain more education and clinical training they become clinically more confident and knowledgeable.²⁴ Students will look to clinical instructors who communicate well and encourage freedom of discussion.²⁴ Second-year MSRT students rated "relationships with students" higher than other categories. This variance among students' perceptions may be attributed to their previous education and clinical experience.

Implications for Research

The results of this study may encourage respiratory therapy clinical instructors to appreciate students' opinions and acknowledge areas of strengths as well as areas needing improvement. In order to promote clinical instruction to the greatest extent, clinical instructors should be aware of effective teaching behavioral characteristics that are perceived as most important by respiratory therapy students. Moreover, the study contributes to the literature as it proposes the need to promote consistently identified effective clinical teaching characteristics that may contribute to respiratory therapy students' clinical learning.

Limitations

This study was limited by several factors. The sample was selected from only one institution and the number of participants involved was limited. The relatively small sample size must be taken into account with regard to the comparison of different classes of students. Replication of this study is strongly recommended to generalize these findings with a larger sample size involving a number of accredited BSRT and MSRT programs. The study also involved a one-time measurement. Multiple measurements over time (i.e., before the term begins, during the term, and after completion) would provide further information. Additionally, this study did not take age, gender, and ethnicity into account.

Conclusion

Identification of effective clinical teaching characteristics perceived by respiratory therapy students is the foundation of this study. The results of this study suggest that both student groups perceived clinical instructors need to value interpersonal relationships, as well as clinical competence. Although BSRT and MSRT students' perceptions demonstrated similarities, mean scores between first year and second year students show a shift in ranking between characteristics. This may be due to changes in students' perception as they advance in their clinical course work or their educational experience. This study demonstrated that respiratory therapy student perceptions of effective characteristics of clinical instructors are consistent with those of other healthcare profession students.

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Appendix A
Clinical Instructor Characteristics

Part 1: Demographics:

1. Indicate your age _____
2. Number of clinical courses completed _____ course/s (as of today).
3. Gender: (please circle one)
 - (a) Male.
 - (b) Female.
4. (a) Year/level in program: ___First year (junior)___ Second year (senior)

(b) Educational level: _____ B.S RT; _____ MS of health science. (Please circle one).
5. Have you attended any previous educational program/programs that utilize clinical instruction?
___ Yes
___ No
6. Do you possess a certificate of completion or degree from another clinical program:
___ Yes
___ No

If so, please list here:

7. How many clinical instructors/preceptors have you been exposed to during your course of respiratory therapy education? _____.
8. In your opinion regarding good ratio of Students to Clinical Instructor is:
1:1 2:1 3:1 4:1 5:1 6:1

Respiratory Therapy Students' Perceptions of Effective Teaching Characteristics of Clinical Instructors

Please check (√) according to your opinion on the Effective Clinical Instructor Characteristics. There are five options to mark.

No.	Characteristic of Effective Instructor	Most Important (5)	Important (4)	Neutral uncertain (3)	Less Important (2)	Unimportant (1)
I	Professional competence					
1	Facilitate student's awareness of their professional responsibility					
2	Show genuine interest in patients and their care					
3	Demonstrate knowledge of respiratory therapy in the area of instruction					
4	Show clinical skill competence					
5	Able to relate theory to practice					
6	Able to communicate knowledge and skills to students for safe practice					
7	Assist in new experiences without taking over the task from the student					
8	Available to work with students in clinical setting					
9	Demonstrate engaging style of bedside teaching					
10	Demonstrate skills, attitudes & values that are be developed by students in clinical area (Role modeling).					
11	Facilitate critical thinking in clinical practice.					
12	Identifies each individual attribute of the learner					
13	Evaluate students objectively and fairly					
14	Provide individualized timely feedback					
15	Provide constructive feedback on student progress					
II	Relationship with students					
1	Respect student as an individual					
2	Be realistic in expectations of students' performance					
3	Be honest and direct with students					
4	Encourage students to feel free to ask questions or ask for help					
5	Allow freedom for discussion.					
6	Allow expression of feeling.					
7	Be supportive & helpful.					
8	Be approachable.					
III	Personal Attributes.					
1	Demonstrates good communication skills					
2	Able to collaborate with other disciplines					
3	Demonstrate self-control & patience					
4	Demonstrates enthusiasm for teaching					
5	Demonstrates flexibility in clinical settings					
6	Exhibit sense of humor					
7	Admits limitations					
8	Be organized and well prepared					
9	Responds promptly					
10	Responds confidently					
11	Exhibits responsibility					
12	Exhibits autonomy					

Respiratory Therapists as Physician Extenders: Perceptions of Practitioners and Educators

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Abstract

Introduction: The purpose of this study was to determine the perceptions of practicing respiratory therapists (RT) and respiratory care educators regarding the role of RTs serving as physician extenders. **Methods:** The survey instrument was an electronic questionnaire that consisted of 17 questions. Participation was voluntary and participants were selected through random and convenience sampling techniques. **Results:** Of 506 respondents, 234 were respiratory care educators. Overwhelmingly, the respondents held the Registered Respiratory Therapist credential (92.7%). Respondents were about equally split among three education levels: 31.7% associate degree, 31.7% bachelor's degree, and 27.3% master's degree. Of the respondents 62.45% had considered pursuing a degree in physician assistant (PA). Respondents expressed a preference for an Advanced Practice Respiratory Therapy (APRT) program (77.9%) rather than a PA program. Nearly two-thirds of the respondents reported they felt that a master's degree should be the minimum level of education for an APRT. **Conclusions:** This study suggests that practitioners and educators alike are strongly supportive of advanced practice in the profession of respiratory therapy.

Key Words: respiratory therapist, advanced practice, mid-level provider, physician extender, graduate education

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Introduction

A physician extender is a health care provider who is not a physician but performs medical related procedures and other tasks typically performed by physicians.¹ They are also referred to as mid-level practitioners and typically have master's- level degrees or higher. Nurse practitioners (NP) and physician assistants (PA) are examples of health care providers who have transitioned into the role of physician extenders. The respiratory therapist (RT) provides a unique and necessary set of skills, knowledge, and attributes to the healthcare environment.² Respiratory care is an important, integral part of the current health-care system because of the prevalence and seriousness of pulmonary disease.³ The emergence of graduate level RT education has led to this exploration of the RT transitioning into the physician extender role.

Respiratory therapy education has evolved from the minimum standard of diploma level to associate degree. In addition, there are currently close to sixty baccalaureate level programs accredited by the Commission on Accreditation for Respiratory Care (CoARC) and three master's level programs. Although standards for respiratory education have increased in recent years, the scope of practice and autonomy within the profession has not concurrently evolved. Limited autonomy and complacency can cause stagnation and may result in skilled and experienced respiratory clinicians to leave the field in search of new challenges and opportunities to contribute elsewhere.⁴

To determine the attitudes concerning physician extenders in the field of respiratory care, the following questions guided this study: 1) What are the perceptions of practicing respiratory therapists regarding respiratory therapists serving as physician extenders, and 2) What are the perceptions of respiratory care educators regarding respiratory therapists serving as physician extenders?

Literature Review

A review of the literature found few studies regarding the use of RTs as physician extenders or as mid-level providers. As early as 2003, a white paper identified the need for graduate education in respiratory care in several areas including "clinical specialization."⁵ A 2012 survey of respiratory care department managers reported that 36.8% felt the entry level degree for the profession should be at the baccalaureate level.⁶ It has long been established that RTs are considered the experts in mingling complex technology and clinical skills at the bedside.⁷

Nurse practitioners (NP) and physician assistants (PA) are examples of physician extenders that are found throughout most all clinical settings.^{8,9} Physician extenders first ap-

peared in the United States in the 1960s. Both NPs and PAs were created to provide care to underserved patient populations and to extend the ability of the physician to care for more patients.¹⁰ Since the length of training for these professionals was less than that of a physician and the pay comparably less, use of extenders was seen as more cost effective than utilizing additional physicians.⁸ The most striking difference between the physician assistants and nurse practitioners is the entry point for education. The nurse practitioner applicants must be baccalaureate prepared registered nurses who competes for entry into a graduate degree program. PA applicants are baccalaureate degree prepared as well; however it depends on the program whether previous clinical experience is necessary to apply, although many applicants have some clinical experience.⁸ An informal review of PA programs using Central Application Service for Physician Assistants (CASPA) found that about 75% of programs required applicants to have some degree of patient care experience in a health care setting. A review of the accreditation standards for the Accreditation Review Commission on Education for the Physician Assistant did not find a specific required number of hours of patient care the PA applicant must have completed prior to admission into the program.¹¹ Neither profession requires post graduate training to enter a specialty area.

Utilization of physician extenders in the in-patient hospital setting is well documented. Nearly 100% of teaching hospitals in the United States utilize NPs and PAs in the care of patients, including critical care areas.¹⁰ Several studies have evaluated the differences in physician extenders as compared to physicians and found no significant differences in outcomes or patient satisfaction.^{9,12} Additionally, it has been reported that outcomes were improved when these physician extenders were added to existing teams.^{9,12}

The influence of the Affordable Care Act

Legislation affecting health care policy, regulation, and reimbursements may also influence this potential new role for practicing RTs. The Patient Protection and Affordable Care Act (ACA), which went into effect in 2014, provides the opportunity for change in the way respiratory therapy is delivered in a health care setting. New opportunities exist for RTs with the need to reduce readmission rates of selected diseases within a thirty day so hospitals avoid being penalized and the new emphasis on assuring patient satisfaction during their inpatient stay.¹³ A growing emphasis on patient education could reduce the likelihood of readmission of patients with chronic illness. In addition, the RT will be responsible for educating patients on what a realistic hospital stay means in terms of outcomes and satisfaction. How the ACA will influence the job responsibilities of the RT is yet to be determined; however, it is a foregone con-

clusion that practitioners will be asked to do more, with the same or a nominal increase in resources.¹⁴

This new legislation advocates a strong investment in the overall health care labor force by focusing on enhancing education efforts in the medical community. In addition, the cost savings attained by utilizing physician extenders in patient care settings has become a health care cultural norm. The ACA holds health care organizations to a higher level of accountability in regard to patient outcomes. Three conditions outlined in the CMS Readmission Reduction Program (heart failure, pneumonia, and chronic obstructive lung disease) are disorders that RTs routinely treat.¹³ Consequently, given the role of the RT in the stated comorbidities and the current success of physician extenders in the allied health workforce, determining the feasibility of an advanced scope of practice for the profession of respiratory therapy would seem to be a logical next step.

Looking Ahead

In addition to the use of physician extenders in other healthcare disciplines and the changing climate of reimbursement for services, there currently is a nationwide shortage of physicians board certified in pulmonary medicine. According to the Health Resources and Services Administration (HRSA) shortages of critical care and pulmonary medicine specialists will reach 1,500 by 2020.¹⁵ Several factors contribute to this shortage. A large number of pulmonologists are members of the baby boom generation and are approaching retirement age, yet the number of expected new entrants into the field is not expected to offset those getting ready to exit.¹⁶ The last phase of the baby boom generation is just beginning to retire, which will create a sharp increase in demand for the number of pulmonary care trained intensivists. Finally, the dispersion of pulmonologists is geographically skewed leaving rural hospitals faced with inadequate staffing. A potentially feasible solution to address these concerns would be to advance the practice of respiratory therapy with graduate education, competency assessment, and credentialing to be physician extenders for pulmonologists.

Methods

This study was a non-experimental, cross-sectional survey research design. The University's Institutional Review Board (IRB) approved this study. It is descriptive in nature to reflect the perceptions of the two targeted groups: practicing respiratory therapists and educators. The survey instrument was an electronic questionnaire that consisted of 17 questions (Appendix A). Several survey questions collected demographic data while others required a Likert scale response or ranking of responses. The survey, for

clarity, included the operational definition of a physician extender. It was developed by three respiratory therapists with the consultation of a professional from another discipline with expertise in survey methodology and survey instrument development. An additional review was conducted by a respiratory therapist external to the research team. The instrument was qualitatively reviewed by each of these individuals for content essentiality, usefulness, and necessity. After the needed changes had been made, the study opened on October 7, 2014 with voluntary participation and continued until December 1, 2014.

