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I, Ashley M Varol, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Health Education.

It is entitled:
Addressing the chronic pain epidemic: Understanding the knowledge, attitudes, experiences and self-efficacy of health educators.

Student’s name: Ashley M Varol

This work and its defense approved by:

Committee chair: Liliana Guyler, Ph.D.

Committee member: Amy Bernard, Ph.D.

Committee member: Keith King, Ph.D.
Addressing the Chronic Pain Epidemic: Understanding the Knowledge, Attitudes, Experiences and Self-Efficacy of Health Educators

A Dissertation
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In partial fulfillment of the requirements for the degree of

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In Health Education from the
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College of Education, Criminal Justice & Human Services

Ashley M. Varol
M.Ed. (2008) University of Cincinnati
BS (2006) University of Cincinnati
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Dissertation Committee
Liliana Rojas-Guyler, PhD, CHES, Chair
Amy Bernard, PhD, MCHES
Keith King, PhD, MCHES
ABSTRACT

AN ABSTRACT OF THE DISSERTATION FOR THE DOCTOR OF PHILOSOPHY
DEGREE IN HEALTH PROMOTION AND EDUCATION, PRESENTED ON MARCH 17,
2016 AT THE UNIVERSITY OF CINCINNATI, CINCINNATI, OH

TITLE- Addressing the Chronic Pain Epidemic: Understanding the Knowledge, Attitudes,
Experiences and Self-Efficacy of Health Educators

DOCTORAL COMMITTEE MEMBERS: Liliana Rojas-Guyler, PhD CHES; Chair, Amy
Bernard, PhD, MCHES; Keith King, PhD, MCHES

This dissertation included a single data collection process which resulted in data that was
able to answer two sets of research questions with two resulting manuscripts to summarize the
findings.

Study One Abstract

Background. This study sought to understand the current knowledge and attitudes health
educators have toward those with chronic pain when compared to their demographics, health
promotion and education professional preparation and their level of experience. Methods. An
online survey, was sent to SOPHE state membership data bases as well as shared through
snowball sampling, allowed health educators to demonstrate their knowledge and acknowledge
their attitudes toward chronic pain. Descriptive and inferential statistics were performed using
SPSS software. Results. ANOVA tests showed that knowledge was significantly highest among
those who had professional certifications or credentials ($p=.011$) and those who had a higher
percentage of their job dedicated toward chronic pain ($p=.037$). Attitude scale scores were highest among those who reported higher chronic pain, disability and coping strategy training ($p=.009$) and among those who had more years of experience working in chronic pain ($p=.031$).

**Conclusion.** This exploratory study demonstrated a need for professional preparation and experience to be provided to health educators to better prepare them to work to address chronic pain, a growing concern due to an increased prevalence of the condition and the relationship with many other diagnoses.

**Study Two Abstract**

**Background.** The aim of this study was to examine whether the chronic pain self-efficacy of health educators differed based on professional preparation, professional experience with chronic pain and their level of experience personally with both chronic pain and disability. **Methods.** An online survey asked participants questions regarding their self-efficacy as related to chronic pain and the impact of personal experience with chronic pain and disability. Further, questions addressed participants’ recommendations for future professional development in this subject. Descriptive and inferential statistics were performed using SPSS software. **Results.** An ANOVA test revealed that a significant larger percentage of time spent on chronic pain was associated with higher self-efficacy for dealing with it ($p=.001$). Self-efficacy also differed based on having chronic pain, disability and coping strategy training ($p = .001$). **Conclusion.** The findings of this study demonstrate that there is a role for health educators in addressing the chronic pain epidemic. Although a few participants feel chronic pain is not an issue that health educators can or should address, there is clearly a supported need to join in this effort. Professional self-efficacy levels were higher among health educators who also had higher professional training,
certification and experience. Given the responsibilities and competencies of health educators, there are many professional opportunities for us to effect change in both preparation and practice to improve the quality of life of people who live with chronic pain.
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I owe much gratitude to many people who have made the completion of this dissertation possible. Without their contributions of guidance, time, knowledge, support and love, this endeavor would never have been possible.

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My committee members, Dr. Keith King and Dr. Amy Bernard, have been great advocates and mentors as well, providing guidance and advice, as well as an alternative or counter perspective to allow the best possible research to come out of the plan set forth. I appreciate their willingness to share feedback and insight to improve my research and make my experience as a graduate student feel supported along the way.

I have gone through this program with the unfaltering support of my parents, who have repeatedly referred to me as their “little engine that could.” No matter what has come up, and no matter how much I may have wanted to quit along the way, I know their belief in my abilities has motivated me to success. They have provided assistance with caregiving for my son, who was...
born in the middle of completing my coursework, and their time and love for him have helped me to feel much less stress when I’m working on school, knowing he is in the best of hands always.

Last but most importantly, my husband deserves as much of the credit for this work as I do. Without him, I simply would not have completed this program. His support through sacrifice and schedule changes to accommodate my needs for both coursework and research has made all of this possible. He has pushed me to complete from day one, never doubting me in any way, and providing the “tough love” I’ve needed when working through the night – or pregnant – on my schoolwork. While he may not totally “get” what I’m doing, he gets the importance and the impact for our family and has never once questioned my aspirations to complete my doctoral endeavor. I can never put into words my gratitude for his confidence in me and ability to give me the push to the finish line.
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**Introduction**

Chronic pain is a debilitating condition that affects a large proportion of the population, both within the US and across the globe. In light of this, there is not enough research, specifically in the health education literature, to develop recommendations to be shared with academic programs responsible for education to address chronic pain management, continuing education providers regarding needs of those in the field, or best practices for those working in settings in need of chronic pain management. A concerted effort needs to be made to educate health educators about chronic pain and its impact and to equip them with the tools to be able to assess, design and implement programming and education to meet the needs of those suffering with chronic pain. To address this gap, I am proposing a research study to better understand what health educators currently know about chronic pain.