The study was limited to therapists and educators who had their email addresses on file with the American Association of Respiratory Care (AARC) Education Section, licensed therapists with e-mail addresses listed with the Tennessee Society for Respiratory Care (TSRC) as of September 30, 2014, and program directors throughout over the U.S. (associate, baccalaureate, and master's degree programs) as listed on the CoARC website. In addition, a sample of respiratory care faculty, directors, managers, supervisors, graduates, and practitioners from varying states were invited to participate based on availability of known email addresses. Lists were reviewed and duplicate email addresses were omitted. Any participant had the option to forward the survey to someone they knew who was a practicing respiratory therapist or educator without the knowledge of the researchers. However, to minimize duplicate responses and selection bias, participation was limited to one response per IP address. In an effort to maximize input, an invitation to participate was posted on an open access site frequented by both respiratory therapists and respiratory therapy educators. All methods used to solicit participants led to a single data collection site (SurveyMonkey).

Data Analysis

Data collected were imported into SPSS Version 22 for analysis. While a number of the survey questions lent themselves to simple analysis (i.e. percentages) the data were examined for differences among demographic groups (therapists and educators). A descriptive group comparison was conducted. A number of the questions did not apply to the non-educator respiratory therapist; therefore a response of not applicable (N/A) was appropriate. To facilitate parametric testing of Likert scale data, responses of strongly disagree were converted to 1, disagree 2, agree 3, and strongly agree 4. Responses were analyzed with an independent samples *t* test to determine if the two targeted groups differed in their responses to those questions. All analysis for differences were conducted using a 95% confidence level (alpha <.05).

Results

Respondents

There were 506 respiratory therapists who responded to the study's survey, however not all questions were answered by every respondent. The respondents were predominately female (60.4%). Regarding years of experience as a licensed practitioner of respiratory care, the distribution of those responding was somewhat bimodal with respondents clustering around the extremes of less than 5 years of experience (19.9%) and greater than 25 years of experience (35.4%) with the remaining four categories averaging approximately 11%. Only 8% of the respondents indicated they had between 16 and 20 years of experience as licensed practitioners of respiratory care. Overwhelmingly the respondents held the Registered Respiratory Therapist (RRT) credential from the National Board for Respiratory Care (NBRC) (92.7%). Just over half of those responding indicated they had obtained a specialty credential (51.5%). Specific specialties were not specified on the survey instrument. Respondents were almost equally split between three education levels (31.7% associate degree, 31.7% bachelor's degree, and 27.3% master's degree). While only 2.2% of the respondents' highest level of education was a certificate in respiratory care, 7.1% of the respondents indicated they had earned a doctoral degree.

Educators

Two hundred and thirty four ($n=234$) educators responded to the survey. The participants were asked to indicate the highest degree awarded by the respiratory care

program in which they teach. Of those responding 69.8% teach in a program awarding an associate degree, 27.6% teach in a program awarding a bachelor's degree, and 2.6% teach in a program awarding a master's degree. Six educators did not provide a response for this question.

The educators were also asked to provide information regarding years of experience they had in RT education. The number of respondents for this question ($n=271$) exceeded the number who indicated they were educators ($n=234$) and may indicate that some respondents consider their roles dual. Of those responding to this question, 24.7% had up to 5 years of experience, 20.3% had 6-10 years of experience, 12.1% 11-15 years of experience, 15.4% had 16-20 years of experience, 8.4% had 21-25 years of experience, and 19.1% had more than 25 years of experience as an educator. 1.5% of educators indicated they held a Certificate in Respiratory Care, 12.5% an associate degree, 27.7% a bachelor's degree, 45.4% a master's degree, and 12.9% a doctoral degree.

Perceptions

Table 1 illustrates the perceptions of respiratory therapists and respiratory care educators in four separate domains: whether or not the RT could adequately serve as a mid-level provider following training and education, who should provide the clinical training to advanced practiced respiratory therapy students, whether or not the respondent has previously considered applying to and entering a PA program, and if given the option between an APRT and PA program, which would the respondent most likely prefer given the two professions were equally reimbursable by third

Table 1
Perceptions of Advanced Practice Education

Survey Item	Mean response Practitioners	Mean Response Educators	t Value	Significance
RTs that have undergone formal advanced training and education could adequately perform the medical activities typically carried out by mid-level practitioners or physician extenders.	3.39	3.31	$t(485)=-.983$	0.326
All clinical training should be provided by the appropriate mid-level practitioner(s) and/or medical doctor (Pulmonologist, Critical Care Intensivist, and Anesthesiologist).	2.96	3.19	$t(479)=2.807$	0.005
I have considered pursuing entrance into a Physician Assistant program.	2.85	2.64	$t(482)=2.437$	0.015
If the Advanced Practice Respiratory Therapist (APRT) and the Physician Assistant (PA) were equally reimbursable and were comparable in income, I would rather enroll in a PA program.	2.04	1.97	$t(481)=-.872$	0.384

party payers and comparable in income. There were two notable findings within these survey items. The results of an independent-samples *t* test indicated a significance between the responses of practitioners and educators at the 95% confidence interval; $t(479) = 2.807, p = .005$, regarding who should provide the appropriate clinical training to the advanced practice respiratory therapy student. Practitioners agreed more strongly that mid-level practitioners or physicians (pulmonologist, critical care intensivist, and anesthesiologist) should provide the appropriate training. The results of an independent-samples *t* test indicated a significant difference between the responses of practitioners and educators at the 95% confidence interval; $t(482) = 2.437, p = .015$, regarding whether or not the respondent had considered entrance into a physician assistant program. The mean response of practitioners was significantly higher than the mean response of educators in this area.

The next three survey items explored perceptions concerning the minimum level of education for the advanced practice respiratory therapist, appropriate educational preparation for an APRT program, and the minimum clock hours of clinical learning experiences that an APRT program should require for graduation. Nearly two-thirds of the respondents indicated their preference was a master's degree as the minimum level of education for an APRT. In distinguishing between practitioners and educators, practitioners indicated a preference for a master's degree (64.7%), followed by a bachelor's degree (33.7%), and lastly a doctorate (1.7%). Respiratory care educators also indicated a preference for a master's degree (75.4%), followed by a bachelor's degree (22.7%) and doctorate degree (1.9%).

When considering appropriate educational preparation for an APRT program, a Bachelor's degree in respiratory care with the RRT credential was preferred by 40.9% of those responding. The proportion favoring a non-specific bachelor's degree combined with the RRT credential and those favoring a Bachelor's degree in respiratory care combined with the RRT credential and a NBRC specialty credential were similar (23.3% and 23.1% respectively). Only 12.6% of those responding favored a non-specific bachelor's degree combined with the RRT credential and a NBRC specialty credential. Practitioners agreed more strongly with a Bachelor's degree in respiratory therapy and the RRT credential as the educational preparation for an APRT program (48.2%) followed by a Bachelor's degree in respiratory therapy, the RRT credential, and at least one specialty credential (26.8%). Educators agreed a Bachelor's degree in respiratory therapy with the RRT credential (34.8%) is the preferred educational preparation for an APRT program followed by a non-specific bachelor's degree with the RRT credential (28%).

Concerning the minimum clock hours for clinical training of the APRT, responses varied among respondents.

The minimum number of clock hours (500) was preferred by 21.4% of the respondents, 750 hours preferred by 34.5%, and 1000 hours preferred by 31.4%. Only 12.7% of the respondents indicated that more than 1000 hours of clinical education should be required for those completing an APRT program. The majority of practitioners identified 750 clock hours as being the minimum (30.8%), as did respiratory care educators (34.6%).

Factors inhibiting and facilitating the development of a physician extender role

Respondents were asked to rank a number of factors that could potentially inhibit or facilitate the development of a physician extender role for APRTs. The rankings for each factor were averaged to determine respondents' perceptions. Respondents ranked environmental factors that might play a role in the development of APRTs. Third party reimbursement issues were ranked as the most significant possible inhibiting factors to provide APRT training, followed closely by licensure laws. Acceptance by physicians and mid-level providers along with the scope of practice were the remaining factors that were ranked accordingly within this domain. Respondents were asked to rank personal factors that might facilitate the implementation of APRTs. Enhanced clinical practice followed by monetary reward was ranked as the most important factors for the development of the APRT. The operational definition for enhanced clinical practice in this context was the advancement or moving forward of putting knowledge to actual use in the profession.¹⁷ Job security, peer recognition and respect, and flexibility in scheduling were the remaining factors reported. Finally, respondents were asked to rank clinical settings where the skills of APRTs might add value to the continuum of care. Those responding identified inpatient pulmonary and critical care medicine as the setting in which APRTs could provide the greatest value. Secondly, physician practice, followed by outpatient clinics, preventative medicine and community education, and home care were identified.

Discussion

The purpose of this study was to determine the perceptions of practicing RTs and respiratory care educators regarding the role of RTs serving as physician extenders. The relatively equal dispersion of respondents between associate, baccalaureate, and master level degrees across the three major categories indicates a uniform interest in the concept of advanced practice in the profession regardless of educational background. The limited opportunities for clinical advancement in respiratory care may result in a portion of practitioners exiting the field prematurely. With the majority of respondents having the RRT credential along

with having at least one specialty credential, it could be interpreted this population realizes the value of advancement and continued growth within the profession. This finding coincides with the national majority (61.5%, $n=141,875$) of all respiratory therapists holding the RRT credential.¹⁸ The results reflect a strong agreement among practitioner and educators that RTs could adequately perform as mid-level practitioners after formal education. This could be due to the belief the discipline is becoming more professional and less technical and therefore, current RTs are attempting to meet the demands of an ever-changing health care environment through clinical specialization.

Educators in this study did not feel as strongly about having mid-level practitioners or physicians providing all clinical training for APRT students. A possible interpretation of this finding is that respiratory care educators feel they could also provide adequate clinical training for an APRT program. A majority of respondents indicated they had considered pursuing a PA degree. This consideration corresponds with a study by Douce and colleagues reporting that 97% of BS level RT students from 20 colleges and universities in 16 states indicated an interest in a clinical Master of Respiratory Therapy program.¹⁹ One explanation for why so many practitioners have considered a PA program is because there is currently no clinical respiratory care counterpart. Growth in the number of RTs with graduate degrees may impact how others recognize the profession in the future.²⁰ Practitioners were more likely than educators to consider this option, potentially because of their current clinical practice responsibilities. The results yielded an overwhelming preference for enrollment in an APRT program versus a PA program if the two were equally reimbursable and comparable in income. This finding could be indicative of respiratory care practitioners desiring to stay within their respective field of study, but with advanced training and education.

A predominate number of respondents believe that a master's degree should be the minimum level of education preparation for the APRT; although, educators felt more strongly in this regard. This could be a result of most educators are already teaching at the baccalaureate and graduate level or due to a familiarity with the entry-level degree requirement for other allied health mid-level providers (e.g., master level preparation for PAs and NPs). The respondents preferred a bachelor's degree that is specific to the profession as opposed to a non-specific bachelor's degree, along with the RRT credential, as the preferred admission criteria for an APRT program. This finding coincides with a study that found respiratory care managers valued baccalaureate completion in respiratory care more highly when compared to other non-respiratory specific bachelor's degrees, such as management and business.²⁰ Little emphasis was placed on

NBRC specialty credentials as a requirement for entrance into an APRT program by both practitioners and educators. This could be due to relatively small percentages of overall practitioners who hold specialty credentials. According to the NBRC's latest examination statistics (2015), out of 230,506 credentialed practitioners, 5.6% ($n=13,043$) hold the CPFT, 5.4 % ($n=12,488$) hold the NPS, 1.8% ($n=4,365$) hold the RPFT, 0.4% ($n=984$) hold the ACCS, and 0.1% ($n=315$) hold the SDS credential.¹⁸

There was no particular agreement on the number of minimum clock hours of clinical training experiences that an APRT program should require for graduation; however, 750 hours was the majority preferred by both practitioners and educators. Respondents ranked third party reimbursement as the biggest obstacle that must be overcome for the development of the APRT and thus should be a primary focus if the profession is to move successfully in this direction. The greatest driver for becoming an advanced practice respiratory therapist in this study was the desire for enhanced clinical practice. This finding speaks volumes about the individual practitioners in respiratory therapy. The primary reason for wanting to become an APRT is not necessarily for personal reasons but for enhanced clinical practice which facilitates one of the goals of the profession: improved patient outcomes. The clinical setting for which the skills of APRTs could best be utilized was viewed by respondents to be inpatient pulmonary and critical care medicine. This may be a reflection of the majority of RTs working in the acute care, inpatient hospital setting and working closely with pulmonologists and critical care intensivists.