The following study aims to demonstrate why chronic pain is a relevant issue for health educators and health promoters to consider and embed into pre-professional and continuing education to meet the demands of our populations. The first part of the study focused on knowledge, attitudes, and awareness of chronic pain. Specifically, the study answered these research questions: Does knowledge about chronic pain vary by the demographics of a health educator, including the highest level of education received, their age gender, race or ethnicity? Does knowledge about chronic pain vary by the training a health educator receives, specifically related to higher education, professional certifications or credentials, or condition and treatment specific training around chronic pain, disability and coping strategies? Does knowledge about chronic pain vary by the experience of a health educator, considering their years of experience specifically working in chronic pain or the percentage of their job dedicated toward chronic pain? Do attitudes toward those with chronic pain vary by the demographics of a health educator,
including the highest level of education received, their age, gender, race or ethnicity? Do attitudes toward those with chronic pain vary by the training a health educator receives, specifically related to higher education, professional certifications or credentials, or condition and treatment specific training around chronic pain, disability and coping strategies? And, do attitudes toward those with chronic pain vary by the experience of a health educator, considering their years of experience specifically working in chronic pain or the percentage of their job dedicated toward chronic pain?

The second part of the study is focused upon self-efficacy, training, competencies of health educators, considering both professional practice and experiential learning and academic preparation of health educators entering the field to determine how equipped health educators are to work with those with chronic pain. Specifically, the study answered the research questions: Does self-efficacy for working with those with chronic pain differ by the level of experience of a health educator, considering their years of experience specifically working in chronic pain or the percentage of their job dedicated toward chronic pain? Does self-efficacy for working with those with chronic pain differ by the training a health educator receives, specifically related to condition and treatment specific training around chronic pain, disability and coping strategies? Does self-efficacy for working with those with chronic pain differ if a health educator has personal experience with chronic pain or disability, either themselves or from a friend or family member? What settings are more likely to require sufficient professional preparation in chronic pain? And, what recommendations do health educators have for future professional development for working with those who have chronic pain?

From these questions, I address recommendations to improve professional education and training for health educators.
MANUSCRIPT ONE- Chronic Pain Knowledge and Attitudes: The Role of Professional Training and Experience
Background

Knowledge

The American Academy of Pain Medicine reports over 100 million Americans and 1.5 billion people worldwide are affected by chronic pain with an estimated cost to society over $550 billion when including the costs for healthcare, rehabilitation and lost worker productivity (American Academy of Pain Medicine, n.d.). Chronic pain affects one's social, emotional, financial, spiritual, psychological and physical life, and these effects grow and evolve over time (West, Stewart, Foster & Usher, 2011). Chronic pain is defined as an invisible disability in which pain lasts more than six months, and while normally a signal of an injury or illness, becomes debilitating, limiting and persistent with minimal impact from common treatments (West, et al., 2011). As a chronic disease, symptoms can be permanent, unpredictable and often invisible (Varekamp & van Dijk, 2010) and can have both sensory and emotional impacts with actual or potential tissue damage (International Association for the Study of Pain, 2011).

Invisible disabilities are especially challenging as symptoms can be stable, progressive or transitory, which is believed to be why researchers feel there is a serious underestimate of the impact of invisible disabilities on the world and specifically within the workplace (Santuzzi, Waltz & Finkelstein, 2014).

Chronic pain is associated with a variety of other conditions. The comorbidities of stress, depression and anxiety as predictors of disability have not yet been fully addressed in relationship to chronic pain as they have with other more common chronic conditions like coronary heart disease and diabetes (Schultz, Crook, Berkowitz, Meloche, Prkachin & Chlebak, 2013). Medications and their side effects have been noted to cause additional impairment, which can lead to accidents and diminished work performance (Abma et al., 2013). Chronic pain has
also been related to a sedentary workplace or lifestyle, lack of environmental supports at work stations, repetitive style work as well as having low co-worker support, decreased job security matched with stress and other psychosocial challenges faced in the workplace (Aas et al., 2011). It is not clear, however, as to whether a chronic condition causes disability, or disability causes chronic conditions, which would change how we address them in practice (Drum, 2014).

In a systematic review, the lifetime prevalence of back pain was found to be between 60% to 80% from two large studies that had been conducted (Campbell, Wynne-Jones, Muller & Dunn, 2013), while Besen, Young and Shaw (2014) found 70-90% of the population will experience specifically low back pain in their lifetime. Unfortunately, because chronic pain is an invisible disability, there is very little research for working with it, and it’s speculated that the estimates for all conditions that are invisible are grossly underestimated as many people choose not to disclose (Santuzzi et al., 2014). The U.S. Equal Employment Opportunity Commission (U.S. EEOC) made major strides for those with cyclical, transitory or episodic conditions in the ADA Amendments Act of 2008, which weren’t previously protected (2008). The passage of ADAA allowed those with conditions that impacted a major life activity to qualify as having a disability, though the term “life activity” is debatable and subjective and still allows for some exclusions for accommodation (U.S. EEOC, 2008).

There are many risk factors that have been self-reported but not well tested for chronic pain. Sedentary positions and working in awkward positions along with job strain, low co-worker support and stress at work to be risk factors for neck pain specifically (Aas, et al., 2011). Other factors such as the type of work being performed (labor intensive or lifting, for example), but also age, obesity smoking and overall control of work have shown to impact sick leave for those with pain (Anderson, Jul-Kristensen, Roessler, Herborg, Sorensen & Sogaard, 2013).
The costs related to chronic pain are staggering, but hard to understand. We must consider the costs of specific conditions related to pain like neck pain, back pain, and arthritis, as chronic pain is a generalized term that does not explain in the literature the total cost estimates that are associated. For example, Antao, Shaw, Ollson, Reen, To, Bossers and Cooper found a $10 billion price tag for chronic neck pain in Canada, when factoring in medical cost, lost wages and lost productivity (2013). Buchbinder, Blyth, March, Brooks, Woolf and Hoy (2013) put low back pain as the leading cause of disability ahead of 290 other conditions as of the 2012 Global Burden of Disease Study, and estimated the annual cost of $83 billion in 2010. This number has significantly risen to over $550 billion (AAPM, n.d.). Besen et al. (2014) found that Americans had a median of 7 days of lost work time annually for low back pain. According to Healthy People, 2020, arthritis affects 1 in 5 adults and costs more than $128 billion annually. Because we don’t fully understand how many have chronic pain and the full effects of having chronic pain, these numbers are estimates and are not able to fully represent the costs that go beyond financial for those suffering.

Disabilities are categorized in many ways including diagnostic, functional or social, all of which can be applied as characteristics of those with chronic pain (Drum, 2014). However since there aren’t consistent definitions, surveillance is not accurate or consistent either. Secondary conditions often accompany disability of any type, including chronic pain, which is especially important as we work to promote successful aging, but we also don’t have the full picture of the impact they have. Conditions that have been presented in the research also include fatigue, social isolation, and deconditioning (Rimmer, 2011). Self-stigma related to intellectual disabilities lowered self-esteem and self-worth, decreased quality of life and increased the feelings of inferiority and risk of violence, and may be a similar reaction for those with chronic
pain (Ali, Hassiotis, Strydom & King, 2012). Healthy People, 2020 share that anxiety and depression are “frequently observed” with chronic pain conditions and it is recommended that interventions focus on multiple conditions to better understand this. More research is needed to fully understand the many co-factors related to chronic pain conditions (Healthy People, 2020).