Conclusions

This study suggests that practitioners and educators alike are strongly supportive of advanced practice in the profession of respiratory therapy. Regardless of level of educational preparation, advanced practice is perceived as important to most RTs. A large percentage of practitioners in this study are currently contemplating or have considered attending a PA program. This study found the perceptions of RTs to be, if given a clearly defined pathway, they could transition into the role of physician extenders or mid-level providers.

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Appendix A

Dear Respiratory Therapist and/or RT Educator,

We are conducting a study entitled, “Respiratory Therapists as Physician Extenders: Perceptions of Practitioners and Educators” and we are asking for your voluntary participation in an effort to identify the views of current practicing therapists and educators regarding the role of RTs as physician extenders or mid-level providers. The American Association for Respiratory Care (AARC) has categorized this potential practitioner as an Advanced Practiced Respiratory Therapist (APRT). This short survey should only require about 10 minutes of your time and we would greatly appreciate your thoughts and input concerning this potentially new concept and opportunity in Respiratory Care. Please click on the link provided and it will take you to the electronic survey. Thank you!

Kindest regards,

Study staff (Dr. Shane Keene, Mrs. Kristen McHenry, Dr. Randy Byington, and Mr. Mark Washam)
<https://www.surveymonkey.com/s/9LTSBZQ>

Respiratory Practitioners and Educators Perceptions of Advanced Practice

For the first seven questions, please indicate the answer that best represents your current characteristics.

1. What is your gender? Male Female
2. How many years of experience do you have as a licensed practitioner in Respiratory Care?
 0-5 years 6-10 years 11-15 years 16-20 years 21-25 years over 25 years
3. If you are a Respiratory Care Educator, how many years of experience in teaching do you have?
 0-5 years 6-10 years 11-15 years 16-20 years 21-25 years over 25 years
4. Are you a licensed CRT or RRT? CRT RRT
5. If you have obtained a specialty credential, please specify how many you have earned?
 1 2 3 4 5 6+
6. What is your highest level of education obtained?
 Certificate Associates Bachelors Masters Doctorate
7. If you are a Respiratory Care Educator, what degree is awarded by the RT program in which you teach?
 Associates Bachelors Masters Not applicable

For questions 8-11, please indicate which answer identifies with your strongest preference.

8. RTs that have undergone formal advanced training and education could adequately perform the medical activities typically carried out by mid-level practitioners or physician extenders.
 Strongly disagree Disagree Agree Strongly agree
9. All clinical training of the APRT student should be provided by mid-level practitioner(s) and/or medical doctor (Pulmonologist, Critical Care Intensivist, and Anesthesiologist).
 Strongly disagree Disagree Agree Strongly agree
10. I have considered pursuing entrance into a Physician Assistant program.
 Strongly disagree Disagree Agree Strongly agree
11. If the Advanced Practice Respiratory Therapist and Physician Assistant were equally reimbursable and were comparable in income, I would rather enroll in a PA program.
 Strongly disagree Disagree Agree Strongly agree

Appendix A
(continued)

For questions 12-14, please indicate the answer in which you are in most agreement.

12. What should be the minimum level of education for the Advanced Practice Respiratory Therapist (APRT)?

Bachelors Masters Doctorate

13. The pathway to admission into an APRT program accredited program should be at a minimum be:

BS in respiratory, RRT

BS in respiratory, RRT, plus at least 1 NBRC specialty credential

Non-RT specific BS degree, RRT, plus at least 1 NBRC specialty credential

Non-RT specific BS degree, RRT

14. What are the minimum clock hours of clinical learning experiences that an APRT program should require for graduation?

500 hours 750 hours 1000 hours more than 1000 hours

Please rank the following answers by assigning the most significant barrier a ranking of 1, the next most significant barrier a ranking of 2, and so forth.

15. What do you feel are the potential obstacles/barriers to the development of and implementation of the APRT?

_____ Licensure laws

_____ Third party payer

_____ Scope of practice

_____ Acceptance from current mid-level providers

_____ Acceptance from current physicians

Please rank the following answers by assigning the biggest motivator a ranking of 1, the next biggest motivator a ranking of 2, and so forth.

16. What would be your biggest motivator for pursuing the APRT?

_____ Monetary reward/income

_____ Flexibility in schedule

_____ Job security

_____ Enhanced clinical practice

_____ Peer recognition/respect

Please rank the following answers by assigning the most preferred clinical setting a ranking of 1, the next most preferred clinical setting a ranking of 2, and so forth.

17. The APRTs skills and knowledge would best be utilized in what type of clinical setting?

_____ In-patient pulmonary/critical care medicine

_____ Out-patient clinics

_____ Physician practices

_____ Home care

_____ Preventative medicine/community education

Thank you for your time! Should you have any questions regarding any of the study questions, feel free to contact a member of the research team.

The Transitional Experience of Therapist to Educator

Jennifer L Gresham-Anderson EdD RRT-NPS

Abstract

Background: Respiratory care programs often hire clinical therapists into new faculty positions. These clinicians typically have excellent clinical skills and often are seeking or have earned a graduate degree. However, few new educators have formal preparation for teaching or working in the academic world. This qualitative study investigated the transitional experiences of respiratory therapists who pursued a second career as respiratory care educators. The purpose of this study was to explore the lived experience of respiratory therapists as they transition from clinical therapists to educators. **Method:** Purposeful sampling was used to select 11 junior respiratory faculty from across the United States who had taught less than five years in a baccalaureate degree program. Each participant had previously worked as a clinician. Semi-structured interviews were conducted with each participant. **Results:** Thematic analysis revealed five common experiences: under-preparation, challenges, overwhelmed feelings, personal responsibilities, and rewards. **Conclusion:** From this study, respiratory care department chairs and school administrators may better understand the challenges and needs of new faculty as they transition from clinician to educator. Positive experiences such as improved orientations and effective faculty support may promote a more rewarding and long-term career for new faculty.

Key words: New respiratory care faculty, transition experience, respiratory education, second career respiratory practitioner

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Introduction

Higher education is not a traditional career path for most respiratory therapists. When a respiratory therapy practitioner chooses to become an educator, the transition into the culture of academia can be challenging along with having feelings of inadequacy due to lack of formal training in education. It is important to develop an understanding about how new respiratory faculty conceptualize their roles, are socialized into the profession, and how they develop professionally.¹ Respiratory faculty members are often recognized as clinical experts and most have either earned or have a desire to earn an advanced degree. However, few have formal preparation for teaching or working in an academic setting. Having the status as clinical expert does not assure one will be an effective teacher.

Colleges and universities often assume faculty they hire are effective teachers, competent researchers, and active participants in academic life.² It may be difficult for some new educators to transition from clinical practice to teaching and research.³⁻⁵ New faculty may find their transition to higher education difficult and confusing because of anxiety of what the role of faculty member should be. Different environments require them to emphasize different elements of their identity. People move from place to place carrying a piece of each community to their new environments. In other words, when a respiratory therapist enters academia it does not mean he/she ceases being a respiratory therapist by leaving the hospital. New faculty members tend to hold on to their existing identities as clinical practitioners rather than embrace new identities in academia.⁶

The profession of respiratory therapy faces a shortage of respiratory care faculty. A nationwide survey of respiratory therapy education program directors found that the expected number of respiratory therapist graduates per program is expected to increase by 25% over the next decade.⁷ To add to this challenge, the American Association for Respiratory Care (AARC) 2009 Human Resources Survey reported that 75% of respiratory therapy faculty from accredited programs will retire by 2020.⁸

The purpose of this study was to gain a deeper understanding of the transitional experiences of new respiratory care faculty who entered academia. As existing respiratory care faculty retire and the need for additional faculty continues, it will become important for colleges and universities to find ways to promote academia as a rewarding career choice for respiratory therapists. Previous studies on clinicians transitioning into allied health academia has focused on transitional experiences of faculty across a wide range of disciplines.^{1,10-12} No published studies of the transition experiences of respiratory care faculty were found.

The Transition Experience

A number of feelings are evoked during the transition from one role to another. Transitioning into a new faculty role is overwhelming for most new faculty and even greater stressor for healthcare faculty with little to no experience as faculty in academia.¹³ Rosser and King concluded that role transitions are often hindered by unrealistic high expectations since any role transition creates anxiety which is exacerbated when tied with transition into a stressful specialty.¹⁴ Anderson conducted a study which presented insight of clinical experts transitioning into higher education. This qualitative study involved 18 nurse practitioners and clinical nurse specialists in their first or second year of teaching in bachelor degree programs in the Midwest. Anderson concluded that it is important to understand that being a clinical expert can help facilitate transition into higher education, however mentoring, orientation, and workload considerations when entering academia should be based on individual experience.¹⁵

Theoretical Framework

Situated learning theory provide a useful theoretical framework for understanding academic environments.¹⁶⁻¹⁷ This theory focuses on how individuals acquire professional skills by learning in a new environment. Situated learning takes as its focus the relationship between learning and the social situation in which it occurs. The main idea of situated learning theory is the relationship between individuals and communities through engagement and practice.¹⁸ According to Lave and Wenger, there is a need to focus on professional learning that is rooted in the workplace context and on the learning of new professionals as they are socialized with experienced colleagues within a community of practice.¹⁹ Such an approach has identified the importance of the quality of informal daily interactions for professional learning of new faculty.¹⁶ Since teaching is not a traditional role for respiratory therapists, new faculty often learn how to teach and about the role of being a faculty member by on the job training. Many new faculty members are not mentored as they transition into their new roles.

In addition to situated learning theory, workplace learning literature emphasizes the need to understand communities of practice within an organization.²⁰ Wegner presented a model for professional learning of new professionals to complex work-place communities of practice and this study is a small-scale response to the proposal. Wegner considered that people define who they are through compromise and reconciliation as related to varying positions of membership of multiple communities. New educators who choose to leave familiar environments such as a clinical setting to move into the unfamiliar and sometimes overwhelming world of academia can often feel isolated and unsupported.²¹

Methods

A phenomenological study design was used to investigate the transitional experiences of respiratory care educators. A phenomenological study attempts to understand people's perceptions, perspective, and understandings of a certain situation or experiences.⁶ The goal of qualitative phenomenological research is to describe a "lived experience" of a phenomenon. A phenomenological approach was determined ideal because it was the intent of the study to determine how participants experienced the transition from respiratory practitioner into the educational setting. According to Finlay:

"Phenomenological research begins with substantial descriptions of lived situations, first-person accounts, and avoids generalizations. The researcher proceeds by analyzing these descriptions, perhaps ideographically first, and then synthesizing. General themes are identified about the essence of the phenomenon. The phenomenological researcher aims to go beyond surface or explicit meanings to read between the lines so as to access implicit dimensions and intuitions."²²

The research questions driving the underpinnings of this study are:

1. How do new respiratory care educators perceive their transition experiences?
2. How do new respiratory care educators feel and experience their new professional identities?
3. How do new respiratory care educators experience institutional environments?
4. How do new respiratory educators experience professional relationships in the college setting?

A qualitative research approach was used to attempt to seek answer to these research questions. Qualitative research enables the researcher to gain insight about a particular phenomenon, develop new concepts or perspectives about the phenomenon, or discover issues that exist within a phenomenon.²³

Qualitative Research

Qualitative research focuses on the process as well the outcome. Meanings and interpretations are negotiated with human data sources because it is the subjects' realities that the researcher attempts to recreate.²⁴ According to Merriam, qualitative research has five significant characteristics: "First it is interested in the meaning that people have gained from their experiences; second it utilizes the researcher as the vehicle for gathering and analyzing data, third it involves field work; fourth it is an inductive research strategy and finally,

it produces a product that is richly descriptive"²⁵ This study mirrors the characteristics stated by Merriam. The purpose of the study was to investigate the transition experiences of new respiratory care faculty. The goal of the study was not to test a previously developed theory, but rather to understand the transition experiences for new faculty.

Participants

Participants were selected from baccalaureate degree programs across the United States. Program directors of 49 Commission on Accreditation for Respiratory Care (CoARC) accredited Baccalaureate degree respiratory care programs were e-mailed and were requested to forward the e-mail to faculty who met the research criteria. Inclusion criteria for this study included participants being full time respiratory care faculty who had taught in baccalaureate degree programs five or fewer years. In addition participants had to agree to a recorded interview lasting one to two hours and agree to follow up a phone call for clarification purposes if necessary.

IRB Considerations

In order to protect the identity of the participants they were are not identified by name or by the school where they teach. Recordings and notes were kept secured in a locked area that could only be accessed by the researcher. Participants signed an IRB consent form prior to participating in the study. Their participation was voluntary and they did not receive compensation for being enrolled in the study. Interviewees were notified that, if they were uncomfortable with any of the questions asked, they could terminate the interview or request the investigator to move onto the next question. Participants were also given the choice to end the interviews at any time.