There are many other factors that make chronic pain an important and relevant issue for health education and health promotion. Franche (2011) explained that there is a difference between pain intensity levels and the interference of pain in daily life – thus understanding where someone is on this spectrum can answer a lot about what they can and can’t do. In a sense, having a disability equates to having a greater chance of being affected by a health disparity as those with disabilities are often misrepresented and underserved while being vulnerable to unhealthy conditions, lack of access to basic needs like food and transportation along with violence and discrimination (Rimmer, 2011). Another challenge for those with disabilities, which is believed to be approximately 25% of all households in the US, is its association with poverty, lower education, and often single-person homes, limiting access to basic needs, but this awareness is still a bit vague as many studies don’t feel there has been adequate data collected on those disabled in the US (Altman & Blackwell, 2014).

Work is a place that builds our identity, but many who experience chronic pain find themselves outside of work and feeling disconnected from their life (Alnaser, 2009) impacting quality of life significantly. Our society puts a values one’s ability and fitness level and often leaves those with challenges such as an invisible disability like chronic pain, feeling marginalized and isolated (Cohen & Avanzino, 2010). Because of the nature of an indivisible disability, it can be especially difficult in the workplace as colleagues may view the outcome of the disability as being unfit for duty or unable to work (Santuzzi et al., 2014). Aas et al. (2011)
found that about 1/3 of all lost days of work are due to musculoskeletal disorders, including chronic pain and those that experience low back pain and who attempt to return to work, factors like recovery expectations, fear avoidance beliefs, self-efficacy, social support and catastrophizing have predicted their outcomes (Besen, et al., 2014). But it’s not that simple. One study shares that presenteeism, loss of work and sickness absence are very much linked, and that there’s several things that are happening that need to be address: individuals may take disability leave for chronic pain, but either face challenges with return to work due to lack of supports, guilt or distrust from colleagues upon their return or individuals are not leaving work at all due to the guilt or lack of power they feel to make the decision, thus leaving them in a vulnerable and sometimes unsafe situation (Buck, Porteous, Wynne-Jones, Marsh, Phillips & Main, 2011). Workers have challenging decisions to make that can ultimately cost them promotions and opportunities, but may also take working years off their life.

Disclosing a disability like chronic pain can be very difficult in the workplace. Being an invisible disability means that colleagues and supervisors question the legitimacy and those experiencing it feel distrust and stigmatized (Kirsh, Slack & King, 2012). Once someone is labeled with a disability, work can be redefined in terms of restrictions, activity limitations and impairments to self and to professional growth (Alnaser, 2009). Charmaz (2010) as people equate disability to illness, leading many to choose not to disclose their condition. Kirsh et al. (2012) note that the stigma and discrimination can be just as bad as the reason why they are feeling it, as it can result in increased stress that affects one’s ability to recover or return to work.

Dalgin and Bellini (2008) found only 29% of those with disabilities to be employed compared to 79% of those who did not have a disability, with some additional concerns for those with invisible disabilities due to the lack of awareness and understanding if or when an employee
decides to disclose. Individuals experiencing chronic pain find the limitations their condition impose results in prematurely leaving the workplace, thus they become a higher burden on society (Haafkens, Kpnina, Meerman & van Dijk, 2011) as being unemployed means lower socioeconomic status and poorer health compared to those without disabilities (Rimmer, 2011). And though chronic pain can also fall into the category of musculoskeletal disorders, which are well researched and understood, there is limited research on chronic pain as it relates to work and the act of maintaining or returning to work (Antao et al., 2013). Reasons believed for declining employment rates of those with disabilities may be result of the quality of data used, definition of disability has changed, the nature of work available to those with disabilities, along with inclining healthcare costs and the expansion and severity of health conditions (Solovieva, Dowler and Walls, 2011). If the “dis-capability” concept proposed by Bellanca, Biggeri and Marchetta (2011) were to be adopted, though someone may be experiencing limited capabilities vs. completely unable to do anything, we can change the mindset not only for the person experiencing chronic pain, but also for the people they associate with. This is somewhat a “glass half full” proposition, but it can work to improve how people work together to creatively remain in work and contribute to society. Many experiencing chronic pain are still trying to live a full life, with both family and occupational commitments that become increasingly difficult.

Cross disciplinary teams have grown in popularity in the medical field and this trend will hopefully continue into the social sciences and occupational health realm with greater collaborations in a variety of settings. There are opportunities for health educators to develop training and materials within the workplace to help the resilience of employees who wish to remain employed despite their chronic pain, and in turn enhance the workplace without a loss of productivity. Additionally, Moll (2014) provided recommendations for dealing with mental
illness in the workplace that can easily be translated to chronic pain, in that health educators can work with managers who are the gatekeepers for employee health a lot of the time. In this role, they can help managers to understand when and how to properly step in and make adjustments and modifications through policy changes and programming (Moll, 2014).

Attitudes

As shared by Aaberg (2012), “attitudes predict behavior and indicate values, which is why attitudes is an appropriate first step in the investigation of the causes of ongoing discrimination against those with disabilities” (p.505). While his research explored disability in totality toward students in nursing, this statement is easily translated to the challenge of addressing chronic pain as an invisible disability and the attitudes those with chronic pain experience. Bezoborodovs and Thornicroft (2013) describes that there are three components to stigma including ignorance, prejudice and discrimination that are interrelated that have to be taken apart one by one to affect change. This study proposes focusing on knowledge, awareness and attitudes, which fall under these components and attempt to resolve the issues faced by those with invisible disabilities like chronic pain.

Stigma and discrimination have yet to be fully explored in the literature related to chronic pain, but has been a topic when related to mental illness and other psychological problems with resulting. Engebretson (2013) found that the stigma labeling identity affects how people use health care and Moll (2014) found those with mental health issues have a reluctance to get help due to stigmatized beliefs. Unfortunately, those individuals with disabilities like chronic disease that do seek medical care can be misinformed or may misunderstand the information they receive. Corbett, Foster and Ong found that individuals who were previously active ceased activity due to information received by their health professional, which contributed to the
exacerbation of symptoms and greater disability (2007). Creating a means for individuals to
develop and learn coping strategies and resilience techniques has been shown to help chronic
pain management (Sturgeon & Zautra, 2010). Knowing that those affected by chronic pain are
not going to have a solution to rid them of the pain or the stigma attached to the disability
demonstrates a specific need that health educators can address.

Research has shown additional stigma and discrimination can result from
accommodations as “distributive unfairness” is felt when someone in a workplace receives
accommodations and then outperforms others (Paetzold, 2008). There is limited but significant
research demonstrating that timing of disclosure makes a big difference. While doing so later
can help with preventing labels and stereotypes, waiting too long to disclose can appear
dishonest or may be perceived as an excuse for poor performance (Paetzold, 2008). A
suggestion Paetzold makes is regular evaluation of job satisfaction in the workplace so that areas
of improvement can be made without singling out those with disabilities which can promote a
“culture of fairness,” which then goes back to the notion of disclosure is more likely when
individuals feel comfortable (Santuzzi et al., 2014).

While some have tried to match up theories like social identity theory to people’s
reactions to those with disabilities, it simply doesn’t work with those experiencing invisible
disabilities as the distinguishable characteristics that people process of what’s the same and
different between themselves and those without the disability aren’t as easily noticeable. And, as
shared by Dalgin & Bellini (2008), the choice to conceal comes at a cost: it takes a lot of effort
and stress and can further cause feelings of isolation, and because of this, those with invisible
disabilities often fare worse than those with visible stigmas (Quinn & Earnshaw, 2011), whereas
being “out” can provide greater opportunity for social support (Chaudoir & Quinn, 2010). The
challenge with many invisible disabilities, however, is that the term disability also reflects an inability to do something or having an impairment, which can impact job performance, resulting in an absolute need to disclose (Santuzzi, 2014).

The Health Belief Model was chosen as a framework for this study as it assesses one’s attitudes toward something, which includes the evaluation of a collection of beliefs (Green & Krueter, 2005). Additionally, this research looked at awareness and knowledge as constructs by which recommendations were developed that suggest specific needs for a focus within curriculum and pre-professional education as well as a cue to action for additional continuing education and development opportunities for health educators once in the field. By measuring the constructs of attitudes and knowledge, we improve our understanding of existing areas for improvement among health education and promotion professionals and contribute to research agendas, curriculum improvements, and professional development.

**Significance of the Study**

The significance of this study is that it provides recommendations to improve the outcomes for those with chronic pain by better equipping health educators to address their needs in professional practice while also increasing the knowledge and capabilities of health educators to work in a greater diversity of settings. It is hypothesized that health educators may not be aware of the important role they can play to impact those suffering from chronic pain. There is an opportunity to improve the likelihood that health educators work in the area of chronic pain if professional preparation and professional development were made widely available and prioritized as an area for health educators to address.
Purpose of the Study

The purpose of this study was to learn what knowledge and attitudes health educators currently have of chronic pain. Specifically, the study answered the following research questions:

1. Does knowledge about chronic pain vary depending on demographic characteristics of health educators, including highest level of education received, age, gender, race or ethnicity?
2. Does knowledge about chronic pain differ based the level training a health educator has received, specifically related to higher education, professional certifications or credentials, or condition and treatment specific training around chronic pain, disability and coping strategies?
3. Does knowledge about chronic pain differ based on the experience of a health educator, specifically the years of experience specifically working in chronic pain or the percentage of their job dedicated toward chronic pain?
4. Do attitudes toward those with chronic pain vary depending on the demographic characteristics of health educators, such as highest level of education received, age, gender, race or ethnicity?
5. Do attitudes toward those with chronic pain vary by the training a health educator receives, specifically related to higher education, professional certifications or credentials, or condition and treatment specific training around chronic pain, disability and coping strategies?
6. Do attitudes toward those with chronic pain depending on the experience level of a health educator, such as years of experience specifically working in chronic pain or the percentage of their job dedicated toward chronic pain?

**Methods**

This cross-sectional study sought to understand the knowledge and attitudes of health educators about chronic pain and consider how health educators can serve in a role to improve the lives affected by chronic pain. A web-based survey was used to measure the knowledge and attitudes of health educators as it relates to chronic pain.

**Procedures**

To assess the knowledge and attitudes of health educators in relationship with chronic pain, this study was conducted using a web based survey. Once the University of Cincinnati Institutional Review Board approved the study (See Appendix A), an online version of the survey was created using Qualtrics. The survey was available on both PC and mobile platforms (e.g. computer, tablet & smart phone). The online survey was offered via a link in an email sent through a variety of methods including targeted emails to state/regional chapters of the Society of Public Health Educators (SOPHE). Additionally, snowball sampling was utilized with health educators in our professional networks (e.g. professional colleagues, known internship supervisors, wellness program managers, and known field health educators across the nation). Snowball contacts received the same email link and script.

**Recruitment**

Potential participants were reached via email and presented with a description of the study and a link to the survey. The description included the purpose and intention of this research project, the research questions to be answered and the desired outcome of developing best
practices and suggestions for the future role of health educators in addressing the chronic pain epidemic. The email invited them to help further the practice of health education through participation. It also provided contact information for any questions about the study. Further, the IRB approved email script emphasized the voluntary nature of the anonymous survey (collecting de-identified data). Once participants clicked on the survey link they were redirected to the Qualtrics survey page where they were presented with the information sheet and a link to consent and enter the survey. Recruitment emails were sent out in late October with 2 two-week follow up reminders. The survey was closed in mid-December of 2015.

Participants

In all, 145 potential participants reached the survey page, of whom 144 started the survey and a total of 122 completed most of the items. Only 101 participants answered all of the items resulting in a participation rate of 84.72% (completion rate = 70.01%) for those who read the consent form, self-selected as eligible and consented to participate in the study.

Instrument

The survey was internally evaluated by survey development and health education subject matter experts (n=3). The instrument was designed using a blend of question styles. The instrument was tested and revised as needed for usability, timing and technical issues prior to its launch. The average time to completion was approximately 13 minutes. A complete copy of the survey can be found in Appendix B. The following sections summarize the survey sections.