Instrumentation and Data Collection

The method for data collection was semi-structured interviews that were audio recorded and transcribed (Appendix A). Fifteen questions were prepared and used to guide the interviews. Questions were created and validated by a focus group of respiratory care educators. Additional questions for clarification, such as, "Can you expand on that issue?" or "How did that make you feel?" were also asked during the interviews.

Basic demographic information was obtained by having participants complete a demographic sheet prior to interviews. The sheets were distributed and returned via e-mail. Interviews were conducted between October and November of 2013. Semi-structured one hour interviews were conducted with the participants via Skype or in person at the 2013 AARC Congress in Anaheim, California. Ideally all interviews would have been done in person; however, due to distance, time, and cost, the

researcher had to rely on using Skype for selected interviews. The researcher encouraged participants to give a full description of their transition experiences, including their thoughts, feelings, images, sensations, and memories, along with descriptions of the situations in which the experiences occurred. The researcher listened closely as participants described their daily experiences related to their transition to higher education. As interviews were carried out, trends, themes, and patterns were identified in responses from the participants. Inferences based on the newly acquired information were continuously made. The data-gathering process continued until a continuous feedback loop between data, data analysis, results, and conclusions occurred. At this point information saturation in sampling was obtained.

Data Analysis

Since the study explored the experiences of new respiratory care faculty members, data analysis was thematic and interpretive. The interview recordings were transcribed by the investigator. NVivo 10 Research software was used to assist with coding data. Field notes obtained during the interviews were also analyzed for meaning of ideas, and feelings. Open coding, which is the process of naming or labeling phrases and words, was performed while exploring the data. Axial coding was then performed. Axial coding is the process of matching codes with common themes or relationships, and selective coding allowed the investigator to choose core categories or themes that emerged from the data.²⁴

Various means were used to identify and develop an overall description of second career respiratory transition experiences as they experience it to develop themes. The final result was a general description seen through the eyes of new respiratory who had recently experienced transitioning into a new faculty role.

Verification

Phenomenological research is typically subjective in interpretation. The primary strategy that was utilized in this study to ensure validity was the provision of thick, rich, detailed descriptions so that anyone interested in transferability will have a framework for comparison.²⁴ All participants verified the transcripts and three of the eleven participants gave additional feedback which deepened the findings. The participants were notified on the consent form that the researcher might contact them after the interview to clarify their answers or comments.

Results

The semi-structured interviews lasted approximately one hour and were conducted individually. Four of the interviews were conducted in person and seven of the inter-

views were conducted via Skype. The study had a broad representation of faculty from all over the United States. All participants met the inclusion criteria.

Seven of the participants were male and four were female. All but one participant held a master's degree. One participant was enrolled in a master's degree program and three participants are currently pursuing doctoral degrees. All participants stated they identified most with the Caucasian, non-Hispanic ethnic group. The ages of the participants ranged from 30-58 years. Prior to teaching, the participants practiced as full time respiratory therapists ranging from 3-31.5 years. In addition to their faculty roles, five of the eleven participants still practice in the hospital as a respiratory therapist.

The participants were all willing to be interviewed and seemed excited to be able to tell their stories and have someone listen. They gave their time willingly and seemed eager to participate in the study, regardless of the lack of incentives or compensation. The participants seemed interested in the researcher's goals and the purpose of the study, hoping to contribute to positive changes in how new respiratory faculty may acclimate to their roles. Each of the participants discussed how the transition experience had affected their lives. It was clear that they enjoyed their work as a faculty member and wanted to make a positive difference in students' lives. During the interviews, participants expressed their feelings, offered constructive feedback on positive and negative experiences, and discussed how it could have been better. They had comments on what would improve the transitional experience for the respiratory therapist becoming a new faculty member. All of the participants appeared to be open and honest in their responses.

Transcripts from each interview were sent back to each interviewee for reaction and accuracy of his or her response. Most interviewees concurred with the accuracy of his or her responses. Three of the eleven participants gave additional feedback, which helped to clarify the findings. The transcription resulted in approximately 52 double-spaced pages of data. Open coding resulted in eleven pages of identified codes. Interpretation of the emerging themes enabled the investigator to draw meaning from the data, leading to understanding about the participant's experiences. The list of themes and sample comments are compiled in Table 1 and discussed below:

Table 1
Emerging Themes

Theme 1	Underprepared
Theme 2	Challenged
Theme 3	Overwhelmed
Theme 4	Personal Responsibility
Theme 5	Reward

Underprepared

All but one participant felt underprepared as they transitioned from practitioner to full time educator. All participants were recognized as clinical experts and all but one had a master's degree. "I had no formal teaching education" and "teaching is learned" were reoccurring statements. Several participants expressed their frustration through comments such as: "there was not a lot of teaching mentorship a lot of it was trial by fire," and "I felt like I was tossed to the wolves." Other comments suggested coping strategies like, "self-teaching," "fumbling through it," and "I stayed one chapter ahead." Clearly, transitioning into the role of new faculty takes time and "it is helpful if you have support" and "there needs to be better orientation for incoming faculty. One participant supported this with the following statement:

"There are many things that are taught in school that is not really applied in the clinical setting an example of this is formulas. I have been out of school for 17 years and some of the information that I learned in school has been forgotten. Like many new faculty I have had to relearn some of this information."

In contrast, another participant had formal preparation for teaching and working in the academic world. The participant had a professor in his master's degree program that helped to mentor him on research and the academic environment. He stated, "I knew what I was getting into." He also participated in a program for new tenure track faculty along with being assigned a mentor. The other ten participants felt a lack of direction and felt a structured orientation about their program that included how to write exams, how to effectively use technology, use online software, handle difficult students and write a course syllabus.

Six out of the eleven participants stated they would have preferred to have had been assigned a mentor. Most participants who did have mentors sought them out. They also relied on other faculty members and program directors for support. All but one participant felt they could have been better prepared for the transition through education, orientation, and mentorships.

Challenged

All participants transitioned into academia as clinical experts in the field of respiratory care. Many were in leadership roles, such as, managers, directors, and hospital educators. The participants were used to challenges in the hospital setting. However, when they transitioned into academia they experienced different kinds of challenges. They used emotional charged words to describe their feelings during

the transitional experience. During the interviews participants talked about having self-doubt and feeling anxious, nervous, uncomfortable, and frustrated when they described their transitional experiences. When respiratory therapists provide therapy or treat a patient they receive feedback fairly quickly. Clinicians know whether the treatment or intervention made a difference for the patient. In education, faculty members do not always receive instant feedback on how effective they are in the classroom. This posed a challenge for participants as they made the transitioned into academia. Participants felt challenged when they had to use materials from previous instructors. Their initial interactions with students were also challenging as they transitioned into their new roles. One of the participants' reflections included the following:

"I think that being an educator is more difficult than being a clinician. It is difficult because I don't get rapid feedback, as clinician I get feedback that is more instant. In the hospital if you fix something you see it get better or worse. Now it is more of slower process to get feedback. I only hope the signal that I am sending is positive. I can't gauge if I am a good educator. It is a personal issue. I wish I had a meter to measure my effectiveness as an educator."

Overwhelmed

Nine out of the eleven participants felt overwhelmed as they transitioned into their new faculty roles. Many of them talked about feeling overwhelmed because they felt as though their job was never completed. Often times they took work home and worked on course work on weekends, which added to their feelings of being overwhelmed. Most participants stated they work more than 40 hours per week. One participant stated, "Full time clinical practitioners do not worry about exams, students, books, etc. at the end of shift they clock out and go home." Another interviewee said, "I don't want to work this hard for that long." While learning their new jobs, many participants stated, "they are also required to participate on committees and begin research projects." Four participants were also working on advanced degrees in addition to their new jobs. Participants felt overwhelmed and had difficulty finding a work life balance. Representative comments included:

"I was overwhelmed with teaching at first and had to figure things out. I got my master's degree while teaching and had to juggle learning the position and master teaching all at the same time. It was hard."

“I would like to have had the first year to concentrate on teaching and not as much research. I would have liked to have started on research during my second year. That added a lot of pressure especially coming from a clinical setting. I had an idea of my research agenda but I was not sure.”

“It was hard trying to juggle and get everything done. Whether you are ready or not the next day you have to be ready to present. You can’t say sorry guys I don’t have anything to tell you because I have not had to come up with anything.”

“There are days I question maybe going back to working clinically is not a bad idea. High expectations are placed on new faculty. My program chair burns the candle on both ends and expects his faculty to do the same. It is difficulty with my family life right now. Sometimes, I think maybe I had a misconception. I thought teachers had summers off. Then I got into this position and the reality hit. Maybe the reality expectations should be clearer for new faculty. I was not told that I would have to do research, service, and teaching. There should have been a clarification of the expectations. The first year was frustrating because I didn’t know what to focus on.”

Personal Responsibility

As the participants transitioned into their new role some felt a great personal responsibility for the success or failure of their students. Respiratory therapists have a tendency to want to help everybody, as they do in the hospital environment. Participants felt a sense of responsibility to make sure their students are capable to enter the clinical environment. They also felt like it was their ultimate responsibility to help students pass credentialing exams. If a student did not do well in a course or on an exam participants felt such emotions such as: “it is my fault” or “I have failed them.” Participants placed a great deal of pressure on themselves for the success of their students. They were all passionate about seeing their students succeed. Below are comments that represented their passion about seeing students succeed:

“I want to change lives of students and the profession. As an educator I get to

have a big impact on the profession while impacting patient care positively. If we get better at what we do the patients will benefit most.”

“I did not like telling students that they had to alter their life plans because they failed. It does get easier. In education you feel a connection with the students. The transition can be daunting but it can be an opportunity to encourage a person maybe you otherwise would not have been able to.”

Reward

When asked how long to you plan to continue teaching all participants indicated that they would like to make “a career out of it” or “retire from teaching.” However, several participants had some reservation. They stated they would reevaluate their effectiveness yearly as an educator. While the transition from clinical practitioner to full-time faculty member has been difficult for most participants they indicated that they enjoyed their jobs and feel their jobs are “rewarding.” They also like the flexibility of the hours of the job. The participants also found reward in the status of being a professor. During the interview one participant said, “In academia I have more time and opportunity to help make changes.” He also stated, “these opportunities keep me vested and interested.” Overwhelmingly, participants indicated that seeing students succeed and achieve goals are the biggest rewards. The participants noted:

“I enjoy being an educator. I feel my passion lies at the moment when I see a light bulb go off. I want to change lives of students and the profession. I like to think I get to have a big impact on the profession while impacting patient care positively.”

“I am kind of like a proud mom. I like seeing light bulbs go off and seeing their enthusiasm.”

“I even go to commencement when I don’t have to. I enjoy the handshake at the end of the program. It makes me feel like I made a difference.”

Discussion

Participants struggled with the transition experience of becoming new faculty and oftentimes felt underprepared,

challenged, and overwhelmed. They also felt a sense of personal responsibility for their students. The interviewees enjoyed the rewards of seeing students succeed and achieve their goals. It should be noted that the feelings of being underprepared to teach are not unique to new respiratory care faculty. This is a common feeling among most new faculty.²⁶⁻²⁷ Findings revealed participants wished they would have had structured orientations, been assigned mentors, and had protected time for learning their new role. Participants felt this would have helped to make their transition experiences smoother.

Limitations

This study had several limitations that included some interviews were conducted using Skype. This prevented the research from seeing all non-verbal communications, which limited the richness of the interview experience. The researcher addressed this limitation by increasing the number of interviews conducted. A further limitation existed, as this was a qualitative study of experiences; the findings cannot be generalized with the assumption that all new respiratory care faculty members had the same experiences. Qualitative research does not provide the breadth that a quantitative study with a larger sample size would. Yet, by conducting a qualitative study deeper insight into the lived experience of second career respiratory care faculty was found.

Assumptions

The researcher recognized that she might have had assumptions that needed to not influence the interviews and analysis. Her experiences in making the transition from respiratory therapist to full time faculty member was recent enough that she remembered how she felt during the experience. During the study the investigator put aside her assumptions of what the participants would say and the experiences she thought they would have.