About You

The first section of the survey used 10 items to assess the state in which participants worked, level of professional preparation in Health Education (e.g. Bachelor’s or Master’s), certifications or credentials (e.g. CHES, MCHES), capacity in which they have primarily worked
in Health Education (e.g. full-time, part-time), current job title, job responsibilities (e.g. planning, implementing, and designing) and current place of employment. The next 4 questions aimed to understand whether professionals had worked or are currently working to address chronic pain, what settings it was occurring in, and for how long. Learning about specific training, a question with 11 settings in which they could have received content or skill development in chronic pain, disabilities and coping strategies was asked, in which answers reflected yes or no. Next, level of experience addressing chronic pain in their work was assessed using a Likert scale, with 7 statements asking about percentage of job spent addressing chronic pain as related to the health education competencies, with answers ranging from 0%-100% of the time.

Knowledge & Attitudes

The knowledge of participants was addressed next using Likert questions as well as true/false statements. First, the participants were asked to rate their knowledge of chronic pain as a health condition (very high to very low) and then to rate how comfortable they were with interacting with community members who experience chronic pain (very comfortable to very uncomfortable). A total of 14 statements with true, false or don’t know as responses addressed knowledge of chronic pain. Participants were then asked to rate their level of agreement with a series of statements about the profession and chronic pain with responses falling into a Likert scale (strongly agree to strongly disagree).

Recommendations for Professional Development

To provide an opportunity for some open and honest input, the next section of the survey assessed recommendations for future professional development, first asking dichotomously whether they felt chronic pain should be covered in health education professional preparation, at
what level, and if not, an ability to respond in an open-answer format. Then, professionals were asked whether they felt their professional preparation curriculum provided enough knowledge about chronic pain with a yes or no answer as well as “did not receive professional preparation” for those who may be working without professional training. Lastly, professionals were asked in an open-answer format if how they believe chronic pain and its effects on quality of life could be best integrated into the professional curriculum.

**Personal Experience and Demographics**

A final sub-section aimed to learn about their personal experience with disability and chronic pain, which demonstrates further their awareness of the issue at hand. The first question asked whether they had ever experienced chronic pain/disability – and if they had experienced a personal disability, whether or not it was visible. Subsequent questions asked whether the participant had a friend or family member with chronic pain or a disability, or if they had ever lived or worked with someone experiencing chronic pain or a disability. The survey then concluded with demographic items including age, gender, race, ethnicity, employment status and level of education (some college, associate’s degree, bachelor’s degree, master’s degree, doctorate degree, or other).

**Data Analysis**

SPSS version 23 was used to analyze the data collected in this study. The data was cleaned first (identified data entry errors and evaluated missing data). Next, the distribution of the data was reviewed, looking at the normality or skewness, as well as kurtosis statistics. Next, descriptive statistics were run to assess the count, percentage and central tendency for each variable within the data. The reliability of each of the Likert-type scales was determined by running Cronbach alpha tests. Specifically, the Professional Preparation and Training scale had a
Cronbach alpha of .759 (n=30), the Knowledge scale had a Cronbach alpha of .676 (n=14), and the Attitudes scale had a Cronbach alpha of .959 (n=7). Lastly, inferential statistics were run using ANOVA to determine the relationship between the variables. Homogeneity of variance testing was conducted to verify this assumption was met. Post-hoc testing was performed where appropriate. Findings of the survey are reported in the aggregate form.

**Results**

**Demographics**

A total of 122 participants completed the survey. A summary of the demographics reported in this study can be found in Table 1.

*Age & Gender*

Our respondents ranged in age from 21 to 74. The data received for age was collected as a string variable. This was converted to a numeric variable and was then categorized and recoded into four categories: 18-30 (31.5%, n=28), 31-45 (37.1%, n=33), 46-64 (28.1%, n=25) and 65 and over (3.3%, n=3). The survey appeared representative of the field, with 89.9% (n=89) identified themselves as female and 8.1% (n=8) identified themselves as male. We also had 2% (n=2) of respondents identify as other (Table 1).

*Race & Ethnicity*

Due to the smaller subgroups reporting for race, the categories with 2 or fewer respondents were collapsed into a category for a total of four categories for data analysis. The categories included White/Caucasian, African American, Asian/Pacific Islander/Native American and Other. The majority of respondents identify as White/Caucasian (80.8%, n=80), followed by African American (8.1%, n=8), Asian/Pacific Islander/Native American (4%, n=4) and Other (7.1%, n=7). Those who responded other opted to share multiethnic, Jamaican and
Afro-Cuban. To better understand the ethnicity of respondents, questions specific to those who identify as Latino (7.3%, n=7) or Appalachian (5.2%, n=5) were asked (Table 1).

**State Representation**

Our sampling worked a little differently than planned. Requests to complete the survey instrument sent through messages from the SOPHE State Chapters warranted a small response rate. Snowball sampling (working with health educators known in the field to extend the interest nationwide) increased responses and diversity as well. While we had some representation from most states across the US, the majority of responses (52.2%, n=60) came from the Midwest (Ohio, Michigan, Indiana, Illinois, Iowa, Kansas, Nebraska, Missouri, Wisconsin, North Dakota, South Dakota and Minnesota). Due to the lower numbers in some states, our original plan to report back to the SOPHE State Chapters could not be fulfilled as it could not be done without violating confidentiality.

**General Education Level**

The highest level of education received by our respondents (in any field) included a bachelor’s degree (22.4%, n=22.4%), master’s degree (42.9%, n=42), doctorate degree (30.6%, n=30) and (4.1%, n=4) responded other. Open answers included Ed.D., still in college, additional associates degrees and certifications (See Table 1).

**HPE Professional Preparation & Health Certification**

**HPE Professional Preparation**

The majority of respondents had a master’s degree (45.1%, n=55), followed by doctoral degrees (26.2%, n=32) and bachelor degrees (21.3%, n=26) specifically in Health Promotion & Education. Other backgrounds noted in their training were clinical exercise science, massage therapy, public health (Table 2).
Certifications

Over half (58.3%, n=49) of our respondents acknowledged CHES certification and another 21.4% (n=18) are MCHES. Additional certifications noted included RN (Registered Nurse) and CCRN (Critical Care Registered Nurse), ACE-CPT (Certified Personal Trainer), American Red Cross Instructor/Instructor Trainer, Ed.S. in Counseling, Corporate Wellness Coach, Stress Management Coach, Child Passenger Safety Tech Instructor (Table 2).