Conclusions and Recommendations

Thematic analysis revealed five common experiences: under-preparation, challenges, overwhelmed feelings, personal responsibilities, and rewards. The common theoretical framework for all participants was the critical need to understand their communities of practice within their organizations. University administrators and respiratory care program directors need to recognize the importance of smoothing the transition from practitioner to educator. This study provided significant insight into the lived transition experiences of new respiratory care faculty members. The information provided by participants will be helpful finding

ways to support new faculty members. Based on what was discovered from these interviews, a series of recommendations were developed for higher education leaders for enhancing the transition experience of new respiratory care faculty.

The first recommendation is for respiratory care program directors to provide a personalized orientation and training for new faculty. New respiratory care faculty members who come from a hospital setting are accustomed to structured orientations and policies. Unlike new graduate respiratory therapists who are closely monitored in early days of practice, novice faculty often have to figure things out on their own or look for answers from more experienced colleagues. The study concluded that participants felt underprepared as they transitioned into their new faculty role. As mentioned above, the feeling of being underprepared for teaching is not unique to new respiratory care faculty. Like most new faculty, participants found themselves self-teaching and maneuvering job duties on their own. It is essential to provide structure and guidance that many of the participants mentioned that they needed. Program directors should assess new faculty's comfort level various components of their jobs such as online teaching software, writing a syllabus, developing curriculum, counseling students, and campus resources. Not every new faculty has the same needs so it is essential to design and tailor the orientation plan to the individual. Participants mentioned that formal orientations would have been helpful in transmission of information about the institution, policies and procedure, and typical classroom pedagogy. It should also be noted that most of the participants wanted personalized training and orientations that would last throughout the first year of teaching.

The second recommendation is to provide new faculty with assigned mentors to guide them through the transition process. During the first few years of a faculty appointment, the potential for both stress and rewards is great. New faculty must learn new skills and are faced with new expectations for performance and advancement of their campus environment. While the participants felt supported several mentioned that it seemed like the senior faculty and program directors were often too busy to spend quality mentoring time with them. Several participants mentioned that they would have liked to have someone evaluate them as new educators and provide on how they were progressing in their new role. Providing feedback may help new respiratory care faculty feel more comfortable and smooth the transition. Lastly, mentors should work with new faculty and help them cope and understand the feelings of taking personal responsibility for their students.

The final recommendation is to provide new faculty with protected time. Participants often times felt overwhelmed as they juggled the demands of their new job. They mentioned it was difficult finding a good work life balance. They often worked over 40 hours a week and took work

home with them. If possible, it would be beneficial if new faculty had appropriate teaching loads to allow for a smooth transition as a teacher. This would allow second career faculty time to learn their new roles, work with their assigned mentors, and to participate in new faculty training.

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Appendix A

Interview Protocol

General Introduction:

Thank you for your willingness to participate in this study. The interview should take approximately one to two hours. There are several questions I have prepared for this study. I may ask additional questions for clarifications such as, “Can you expand on that issue?” or “How did that make you feel?” If you are uncomfortable with any of the questions I ask, please let me know immediately and I will move to the next question. You may choose to end the interview at any time. Your responses will help to provide insight into the transition experiences of second career faculty. Please understand that your identity will be kept confidential, and your responses to any of the questions will not be reported in a way that could reveal who you are or the university that you are employed by. Do you have any questions before we begin?

I would like to ask you some questions about your experiences as a new respiratory faculty member:

1. What motivated you to leave a position as a respiratory therapist to become a full time respiratory instructor?
2. Do you feel that your education has prepared you for this role?
3. Did you participate in an orientation program? If so did this help to prepare you for your new faculty role?
4. What type of support do you feel has been available to you in your faculty role?
5. What other support might the university provide that would greater assist you?
6. How well do you feel your department chair has prepared you for your teaching assignments?
7. How would you describe your interactions with your peers and supervisor?
8. How would you describe your interactions with your students?
9. How is this experience similar or different from your experience working as a respiratory practitioner?
10. What is the worst experience you have had as a new faculty member?
11. What is the best experience you have had as a new faculty member?
12. Do you have any regrets about your decision to move into the faculty role?
13. If you could, would you change anything about your job?
14. How long do you plan to continue teaching?
15. What experience or feeling do you think is important for me to know that you have not yet had the opportunity to express?

Concluding Remarks:

Thank you again, for your time and willingness to participate in this study. I will be reviewing my notes from the interview and may contact you again if I have further questions. If any questions arise do not hesitate to contact me. Here is my card.

Leadership Style of BS/MS Respiratory Care Program Directors and the Association with Student Graduation Rates, Job Placement, Program Attrition, and CRT vs. RRT Credentialing Achievement According to the Commission on Accreditation for Respiratory Care (CoARC)

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Abstract

Introduction: Respiratory care educators are responsible for preparing students for a career in health care by providing effective education and clinical experience. The objective of this continuation study was to evaluate whether there is an association between bachelor and master-level respiratory care program director's leadership style and program outcomes, which included: student attrition, graduation rates, job placement, and pass rates for CRT/RRT credentialing exams. **Methods:** A researcher-designed questionnaire (RDQ) and the Multifactor Leadership Questionnaire (MLQ) were distributed to a sample of baccalaureate and master-level degree respiratory care program directors in the United States. Information obtained from the RDQ was analyzed using descriptive statistics. The MLQ scores for each leadership trait were averaged and then analyzed via Spearman's rank-order correlation against each program outcome. **Results:** The survey response rate was 45%. Data analysis revealed a negative relationship between graduation rates and passive management-by-exception ($r = -0.476, p < 0.05$). A positive association between employment rate and laissez-faire leadership style ($r = 0.463, p < 0.05$) was found. There was a negative correlation between RRT pass rate and active management-by-exception ($r = -0.410, p < 0.05$). There was a negative association between RRT pass rate and passive management-by-exception ($r = -0.407, p < 0.05$). **Conclusion:** Significant correlations were found between leadership traits and program outcomes. In addition to leadership approach, further research regarding teaching methods and program curriculum may shed more light on the educational approaches that are associated with improved outcomes in respiratory care education.

Key Words: leadership style, respiratory care, respiratory therapist

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Introduction

The respiratory care field is transitioning the workforce by establishing potential new roles and responsibilities for respiratory therapists. The always-expanding approaches for disease management are often evaluated and utilized. The overarching goals for the respiratory care profession, according to the *2015 and Beyond* conferences, are to enhance education and to expand competencies to ensure safe implementation of respiratory therapy duties. Respiratory care educators are on the forefront of preparing respiratory therapy students for these expanding roles, and aiding in the establishment of successful future careers.¹

Respiratory care is revolutionizing the way it manages care and is becoming more data driven. As a result, respiratory therapists must become more mindful of current literature and be willing to use new discoveries in clinical practice.¹ Respiratory care students will play an important role in enhancing patient care as future therapists by remaining knowledgeable of current literature. Students will benefit from the appropriate type of guidance and leadership in order to achieve the above goals. Consequently, this study examined whether program directors' instructive approach and leadership style are associated with program outcomes.

The Multifactor Leadership Questionnaire Form 5X-Short (MLQ-1995) assesses leadership behaviors and how commonly they are exhibited. The leadership constructs within the MLQ identify three distinct leadership styles (transformational, transactional, and passive/avoidant) and related traits ranging from unreceptive leaders to involved leaders who strive to provide students with essential skills for success in respiratory therapy.² Transformational leadership involves sharing important knowledge with students, who in turn take that knowledge and make it his or her own.³ Transactional leadership involves the educator providing incentives or rewards for specific results from their students. Passive/avoidant leadership occurs when the educator arbitrates only when there is a problem, and offers no feedback or advice for the individual otherwise.³

The purpose of this study was to establish which type of leadership approach was associated with positive student outcomes in respiratory care education at a bachelor and master-level. Due to the advancements in respiratory care education, this study targeted bachelor and master-level degree programs in anticipation of correlations between leadership behaviors and program outcomes. The research question for this study was: Does leadership style of a baccalaureate degree and master-level degree program director impact program and student outcomes, which included: student attrition, graduation rates, job placement, and CRT vs. RRT credentialing success?

Literature Review

Leadership style and associated behaviors have been studied in other allied health fields. In previous works exploring leadership styles and outcomes in occupational therapy, researchers found that transformational leadership had noteworthy affirmative effects on leadership outcomes, which included: extra effort, effectiveness, and satisfaction. Transactional leadership displayed a noteworthy negative relationship to leadership outcomes. Data suggested the leadership behavior contingent reward had positive effects on leadership outcomes despite being a transactional leadership trait. The demographic qualities of the participants did not impact leadership types or results. The combination of transformational and transactional contingent reward leadership approaches was reported to be effective as proposed by Snodgrass et al.⁴ Considering the results of this study and how leadership approach affected outcomes, there is potential that similar findings might occur in related allied health fields such as respiratory care.

In another report looking at job satisfaction in nursing relative to leadership styles, transformational leadership was the most common approach utilized by nursing directors. Nursing faculty were more content with their jobs when nursing directors practiced this transformational leadership versus transactional or passive/avoidant management. Likewise, respiratory care students may be more satisfied with their profession and achieve more success via transformational leadership during their academic and clinical training.⁵ Furthermore, a study conducted by Casida et al. established transformational leadership increased nursing outcomes such as job satisfaction and effectiveness of patient care. The analysis by Casida et al. discussed the option of implementing transformational leadership training for nursing managers due to positive leadership outcomes.⁶ Leadership education for program directors in respiratory care can potentially enrich program and student outcomes.

Additional research in public and private hospitals in Kuwait looked at various leadership approaches. One study found that transformational leadership methods were associated with high-quality work, employee contentment in their careers, and enhanced leadership value.⁷

Skinner et al. studied how personal characteristics, such as emotional intelligence, had an influence on leadership style. Empathy, which is the ability to understand another's feelings, can be demonstrated during leadership skill development. Three empathy scales (empathic concern, perspective taking, and empathetic matching), displayed a positive correlation to transformational leadership. This type of guidance motivated health staff to accomplish more than they had originally anticipated. An educator's ability to

understand a student's feelings and thoughts may result in a new leadership style or educational approach.⁸

A study conducted by Barnes et al. suggested more positive outcomes in baccalaureate programs versus associate-degree programs. For example, baccalaureate programs teach evidence-based medical protocols and general statistical test analyses more often than associate-degree programs. This variation in outcomes may be due to imposed time constraints, leadership approach, or a shorter curriculum in associate degree programs versus baccalaureate programs.⁹

Bartel et al. conducted research utilizing the MLQ with associate, bachelor's, and master-level respiratory care program directors with survey responses self-reported for both the MLQ and a demographic survey. The results indicated program directors demonstrated predominately transformational leadership behaviors. Moreover, respiratory care program directors that exhibited transformational leadership behaviors often put forth more effort in their positions in order to benefit their students. Bartel et al. found no significant correlations between transactional and passive/avoidant leadership behavior and program outcomes (e.g., attrition, graduation rates, employment, and CRT and RRT exam pass rates).¹⁰

The present study is a continuation study of Bartel et al., and differed in the targeted sample population and the source of program outcome data. The majority of the Bartel et al. study responses were directors of associate degree programs.¹⁰ The current study built upon the Bartel et al. model but excluded associate degree program directors to determine if higher-level educational program (e.g., BS and MS), director's leadership approach impacted respiratory care program outcomes.

Methods

At the time of this study there were 442 accredited respiratory care programs in the United States.¹¹ This study specifically targeted program directors of baccalaureate and master-level programs in 2013. There were three accredited master-level degree programs and 57 baccalaureate programs in the United States.¹¹ The goal was to receive a response rate of 100%. Contact information from program directors was acquired from the Commission on Accreditation for Respiratory Care (CoARC) website. All CoARC-accredited baccalaureate and master-level degree respiratory care programs and their directors in the United States were included in the study. Programs were excluded if they were not accredited by CoARC or if they were located outside of the United States. This research project was approved by Rush University Medical Center's Institutional Review Board.

Data Collection Instruments

All program directors received a pre-survey telephone call in order to establish a level of interest in their participa-

tion for completing the survey and make recruitment more personalized. The directors who agreed to contribute to the study received via email a researcher-designed questionnaire (RDQ) to collect demographic information and the MLQ instrument by Avolio and Bass.² Mind Garden granted permission for the authors to utilize the MLQ for this study.

Using the RDQ, data were collected that included the respiratory care program director's name, gender, age, ethnicity, work place, job title, type of institution, program length, degree or completion, size of institution, highest degree earned, years of respiratory therapy experience, and employment standing (Appendix A). The RDQ was developed based on the Bartel et al. model.¹⁰

The MLQ collected information on each program director's leadership style through 45 questions concerning various leadership behaviors. Transformational leadership traits included attributed/behavior idealized influence, inspirational motivation, intellectual stimulation and individualized consideration.² Idealized influence is demonstrating powerful devotion to goals and encouraging a strong vision. Inspirational motivation is influencing improvement in others and connecting the aims of an institution with that of each person. Intellectual stimulation is promoting critical thinking and making reasonable and careful choices to reach certain objectives. Individualized consideration is attending to other's needs and creating a common future plan.¹²

Transactional leadership traits were contingent reward and active management-by-exception.² Contingent reward is connecting the main objective to rewards.¹² Active management-by-exception is tracking the work and progress of students and interceding when students make a mistake.¹²

Passive and avoidant leadership styles include laissez-faire and passive management-by-exception.² Passive management-by-exception involves interceding when expectations are not met. Laissez-faire is a leadership behavior where the director averts decision-making, avoids his/her responsibilities, and therefore the students have insufficient direction.¹²

The outcomes of chosen leadership approach, whether that be transformational, transactional, or passive/avoidant leadership style, were extra effort, effectiveness, and satisfaction.² Extra effort is the degree in which directors display a work ethic in relation to chosen leadership style. Job effectiveness is the director's affinity to be effective in the workplace.⁴ Satisfaction is how content directors are in their leadership roles.⁵

The MLQ employed a self-reporting Likert scale that determined how the educators viewed themselves as possessing certain leadership traits. The scale ranged from 0 to 4, from "not at all" to "frequently if not always," respectively.² Program and student outcomes for each specific institution were obtained from the CoARC website for the year 2013.¹¹

In regards to the dependability of the data collection instrument, Muenjohn et al. evaluated the reliability and validity of the

Table 1
Description of Sample (N=27)

Variable	Frequency
Male	15 (56%)
Female	12 (44%)
Age	53 years, (range 32-68 yrs)
Highest degree obtained by program director	14 (52%) doctoral, 12 (44%) masters, 1 (4%) bachelors
Type of institution	25 (93%) academic, 2 (7%) clinical
Highest degree of completion for institution	25 (93%) bachelors, 2 (7%) bachelors/masters

Table 2
Correlations Between Leadership Trait and Program/Student Outcomes

Leadership Trait	Attrition	Employment	Graduation Rate	CRT Pass Rate	RRT Pass Rate
Idealized Influence (Attributed)	-0.243	-0.026	-0.185	0.024	-0.088
Idealized Influence (Behavior)	-0.209	-0.155	-0.204	-0.236	-0.030
Inspirational Motivation	-0.233	-0.054	0.019	-0.059	-0.219
Intellectual Stimulation	-0.159	0.063	-0.246	-0.042	0.326
Individualized Consideration	0.032	0.165	0.049	0.034	0.032
Contingent Reward	-0.319	-0.347	-0.094	-0.243	-0.248
Management by Exception – Active	-0.220	-0.189	-0.393*	-0.274	-0.410*
Management by Exception – Passive	0.103	-0.189	-0.476*	-0.218	-0.407*
Laissez-faire Leadership	-0.081	0.463*	-0.157	0.108	0.038

All numbers represent Spearman correlation coefficient (r)

*Marked correlations are significant at $p < 0.05$

MLQ instrument. The findings suggested that the nine-factor model of the MLQ was the most consistent for large or small samples.¹³ The MLQ by Bass and Avolio measured the full leadership constructs of transformational leadership theory. The reliability values were larger than 0.70 with an alpha of 0.87, which signified a satisfactory statistic testing level.¹³

Data Analysis

The participant's RDQ responses were analyzed using descriptive statistics (e.g. frequencies). The MLQ scale scores are average scores for each leadership subgroup. Each leadership behavior was analyzed via Spearman's rank-order correlation against each program outcome (e.g., attrition, graduation rate, employment rate, and CRT/RRT credentialing success). Unlike the pilot work by Bartel et al., program outcome data for the present study were collected from the CoARC website, and not from the program directors themselves.^{10, 11}

Results

A total of 27 program directors responded to the surveys, which yielded a response rate of 45%. Of the 27 directors, 15 were male (56%) and 12 were female (44%). The average program director's age was 53 with an age range between 32 and 68 years. The majority of the program directors held a doctoral degree (52%), with the remaining program directors

held a master-level degree (44%) or a baccalaureate degree (4%). All of the respiratory care programs awarded students a bachelor's degree (100%), but two of the programs also awarded a master-level degree in respiratory care. Of the survey responses, 93% described their establishment as an academic institution, while 7% identified their workplace as a clinical setting. Table 1 displays these descriptive data.

The average scores for each leadership behavior within the MLQ were analyzed via Spearman's rank-order correlation against each program outcome. There was a negative correlation between RRT pass rate and active management-by-exception ($r = -0.410$, $p < 0.05$). There was a negative association between RRT pass rate and passive management-by-exception ($r = -0.407$, $p < 0.05$). Data analysis found a negative correlation between graduation rates and active management-by-exception ($r = -0.393$, $p < 0.05$). There was a negative relationship between graduation rates and passive management-by-exception ($r = -0.476$, $p < 0.05$). A positive association was found between employment rates and laissez-faire leadership behavior ($r = 0.463$, $p < 0.05$). Each leadership trait and their correlation to program and student outcomes are shown in Table 2.

Discussion

The intent of this study was to evaluate the association between bachelor's and master-level degree program director's leadership behaviors and respiratory care pro-

Table 3

Correlations Program/Student Outcomes and Job Effort, Effectiveness, and Satisfaction

Program/Student Outcomes	Extra Effort	Effectiveness	Satisfaction
Attrition	-0.392*	-0.053	-0.085
Employment	0.189	-0.072	0.083
Graduation Rate	0.032	-0.217	0.143
CRT Pass Rate	-0.032	-0.208	0.082
RRT Pass Rate	0.109	-0.057	-0.147

*All numbers represent Spearman correlation coefficient (r)***Marked correlations are significant at $p < 0.05$*

gram outcomes. The results of this study suggest that program directors of respiratory care education demonstrate transformational or transactional leadership attributes, or a combination of both, versus passive/avoidant leadership behaviors. Bartel et al. obtained comparable results in that the majority of the participants that responded to the MLQ displayed transformational leadership traits.¹⁰ Transformational and transactional behaviors include attributed/behavior idealized influence, inspirational motivation, intellectual stimulation, individualized consideration, contingent reward, and active management-by-exception.²

Graduation rates and RRT examination pass rates increased when program directors did not employ active/passive management-by-exception. Interestingly, employment rates increased when the laissez-faire leadership approach was exercised. This association suggests students are proactive about their career and are determined to line up job opportunities for themselves post graduation.

Additionally, though not significant, the only leadership trait that affected all program outcomes positively was individualized consideration, which is a behavior of transformational leadership (Table 2). Data were not significant enough to know whether program directors who take each student's strengths, weaknesses, needs and interests into account positively impact program attrition, employment rates, graduation rates, and CRT and RRT pass rates.

While the present study's intent was to look at leadership behaviors and program outcomes, other data collected also adds importance to the research question. Data analysis inferred that when leadership provided extra personal effort from the directors, attrition rates decreased. Bartel et al. also found a positive correlation between extra effort by the program director and program attrition.¹⁰ While program directors in leadership roles often work to lower attrition rates, there are some students that may naturally struggle with the program's curriculum. This may be an explanation for the positive association between the director's extra effort and program attrition found in the Bartel et al. study.¹⁰ There data suggest that leadership style

choice may potentially affect overall leadership outcomes like extra effort from the program directors in the academic setting, which in turn affects program outcomes such as attrition rate. Table 3 reflects information gathered in regards to program/student data and leadership outcomes.

Study data further suggested idealized influence and inspirational motivation, which are transformational leadership behaviors, increased in relation to program director satisfaction. Program directors who strongly inspire their students to perform well and to excel in school and throughout their professions are more satisfied in their leadership roles. Table 4 illustrates the associations found among leadership behaviors and outcomes.

Leadership outcomes such as effectiveness and extra effort also notably increased with active management-by-exception, contingent reward, individualized consideration, intellectual stimulation, and inspirational motivation. These are all qualities of transformational and transactional leadership approaches, which suggests these types of leadership behaviors led to directors displaying strong work ethic, which included extra effort and effectiveness in their positions. Table 4 illustrates the associations found amongst leadership behaviors and outcomes.

Conclusion

The results of this study answered the research question at hand. Correlations were found between leadership traits and program outcomes. There were also significant associations discovered between leadership behaviors and leadership outcomes (e.g. extra effort, satisfaction, effectiveness).²

A limitation of this study was the small sample size due to the fact that there are more accredited associate degree respiratory care programs versus baccalaureate and master-level degree programs in the US. Another limitation was the self-reporting surveys, though this was minimized by the fact the RDQ simply asked demographic questions. In future studies, having students from each program fill out the "rater form" portion of the MLQ for their program

Table 4

Correlations Between Leadership Trait and Leadership Outcomes (Extra Effort, Effectiveness, and Satisfaction)

Leadership Trait	Extra Effort	Effectiveness	Satisfaction
Idealized Influence (Attributed)	0.582**	0.469*	0.662**
Idealized Influence (Behavior)	0.550*	0.383*	0.356
Inspirational Motivation	0.676**	0.475*	0.394*
Intellectual Stimulation	0.577**	0.586**	0.073
Individualized Consideration	0.564**	0.661**	0.377
Contingent Reward	0.497**	0.408*	0.243
Management by Exception – Active	0.439*	0.449*	0.045
Management by Exception – Passive	-0.141	0.010	-0.038
Laissez-faire Leadership	0.107	0.062	-0.333

All numbers represent Spearman correlation coefficient (r)

*Marked correlations are significant at $p < 0.05$

**Marked correlations are significant at $p < 0.01$

directors may help verify the responses received from the directors themselves.

The surveys administered to the program directors were voluntary, producing another limitation and bias. Program directors utilizing transformational leadership style may have participated in higher numbers than directors who demonstrate passive/avoidant behaviors.

Prospective research could examine leadership behaviors as an outcome of bachelor and master-level degree programs in light of the potential leadership positions respiratory care practitioners may take on in the future. Moreover, further research concerning leadership style and additional factors such as program curriculum and content/theory based teaching methods may shed more light on the educational approaches that achieve the best student outcomes in respiratory care education.

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Appendix A

Program Director Questionnaire

*** Please fill out the information below and the attached Multifactor Leadership Questionnaire (MLQ). The MLQ was designed to assess your personal leadership qualities and how it affects the students. All information will be kept confidential***

Directions: Please select the correct response to each of the following questions:

1. Select the highest academic degree obtained:

- Doctoral degree
- Master's degree
- Bachelor's degree
- Associate's degree

** Please indicate years earned in the blank provided** _____

2. Select the discipline related to your highest academic degree obtained:

- Respiratory care
- Education
- Business
- Health Administration
- Other-please specify _____

3. Select which describes your institution of where you are employed:

- Academic institution (college, university)
- Clinical setting (hospital, clinic, rehab)
- Other – please specify _____

4. Select how long you have been a Registered Respiratory Therapist:

- Less than 5 years
- 5-10 years
- 11-15 years
- 16-20 years
- More than 20 years

5. Select your current title:

- Program director
- Department Chair
- Department Chair/Program Director
- Other – please Specify _____

6. Select your current employment status:

- Permanent
- Temporary
- Acting

7. Select the length in your current position:

- Less than 6 months
- Greater than 6 months, but less than one year
- Years – please specify _____

8. Are you responsible for any other programs at your institution?

Yes – please specify _____
No

9. Have you taken or currently taking leadership courses, if so, please specify all that apply?

College credit course ____ Number of total credits in leadership ____ When _____

Workshop ____ Number ____ Duration ____ When ____

Seminar(s) ____ Number ____ Duration ____ When ____

10. Select the following that best describes your institution:

Research University
University
Baccalaureate College
Community College
Technical College

11. Select the length of your respiratory care program in year(s):

1 year
2 years
3 years
4 years
5 years

12. Select the number of full-time students enrolled at your university/college as a whole (not just Respiratory Care):

Less than 250
251 - 500
501-1000
1001-2000
More than 2000
I don't know

13. Select which degree your graduates receive upon completion of their respiratory care program, at your institution (If other than in Respiratory Care please specify, e.g. BS in Health Sciences):

Baccalaureate Degree
Master's Degree
Other-Please Specify _____

14. Gender: Female Male

15. What is your age: ____ years

16. Select your ethnic background:

Asian or Pacific Islander
American Indian
Black, non-Hispanic
Hispanic
Caucasian (white), non-Hispanic
Other (please specify) _____

Promoting Ethical Behavior in Respiratory Therapy Students

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Introduction

A goal of respiratory therapy (RT) education is to produce ethical and moral caregivers who treat patients equitably and with compassion. In addition, graduates should be able to navigate the complex nature of medical ethics, make appropriate decisions, and take actions within a diverse and dynamic culture. However, educators may erroneously assume graduates are prepared to handle professional dilemmas related to ethical violations¹. Garrett² defines ethics as a branch of philosophy that seeks to determine the rightness and wrongness of human actions. Ethics allows judgments about a person or that person's behavior. Ethical principles and moral standards are often the foundation for a set of Code of Ethics for a profession such as respiratory care, nursing or engineering.³ Respiratory therapy curricula should include theoretical and practical ethics to mentor students through the process of moral development and the discernment of what is ethically supported behavior in a given situation. This paper discusses how instructors as mentors can guide students through the process of understanding and reacting to ethical dilemmas that will be encountered working in a medical profession.