HPE Professional Experience

The majority of respondents (81%, n=98) reported working full time in Health Education throughout their career. Several had worked in a part time, contractual or volunteer role, and those choosing other indicated being a recently graduated student, working in research, or being an entrepreneur. Working in a public university or college was the primary response (35.6%, n=42) with the next largest group of respondents working in public health agencies (26.4%, n=31). About 14.4% (n=17) of people each work in a private university or college or in a non-profit community agency. The rest of those who responded work in a mix of locations including for-profit agencies, fitness/recreation centers, or filled in responses including corporate health, hospital, health insurance, own their own business, clinic, law firm, and manufacturing. When asked for current employment status, respondents shared that the majority are in a full-time role (83.8%, n=83), followed by part-time employment (11.2%, n=11), contractual work (3%, n=3) and unemployed (2%, n=2).

Respondents working in Health Education seem to have diverse job responsibilities that are based in the foundations of our field: 72% (n=85) designing and planning programs, 67.8% (n=80) implementing and delivering programs, 67.8% (n=80) teaching health, 63.6% (n=75) evaluating programs and 52.5% (n=62) administration. About 43.2% (n=51) spend time grant
writing and 21.2% (n=25) teaching fitness and exercise (Table 2). Other responses included monitoring funded agencies, writing required state reports, managing volunteers or employees, research, advocacy, case management and crisis intervention, patient education, policy and environmental change promotion, community coalition organizing, and marketing. A wide variety of job titles was reported, but closely corresponded with the settings and responsibilities selected (Table 2).

**Chronic Pain Professional Preparation and Experience**

**Professional Preparation & Training.** Participants were asked where they had received content and skill development in the areas of chronic pain, disabilities and coping strategies for managing health conditions. Collectively, responses varied amongst all possible choices provided, with the most selected being self-taught on the job, training on the job, and continuing education opportunities. The next most selected included personal experience through a friend or family member, undergraduate health education courses, and personal experience through experiencing chronic pain. These top selected choices were followed by graduate health education courses, volunteer experience, other undergraduate courses, other graduate courses and other. Table 3 shares the responses to this question.

Individually, the mean response for training by chronic pain, disabilities and coping was an average of two instances of training by topic area. A total score was developed for the professional preparation in chronic pain, disability and coping strategy training. The minimum amount of training is 0, and the maximum is 30. The average score for total professional preparation training was 7.3 (SD = 4.809).

**Settings & Length of time.** A little over a third (35.5 %, n=43) of respondents had worked or currently work in a role that addresses chronic pain. For those that answered yes, the
settings varied widely. The largest proportion addressed it in a public health agency (18.6%, n=8), followed by a public university/college (11.6%, n=5) or private university/college (4.7%, n=2), others in a fitness/recreation center (4.7%, n=2), or within a for-profit (9.3%, n=4) or not for profit (9.3%, n=4) community agency. Nearly half (41.9%, n=18) responded with other, listing settings like corporate health, hospital based, health insurance, private clients, manufacturing and personal. The length of time spent working in chronic pain was spread across the options given pretty evenly: less than a year (23.3%, n=10), 1-2 years (20.9%, n=9), 3-5 years (20.9%, n=9), and more than 5 years (34.9%, n=15).

**Job Experience.** To understand the time spent on the job focused on chronic pain, participants were asked to select the percentage of their job dedicated to chronic pain, based on the health education competencies which shared their experience. Table 4 shares the responses, which were grouped into always or almost always, sometimes, and rarely or never.

**Knowledge about Chronic Pain**

For knowledge, the true/false questions were graded and the range of correct responses fell between 0 and 14 (Table 5). A scale score were computed by adding number of correct responses. The average score was 10.06 with a standard deviation of 2.491. This scale score was then dichotomized into high scorers (12-14 correct answers) vs. low scorers (0-11 correct answers), which would represent scoring above or below a 75% on the “test.” This left 70 individuals in the low category and 29 individuals in the high category. When asked to rate their own knowledge of chronic pain, the responses were evenly distributed between very high/high (37.2%, n=38), average (31.4%, n=32) and very low/low (31.4%, n=32).

**Attitudes**
Attitudes were measured with survey question 18 which asked participants to rate their level of agreement on a 1 to 5 scale with a series of statements related to chronic pain and the role of the health educator to address it, including whether health education professionals should be competent when working with chronic pain and whether chronic pain should be a high priority in health promotion research. Overall, the responses reflected positive attitudes toward chronic pain, as higher mean scores represented more positive attitudes. The lowest rated statement was “awareness of chronic pain should be an advocacy priority for HPE professionals,” with a mean score of 3.75 (SD=.995) and the highest rated statement was “health educators can play an important role in improving self-efficacy and coping strategies for managing chronic pain,” with a mean score of 4.11 (SD=.973). Table 6 has the full listing of statements and responses.

The attitude score was determined by summing the possible answers to the attitude items. Higher scores indicated more positive attitudes whereas lower scores indicate more negative attitudes. The scale scores ranged from 7-35 with an average of 27.56 (SD = 6.303). The scale reliability was tested and a .959 Cronbach’s alpha was generated (n=7). Table 6 displays the attitudes of health educators.

Knowledge about Chronic Pain, Demographic Characteristics, Professional Preparation, Certification & Experience

There was no statistically significant difference between groups when running a one-way ANOVA test for knowledge when compared to the highest level of education received categories, $F(3,92) = 1.247, p = .298$; age categories, $F(2,87) = 2.265, p = .11$; gender $F(2,93) = 2.083, p = .13$; or race classifications $F(3,93) = 1.602, p = .194$. Comparisons based on ethnicity
were not included in the analysis given the small representation of Latino and Appalachian participants.

There was no statistically significant difference found between knowledge scores and the highest level of education categories (specifically in Health Promotion and Education) when completing a one-way ANOVA, $F(4,95) = .654, p = .625$. There was a statistically significant difference between knowledge scores and the professional certifications or credentials held $[F(2,70) = 4.859, p = .011]$, indicating that those individuals who hold a professional certification had higher knowledge. A follow up Tukey post-hoc test ($p = .008$) revealed that those with MCHES certifications had higher knowledge scores ($M = 11.53, SD = 1.187$) as compared to those with a CHES ($M = 9.45, SD = 2.549$) but not when compared to ‘Other certification’ ($M = 10.21, SD = 2.007$) (See Table 7). ANOVA testing revealed no difference in knowledge scores when comparing to total professional preparation training in chronic pain, disability and coping strategies, $F(19,88) = 1.014, p = .457$.

There was no statistically significant difference between groups when running a one-way ANOVA test comparing the knowledge score with the years of experience working in chronic pain $F(3,32) = .934, p = .437$, however, there was a statistically significant difference $F(1,91) = 4.503, p = .037$ between knowledge scores and the percentage of one’s job dedicated toward working in chronic pain, indicating those who spent more time working toward chronic pain had higher knowledge scores ($M = 10.66, SD = 2.045$ vs. $M = 9.56, SD = 2.813$) (Table 7).

Attitudes toward those with Chronic Pain, Demographic Characteristics, Professional Preparation, Certification & Experience

There was no statistically significant difference between groups when running a one-way ANOVA test for attitude scale scores compared to the highest level of education received,
A statistically significant difference was found between attitude scale scores and total professional preparation training in chronic pain, disability and coping strategies $F(1,88) = 7.211, p = .009$, indicating that those who had more professional preparation had a higher attitude score ($M = 29.63, SD = 5.113$) than those with less professional preparation ($M = 26.27, SD = 6.422$). There was no statistically significant difference when comparing attitudes and the highest level of education, specifically in Health Promotion and Education when completing a one-way ANOVA, $F(4,95) = .248, p = .910$; nor when comparing the attitude score and the professional certifications or credentials held, $F(2,71) = .526, p = .593$ (Table 7).

There was no statistically significant difference between groups when running a one-way ANOVA test comparing the attitudes of health educators and the percentage of one’s job dedicated toward working in chronic pain, $F(1,91) = .582, p = .447$. However, there was a statistically significant difference, $F(3,32) = 3.385, p = .031$ when comparing attitudes with the years of experience working in chronic pain, indicating those that worked in chronic 3-5 years had more positive attitudes ($M = 30.86, SD = 3.288$) toward chronic pain than those who had worked less than one year ($M = 18.83, SD = 8.704$). However the attitude scores did not differ for participants who had worked in chronic pain 1-2 years ($M = 30.00, SD = 4.147$) or 5 or more years ($M = 26.93, SD = 9.042$) (Table 7).

**Limitations**

Challenges faced during recruitment limited access and responses for the survey at a national level. The initial attempt to recruit via SOPHE state chapters yielded a limited response.
rate. There are also inherent limitations in the use of snowball sampling. The aim was to reach mostly practitioners, but due to the limited sample size, analysis was completed on those who were practitioners as well as educators. The final sample of this exploratory study makes it difficult to generalize the findings beyond the study participants. Though small, it has allowed for initial findings and recommendations which should be confirmed with a larger follow up study.

The survey design included questions that asked health educators to self-report their experience with chronic pain, their work experience and background. Due to varying perceptions, there could be some differences in reporting by participants. This is why three (3) participants included in analysis who replied not having health education specific educational background, as they did have chronic pain experience. With a larger study, some of these factors could be delineated further to note the differences between those with specific training and the higher education background.

**Discussion & Implications**

Considering the large proportion of participants who were CHES or MCHES credentialed, and the growing trend toward this credential for graduates due to increased recognition of value (Ste-Rose, Medina, Leal, Garcia & Mata, 2015), this may be a great starting point to work from when addressing the need to educate health educators on chronic pain. There is 10,500 estimated health educators who are CHES credentialed and another 1,500 who have MCHES credentials, of the nearly 60,000 health educators who work in the United States (Baisch, Krajny, Wagner and Symons, 2015). To maintain credentials, professionals are expected to obtain 75 contact hours of continuing education (NCHEC, 2015). Encouraging, or even requiring, some of the continuing education hours be spent on chronic pain education and
programming could help this topic to become an important, recognized issue for our field. With chronic pain being a suggested or required component of training, it would create a parallel demand for both pre-professional training and continuing education to prioritize the topic in curriculum developments.

The significance found for those who spend more time on the job addressing chronic pain is appropriate, as generally the more time you spend on something the more knowledgeable you become. The average length of time spent working in health education is significant to note as Johnson & Dixey (2012) first articulated a need to include chronic pain in the health education agenda in 2012. Encouraging more health educators to seek out opportunities to build chronic pain work into their roles can increase their knowledge and allow them to be better prepared to work with those experiencing chronic pain or better position themselves for roles that include work in this area. Up to 150 million Americans are impacted by chronic pain, with only 3 million of them seeking care from a pain specialist (McGee, Kaylor, Emmott & Christopher, 2011), which means that there are many people who are either dealing with or attempting to manage on their own. With proper training and direct and purposeful links to professional training via professional organizations and networking with those in complementary fields, health educators could address this gap in care and increase the quality of life for those suffering while positioning the profession to gain greater awareness and credibility.

About one in ten respondents stated that health education should not focus on chronic pain and it should not be included in professional preparation. This response seems a bit out of touch with the needs of the greater population. In the open comments, many truths about what chronic pain is and is not and who is generally thought best to address it came to light. Several individuals noted feeling challenged with chronic pain as a population or public health issue as
it’s highly individual. Other comments shared that trends drive us toward diabetes, injury prevention, obesity/overweight issues, heart disease, hypertension and other chronic disease prevention – which seem to be just as individualized as chronic pain. And – what do the “trends” noted have in common? Pain can be a side effect or recognized symptom for most of them. Greater education and awareness could help to encourage health educators to expand their scope to reach those dealing with chronic pain.

There were noted differences between those who agreed or strongly agreed with the notion that health educators should be competent to address chronic pain with clients or students, the need to include it in the curriculum, or to include it as a research priority. It was very promising to see the higher agreement for health educators to serve in advocacy roles, working to help individuals build self-efficacy and coping strategies and additional primary, secondary and tertiary strategies to include health promotion and education as a means for those with chronic pain to have their needs met, but as seen in the research, there is limited evidence-based examples to follow, which may be why health educators aren’t currently addressing chronic pain through research and practice (Andersen et al., 2013). Asking a larger sample to better understand the larger scale of current knowledge of chronic pain can lead to the development of best practices and to drill down priorities when working to improve the attitudes of health educators further and the roles they can serve. This study showed that attitudes were significantly impacted by those who had more professional preparation learning about chronic pain, disability and coping strategies and also for those who had spent more time working on chronic pain in the field. Similar to knowledge, these findings promote the notion that with greater training and experience, professionals have better attitudes toward those with chronic pain, which can impact their ability and desire to work with and for those suffering. Delineating opportunities within
professional preparation programs to highlight chronic pain as a condition and what practically can be done to address it can help health educators to have a wider scope of practice and have a bigger impact on improving the health in their communities.