Creating an Ethical Classroom

The RT educator is continually challenged by course content, time limitations, and classroom management. Consequently, medical ethics coverage is often reduced to a single lecture or series of lectures presented from a more theoretical than practical approach. This often results

in less emphasis placed on "critical reflection" of actual ethics cases. Students may be left with the assumption that the study of medical ethics is abstract and irrelevant. To enhance awareness of ethical behavior and to begin the process of mentoring students to develop into good, moral caregivers, current classroom cultures may need to change. Faculty should first understand their role as mentors, then be ready to assist students along a continuum of moral and ethical development. Ethics instruction should encourage reflection and diversity in thought while appreciating how students vary in their moral development and life experiences, making interpretation of events diverse. When initiating contemplative practices, the educator should be honest, non-judgmental and cognizant of the student's level of reflective thinking. The effective educator should understand the learning styles of students and use this knowledge to create teaching strategies that best fit the needs of the learners. Teaching students to think critically and ethically places a far greater emphasis on utilization of knowledge rather than just acquiring knowledge.⁴ Understanding the classroom culture and meeting the needs of a variety of students allows for student-teacher relationships to form through trust.

To promote an ethical climate, faculty must also be role models of ethical behavior in the classroom and clinical setting. The novice student typically has limited prior experience in dealing with ethical dilemmas in health care and will need guidance from instructors and other professional mentors. In order for students to be adequately prepared for the ethical dilemmas in the workplace, they will need to develop sensitivity as well as appropriate behaviors and communication skills that should be used in

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the presence of families and other healthcare professionals. Furthermore, they may require assistance in the development of healthy coping mechanisms, specifically how to accept or cope with any outcomes or decisions that may be in conflict with their own personal value systems. For these purposes, the importance of faculty and preceptors as good role models of ethical behavior cannot be over emphasized. Faculty and clinical preceptors become extensions of the student's own support systems (i.e., family, peers, and religious leaders) that impacted the development of personal value systems during their formative years. Nurturing students by exemplary practice along with challenging them to self-reflect continues the growing process. With the exponential growth of global diversity, it is essential to promote the development of healthy ethical attitudes, behaviors, and respect for differences in attitudes, beliefs, and cultural lifestyles.

Engaging students to develop a framework of ethics begins with introducing them to a set of accepted bioethical principles (Table 1). However, often when these ethical principles are presented in class, a thought process of "theoretical ethics" is created that has little relevance to students. A didactic course in ethics does not make a student ethical or moral. Teaching the student theoretical ethical principles and applying them to case studies to resolve a hypothetical ethical conflict is a good start. However, the ultimate outcome is to prepare students for practical reasoning, how to adapt their moral standards to difficult ethical decisions, and to encourage them to have sensitivity early in their profes-

Table 1
Principles of Bioethics

Autonomy	Recognizes the person has a right to make one's own decision
Beneficence	Principle of doing good, demonstrating kindness, showing compassion
Nonmaleficence	Principle of doing no harm
Justice	The obligation of being fair in the distribution of benefits and risks
Confidentiality	Principle of maintaining confidentiality with patient records and information

sional careers.⁵ Students need access to practical ethics or "real world" ethical situations to respond to and reflect on in order to develop an ethical and moral compass. In addition to these bioethical principles, incorporating the American Association for Respiratory Care (AARC) Statement of Ethics and Professional Conduct (Figure 1) into the curriculum provides the student with what is expected of them as professionals while providing a standard of conduct, rules, and principles to apply to the practice of respiratory therapy.

Figure 1

AARC Statement of Ethics and Professional Conduct

In the conduct of professional activities the Respiratory Therapist shall be bound by the following ethical and professional principles. Respiratory Therapists shall:

- Demonstrate behavior that reflects integrity, supports objectivity, and fosters trust in the profession and its professionals.
 - Promote and practice evidence-based medicine.
 - Seek continuing education opportunities to improve and maintain their professional competence and document their participation accurately.
 - Perform only those procedures or functions in which they are individually competent and which are within their scope of accepted and responsible practice.
 - Respect and protect the legal and personal rights of patients, including the right to privacy, informed consent, and refusal of treatment.
 - Divulge no protected information regarding any patient or family unless disclosure is required for the responsible performance of duty as authorized by the patient and/or family, or required by law.
 - Provide care without discrimination on any basis, with respect for the rights and dignity of all individuals.
 - Promote disease prevention and wellness.
 - Refuse to participate in illegal or unethical acts.
 - Refuse to conceal, and will report, the illegal, unethical, fraudulent, or incompetent acts of others.
 - Follow sound scientific procedures and ethical principles in research.
 - Comply with state or federal laws which govern and relate to their practice.
 - Avoid any form of conduct that is fraudulent or creates a conflict of interest, and shall follow the principles of ethical business behavior.
 - Promote health care delivery through improvement of the access, efficacy, and cost of patient care.
 - Encourage and promote appropriate stewardship of resources.
 - Work to achieve and maintain respectful, functional, and beneficial relationships with all health professionals.
-

Cultivating reflective and critical thinking skills is a rewarding aspect of teaching. Reflective thinking is the process required when a judgment has to be made and the issue discussed cannot be addressed by logic alone. If medical ethics educators are successful in promoting this in their students, better outcomes are achieved by helping to instill virtue and morality in them. The Reflective Model, as described by Montgomery⁶, involves three stages that students progress through as they develop good judgment. The initial prereflective stage is when the student relies on his or her own belief system and experiences, which have developed from the student's support systems – family, theologians, and other authority figures such as a teachers. During stage two, quasi-reflective, the student begins to have questions and apply theoretical principles and evidence to guide decision-making. Students often demonstrate this type of reflective thinking during clinical training as they experience real life challenges that often occur in the healthcare setting. The final stage, reflective thinking, occurs when students are able to reach a reasonable conclusion even in the face of uncertainty or ambiguity in an ethical situation.⁶ Identifying each student's level of reflective thinking allows the teacher to plan appropriate classroom and clinical experiences.

In addition to nurturing reflective thinking as it applies to healthcare ethics dilemmas, new respiratory therapy students also need guidance in how to recognize and respond appropriately to violations of classroom or personal ethics. Sternberg⁴ proposes eight steps that need to occur in order for the student to act responsibly in these situations:

The student needs to:

1. Be able to recognize that there is a situation that should be reported;
2. Define the situation as having an ethical component or dilemma;
3. View the ethical situation or dilemma as important enough to address it;
4. Perceive the ethical situation or dilemma as personally relevant to him or her;

5. Identify the ethical rule that is relevant to the situation or dilemma;
6. Know how to apply the relevant rule to the situation or dilemma in question;
7. Prepare for possible adverse consequences of acting ethically;
8. Act by translating thought into action.

For example, if the novice student encounters an ethical violation, such as a fellow student cheating on an exam or observing a patient being abused by a caregiver during a clinical rotation, he or she may be reluctant to respond. The student may not have progressed through all the required steps in order to obtain the same level of ethical development as the expert. Consequently, the two will not have the same interpretation or conclusion for the situation.

A Method for Introducing Students to an Ethical Dilemma

In 2004, McNab³, created a group interactive activity as a method of teaching ethics in health care education at the undergraduate and graduate levels. In the study, scenarios involving violations of ethical principles in healthcare academia were used. Student groups were asked to discuss and respond to the scenarios as if they were serving on an ethics hearing panel. The Code of Ethics for the Health Education Profession was used as a guide. Student groups completed a worksheet that summarized which ethical principles had been violated and the extent of sanctions that should be used to resolve each case.

In an undergraduate RT program, this same method could be applied to make medical ethics more understandable and relevant to students. This could be accomplished by using real-life clinical related or academic ethical cases or both, especially those that have been experienced by faculty in clinical practice. The AARC Statement of Ethics and Professional Conduct (Figure 2) can be used as a guide in the design of these cases. Students are divided into

Figure 2

Summary of AARC Code of Ethics and Professional Conduct

1. Demonstrate competence, integrity, and respect for the rights, dignity, and confidentiality of patients, families, and fellow health care workers.
 2. Promote and practice evidence-based medicine within a clearly defined scope of practice.
 3. Refuse to participate in illegal or unethical acts, fraudulent practices, violations of conflict of interest, or violations of licensure requirements.
 4. Provide competent and equivalent care to all patients without discrimination on any basis.
 5. Maintain continuing education to improve professional competence
 6. Practice activities that promote disease prevention, wellness and stewardship of health care resources.
-

groups to discuss the cases, identify which ethical principles have been violated (i.e., confidentiality, scope of practice, fraud, etc.), then decide as an “Ethics Panel” what actions are warranted based on the breach of ethical principles. A discussion highlighting how each group’s findings are either similar or dissimilar will further enhance the quality of this exercise.

Some examples of ethical cases that can be used are:

1. A junior respiratory therapist student plagiarizes a term paper from a relative who graduated from the Physician Assistant Program two years ago.
2. A fellow student comes to class frequently smelling of alcohol.
3. Upon request by the physician, the respiratory therapist assisting with a bronchoscopy administers an additional dose of conscious sedation medication while the nurse monitors the patient from across the room.
4. A respiratory therapist working the nightshift documents and charges that treatments were given that were not actually given while the ICU nursing staff reports that the therapist was unavailable for most of the shift.
6. While in the report room, a respiratory therapist student overhears a discussion between two staff respiratory therapists about the condition of a hospitalized former employee of the department.
7. A newly hired respiratory therapist refuses to draw an arterial blood gas on a patient who has tested positive for HIV.
8. Upon renewal of their license, a respiratory therapist signs the Oath of Affirmation page that he has completed the necessary 10 annual continuing education units. When audited, he cannot produce certificates to support his claim.
9. A RT department director who also owns a durable medical equipment company, purchases an E-cylinder rack with department funds, but keeps it in his car for oxygen deliveries.
10. Upon entering the locker room, a newly hired RT surprises a veteran staff RT in the locker room. The staff therapist acts suspicious, quickly closing the locker door, but not before the new hire sees used syringes, an empty medication vial, and an IV tourniquet.

Conclusion

Few healthcare professions expose students to actual ethical dilemmas prior to entering their advanced training. Coming into a professional program, they have only their life experiences and the influences of family, former educators, peers, and religious leaders from which to draw. It is difficult to teach abstract and controversial topics such as

medical ethics. Therefore, the educational program has the responsibility not only to teach students about the various ethical principles involved in healthcare, but also to expose students to actual examples of how these principles are challenged in professional practice. Through this, the student can develop appropriate professional behaviors.

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An Online Program Improves Respiratory Therapy Student Cultural Competency

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Abstract

Background: Cultural competency has been shown to influence the quality of treatment due to cultural and linguistic barriers. A plethora of accrediting agencies, including the Commission on Accreditation for Respiratory Care, promote cultural competency education as a mechanism to address health inequities and improve patient outcomes. This study investigates the effect of an online course in cultural competency on respiratory therapy student knowledge and attitudes about culturally diverse populations. **Method:** Pre- and post-test scores, using a Likert scale, from respiratory therapy students (n=11) were compared after taking the online “Healthy Perspectives” course offered at Georgia Regents University. Five variables were created by aggregated individual questions into five blocks entitled Knowledge, Attitudes, Health Disparities, Socio-cultural, and Self-Identity. Statistically significant changes were found in Knowledge ($p < .001$) and in Health Disparities and Sociological Differences ($p < .05$). Although gains were found in Attitudes and Self-Identity, they were not statistically significant. **Conclusion:** This study shows that an online program in cultural competency can result in statistically significant gains in cultural competency in respiratory therapy students. A future study using a larger sample size should be conducted to confirm these findings.

Key words: online, cultural competency, diversity, health professions, respiratory therapy, students.

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Introduction

The Institute of Medicine Report “Unequal Treatment”¹ noted that cultural and linguistic barriers, as well as a degree of bias and prejudice during patient and practitioner interactions, contribute to the persistence of health disparities. Since then a plethora of health science accrediting agencies, such as the American Association of Colleges of Nursing (AACN), the Association of American Medical Colleges (AAMC), the Commission on Accreditation of Allied Health Education Programs (CAAHEP), the Commission on Dental Accreditation (CODA), the Liaison Committee for Medical Education (LCME), and the Commission for Accreditation of Respiratory Care (CoARC), include and promote cultural competency education as a mechanism to address health inequities and improve patient outcomes. Indeed, a concerted effort toward improving the intercultural communication skills among students across all health science fields, including respiratory therapy has been noted. This study investigates the effect of an online course in cultural competency on respiratory therapy student knowledge and attitudes about culturally diverse populations.

In 2007 the American Association for Respiratory Care formed a task force to identify the competencies required of future respiratory therapists (RTs) in 2015 and beyond. Three conferences were subsequently convened to explore this issue. The first conference was held in March, 2008. One of the expected changes reported for respiratory care is that the therapist of the future will be required to develop new skills and approaches to care for patients from diverse cultures and backgrounds.² The second conference in April of 2009³ identified the ability to communicate and provide culturally sensitive care as a competency necessary for the future. Providing education on cultural competency has since been incorporated into the 2015 accreditation standards developed by the Commission on Accreditation for Respiratory Care (CoARC). These standards now require that RT graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups.⁴

The authors believe most RT educators have included issues of culture and communication in their course-work prior to the formal standard. Often these topics were woven into another element of the curriculum or included in a sidebar rather than standing alone and may not have been evaluated. The inclusion of the recent accreditation standard effectively requires RT programs and faculty to focus on the topic more specifically and generate student learning outcomes with associated assessment measures to evaluate progress toward meeting the letter and the spirit of the CoARC standard.

Healthy Perspectives

The Respiratory Therapy Program at Georgia Regents University (GRU) began using the recently implemented Healthy Perspectives (HP) program as a strategy to address diversity and the 2015 CoARC requirements and the AARC initiatives. HP, first offered in the fall of 2013, is an on-line, interactive course designed to introduce health science students to cultural competency. The overarching aim of HP is to enhance the self-efficacy and communication skills to facilitate empathetic patient encounters and to provide respectful and culturally appropriate care to all patients. The specific HP goals are to improve student self-efficacy to perform in cross cultural situations and for them to demonstrate improved communication skills when interacting with culturally diverse patients, families, and health professionals. Overall, the course is designed to develop cultural self-awareness and address cultural competency to help build cross-cultural communication skills. These goals clearly reflect the 2015 CoARC accreditation standards⁴ and are in keeping with the letter and spirit of the AARC conferences and published proceedings.^{2,3}

There are five modules that include the data, demographics and theories that illuminate, describe and explain the how and why of health inequities that lead to outcome disparities. These include, but are not limited to, race/ethnicity, social class/wealth, and gender. The modules took 30 to 45 minutes to complete and were infused with media clips, links to relevant websites and interactive learning activities, such as Project Implicit. The purpose of this interactive approach was to engage the learner, not entertain them, and it reflects much of the literature on strategies to engage Millennials in the learning process.^{5,6,7,8}

The final module is a virtual simulation of a patient encounter and focuses on effective cross-cultural communication. Ineffective communication with patients of limited English proficiency (LEP) contributes to medical errors, health disparities and low patient satisfaction with the quality of their healthcare¹. As a result, the Culturally and Linguistically Appropriate Services (CLAS) Standards were created to guide individuals and organizations in providing equitable and appropriate services to all patients; however, effective and meaningful insertion and assessment of the CLAS content in the healthcare curriculum is an ever-present challenge.⁹ To address this need, the authors developed the Virtual Interpreter Simulation (VINSIM) which allows students to select from a set of options that guide a video interaction with a patient and trained medical interpreter. Students can repeat the simulation until they earn a passing score and feel comfortable with the process.

The course is pass or fail and formative assessment occurs through participation in three small group discus-

sions. Summative learning is measured in three ways: first is the 10-question quiz attached to each module; second is VINSIM; and, thirdly, a pre- and post-test that measures changes in the key domains of cultural competency - knowledge, attitudes, skills and self-awareness - as well as a course evaluation. The first two options, however, are repeatable until the student passes the test, much like compliance training for university faculty and staff. For the purposes of this paper, the focus is on the pre- and post-test results as an indicator of student progress toward building self-efficacy and communication skills.

Methods

Although HP is a required course for all first year health sciences students who will have patient contact, IRB approval was obtained to allow publication of results and informed consent was obtained from all participants. Seven-hundred-and-eighty-four students enrolled in Healthy Perspectives in the fall of 2013, including 18 RT students.

The students were sent an email with a link to the pre-test prior to beginning the online course and again for the post-test at the conclusion. The pre- and post-tests are a composite of several valid and reliable instruments such as the Health Beliefs Attitudes Survey,¹⁰ Acceptance of Stereotyping Questionnaire,¹¹ the Cultural Competence Assessment and Training Tool¹² and the Clinical Cultural Competency Questionnaire.¹³ A two-tailed, paired samples t-test was conducted in SPSS, including only the cases with two valid data points; in this case students who completed both the pre- and post-test. Cases without valid scores at both points were dropped from the analysis. Consequently, the average change in scores of individual students were examined from the pre- to the post-test for an understanding of the impact of HP on student self-efficacy.

The five variables included in this analysis were created by aggregating individual questions into five blocks: Knowledge, Attitudes, Health Disparities, Socio-cultural and Self-Identity (Appendix A). All the individual questions were measured on 5-point Likert scale and thus the created variables were interval measures with good internal consistency as measured by Cronbach's Alpha.

The 15-question scale for *Knowledge* ($\alpha = .83$) included questions such as "Health care professionals should..." and continued on to items like "ask patients about their feelings" and "make empathetic statements about their patients illness." The *Attitude* scale ($\alpha = .80$) included 12 questions centered on stereotyping, including questions such as "Stereotypes can be harmful but they are essential for interacting with members of real groups." The *Health Disparities* variable ($\alpha = .80$) was

created through combining 12 questions on the importance of social and structural issues on disparities, such as poverty, racism and ableism. The *Socio-Cultural* variable ($\alpha = .97$) measured the importance of sociocultural issues when interacting with others including peers and patients and the *Self-identity* scale ($\alpha = .85$) consisted of 3 separate questions such as "How aware are you of your own racial, ethnic or cultural identity?"

Results

Altogether 784 students enrolled in the course and 669 completed both the pre- and post-test for an 85% response rate. Eighteen RT students enrolled in the 2013 HP course: sixteen women and two men. The majority, 61% (11) were white and 39% (7) were African-American. Their ages range between 20 years and 37 years with an average age of 25 years. The RT student response rate was similar to the overall group of students completing HP, between 83% and 89%, depending upon the question. However, only 11 RT students consented to allow the reporting of their results and only these data were included in this analysis.

The main purpose of HP is to improve the cultural competency of students. Overall the course was successful with gains made in all areas (Table 1.) The substantive 23.6 point gain in Knowledge was noteworthy and highly significant statistically ($p < .001$.) The 8.1 point gain in Health Disparities and the 4.36 gain in Socio-cultural issues were both notable and statistically significant ($p < .05$.) Although gains were made in Attitudes (2.70) and Self-Identity (0.91), they were not statistical significant once the non-consenting student's responses were removed from analysis.

Discussion

Health disparities exist within our healthcare system and one factor involved is inadequate experience in cultural competency among healthcare providers. Virtually all agencies associated with training future healthcare practitioners, including the AARC and the CoARC, endorse or require more training and experiences designed to enhance

Table 1
Pre-and post-test results for RT students

	N	Pre-test	Post-test	Change
Knowledge	10	27.30	50.90	23.6**
Attitudes	10	33.60	36.30	2.70
Health Disparities	11	41.70	49.80	8.1*
Socio-Cultural	11	14.64	19.00	4.36*
Self-identity	10	12.55	13.45	0.91

** $p \leq 0.001$, * $p \leq 0.05$

cultural competency. GRU recognizes cultural competency as an essential skill for practitioners in all health sciences disciplines, and developed HP in response to this need to increase awareness of health disparities due to the bias and prejudice of health practitioners, linguistic barriers to health care, and increasing demands of accreditation agencies.

Gains were shown in all areas as measured by the aggregated instrument. The results of the program overall are positive and indicate that providing RT students with an online course improves their cultural competency. The statistically significant gains in the post-test scores show that creating an online, interactive program for health science students, and RT students in particular, appears to be an efficient, effective way to address these challenges. Likewise, a dedicated course designed with specific goals addressing cultural competency which are tied to assessments designed by experts in the field of diversity can demonstrate significant gains in understanding and in cultural competency in a way that generalized courses may not.

Conclusions

This study shows that RT students can improve their cultural competency and cross-cultural communication skills through taking an online course. Continued research into this topic with a larger sample size should be conducted to verify the results of this pilot study. It remains to be seen whether or not CoARC will accept results such as these as evidence of compliance with the new standard on communication with diverse populations.

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Appendix

Knowledge (4 point Likert scale strongly agree to strongly disagree) Alpha=.83

1. Health care professionals should ask patients for their opinions about their illnesses.
2. It is important to know patients' points of view for the purpose of diagnosis.
3. Patients may lose confidence in health care professionals if health care professionals ask their opinion about their illness or problem.*
4. Understanding patients' opinions about their illnesses helps health care professionals reach correct diagnosis.
5. Health care professionals can give excellent care without knowing patients' opinions on their illnesses or problems.*
6. Understanding patients' opinions about their illnesses helps health care professionals provide better care.
7. Health care professionals can give excellent health care without knowing patients' understanding of their illness.*
8. Health care professionals should ask their patients what they believe is the cause of their illness.
9. Health care professionals should learn about their patients' cultural perspective.
10. Health care professionals can learn from their patients' perspectives about their illnesses.
11. Health care professionals should ask their patients why they think their illness has occurred.
12. Health care professionals should ask about how an illness is impacting a patient's life.
13. Health care professionals should make empathic statements about their patients' illnesses.
14. Health care professionals should ask patients for their feelings about their illnesses.
15. Health care professionals do not need to ask about patients' personal lives or relationships to provide good health care.*

Attitudes (4 point Likert scale strongly agree to strongly disagree) Alpha = .80

1. Sometimes when I meet new people, I can predict their behavior or attitudes just from knowing what social/cultural groups they belong to.*
2. In daily life, there's so much to pay attention to, it helps if you can make a few assumptions about a person.*
3. When interacting with others it's very important to have a sense of what social/cultural groups they belong to.
4. Stereotypes can be harmful but they are essential for interacting with members of real groups.*
5. People differ so much from one another, it is impossible to generalize about them.
6. You cannot get through life without generalizing about people, even though such generalizations may be overstated.*
7. It's impossible to know how a person will behave from knowing what social/cultural groups the person belongs to.
8. If you hold a stereotype about people you'll never be able to see them for who they really are.
9. Stereotypes have too much influence on our behavior toward others.
10. To hold a stereotype does not necessarily mean that you are looking down on someone.*

11. If we did not stereotype each other, there would be a lot less conflict in the world.

12. Stereotypes are useful in daily life even though they are not always correct.*

Disparities (5 point Likert scale very to none) Alpha = .80

How / important are each of the following factors in contributing to health / disparities?-

1. Genetics
2. Lifestyle
3. Environment
4. Poverty
5. Educational Status
6. Illiteracy
7. Ageism
8. Sexism
9. Racism
10. Classism
11. Ableism
12. Homophobia

Socio-Cultural (5 point Likert scale very to none) Alpha = .97

How / important do you believe sociocultural issues are in your interactions with:

1. Patients?
2. Health Professional colleagues?
3. Residents, Medical Students?
4. Staff?

Self-Identity (5 point Likert scale very to none) Alpha = .85

How / aware are you of your own:-

1. Racial, ethnic, or cultural identity?
2. Racial, ethnic, or cultural stereotypes?
3. Biases and prejudices?

*= reverse coded