Recognition that chronic pain is traditionally “treated” by conventional medicine, i.e. medication, is important as health educators consider their potential role in prevention, treatment and coping strategies. Health educators have an opportunity to weave into a diverse set of roles and work on interdisciplinary teams in settings that can address large populations, such as the workplace, which has been noted as a significant opportunity to continually address health and wellness topics (Arena, Guazzi, Briggs, Cahalin, Myers, Kaminsky et al., 2013). As there is limited evidence for accommodating those with intermittent illnesses like chronic pain (Antao et al., 2013), there is an opportunity to help develop practices to teach individuals how to cope or treat their pain with alternative methods, saving money in medical care, increasing work opportunities and stay-in-work options while affording individuals a better quality of life with decreased risk of accidents or impairment (Abma, 2013). With increased substance abuse issues being seen in recent years, health educators have a distinct opportunity, and obligation, to help those affected and at risk to seek alternative methods like coping strategies which could be more effective than medical treatment. The American Academy for Pain Medicine reported on a study that found over two million adults over the age of 50 used medications for non-medical reasons and a growing incidence of overdoses by painkillers by nearly four times within a ten year span (n.d.). For those health educators who expressed disagreement to addressing and prioritizing chronic pain within our field, it would be helpful to learn more about their personal recommendations and the alternatives to treating this condition which is growing in impact in the US with the same populations we are trying to self-medicate pain. Some apprehension may be
due to the settings they currently work, but learning suggestions for other healthcare providers that could step in and fill this gap in care could give explanation to their reluctance.

There are roles that traditionally haven’t been filled by health educators that could be with additional training and experience. More workplaces are starting to connect wellness and return-to-work, workers compensation and ADA compliance roles to improve the worker’s experience and help them to remain in place. Anderson et al., (2013) report, pain-related sick leave is often not associated with a specific disease, especially in younger employees, thus it’s hard to understand or monitor the actual impact or prognosis of those with chronic pain. Stress at work, which causes increased anxieties, bad posture or long hours toiling at a computer without breaks, can lead to chronic pain in the neck and shoulders along with mental health concerns, with time off work often leading to disability and leaving the workforce altogether (Aas et al., 2011). A health educator could work with the individual to learn how to manage the stress and workload, determine how to better spend time to allow for movement breaks throughout the day, lessening a possible need for pain medications or time off from work due to pain. With education and training, health educators could help to address an issue that affects many employees across many industries, thus helping employee health but also impacting the financial burden chronic pain causes in the workplace.

It is important for health education practitioners to keep the foundational principles and models in mind as they build their professional lives. Specifically, as we develop both curriculum and continuing education, it is important to remember the research from Green & Krueter (2005), which acknowledged the importance of building upon the knowledge gained pre-professionally to better align and work toward promoting health. If health educators are able to work and develop their skills within the constructs of models like the Health Belief Model, they
can in turn expect to increase effectiveness and impact in their communities. The reality of the knowledge and attitudes of health educators indicates a need to further the research agenda in chronic pain and the opportunities for health educators to learn new strategies and roles in which they can serve a growing community of individuals affected with chronic pain.

Though there seems to be many ways health educators could work to implement interventions aimed specifically at those with chronic pain, the literature showed that this was not a priority within the field, and it may follow the old notion that “only when well informed can we act effectively to produce desired outcomes” (Ajzen, Joyce, Sheikh & Cote, 2011). But, just as they found, knowledge is not enough to make change. This exploratory research measured knowledge along with attitudes of health educators in order to demonstrate what health educators already know about chronic pain and whether this subject is something they are familiar with or working toward within their roles related to chronic pain as well as what preparation they have received both while in school and as part of their professional training. Knowing the strengths and weaknesses of health educators on the topic of chronic pain can lead to additional training and learning opportunities to develop practitioners and make an impact on the chronic pain population. With a greater amount of knowledge and attitudes toward chronic pain, expectations for positive outcomes can increase and individuals can feel empowered to stay in work, function fully in their daily life and hopefully mitigate some of the symptoms they are experiencing while providing additional breadth of experience and roles for health educators in the field.

Conclusion

This exploratory analysis of the field and assessment of the knowledge and attitudes of health educators toward chronic pain helps to shed light on the fact that this is not yet a recognized issue by many in the field, and there is greater education needed to help prepare
health educators to be ready to address chronic pain in their careers. A larger study replicated on a national level with a sample size that adequately assesses the practitioners and educators in the field would be a necessary next step. Additionally, an inquiry into the pre-professional training and continuing education opportunities that already exist will help determine what is available vs. what is needed. Learning more about how and where education about chronic pain is being provided, along with the data from the larger study conducted will provide better direction for recommendations about addressing the gaps in training for chronic pain and to aid with implementing additional training opportunities.

Working with the SOPHE state chapters, the opportunity to participate in a larger study could be positioned with the intent to grow the knowledge and skillset base of health educators to match the competencies and to provide increased opportunities for employment and impact for those with chronic pain. Seeking out a variety of complementary healthcare practitioners to weigh in during this follow up inquiry may also help to identify interdisciplinary ways for health educators to learn about chronic pain and to work to address it in the field.

Upon the completion of the larger study, development of a creative campaign, disseminated through the professional organizations and certifying agencies, to show what chronic pain looks like, highlighting the challenges faced by those with chronic pain due to it being an invisible disability, could help all health education practitioners to realize the unique struggles, and to recognize, seek out and address those with the condition(s) that are labeled chronic pain or have it as a symptom or side effect. Providing the means to increase knowledge and develop attitudes about chronic pain as a condition is the best opportunity to attract practitioners to this important health concern and reach the many affected by chronic pain while increasing the scope of practice and settings that health educators can work in.
References


Schultz, I.Z., Crook, J.M, Berkowitz, J., Meloche, G.R., Prkachin, K.M & Chlebak, C.M.
Chronic Pain and Health Educators     38


### Table 1. Demographics Characteristics

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<th>Demographics</th>
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Note: Missing data excluded. Categories with n=0 excluded from table.
Table 2. Professional Preparation, Certifications and Responsibilities of Health Educators

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<td>Designing/planning programs</td>
<td>85</td>
<td>72.0</td>
</tr>
<tr>
<td>Implementing/delivering programs</td>
<td>80</td>
<td>67.8</td>
</tr>
<tr>
<td>Teaching health</td>
<td>80</td>
<td>67.8</td>
</tr>
<tr>
<td>Grant writing</td>
<td>51</td>
<td>43.2</td>
</tr>
<tr>
<td>Fitness/exercise instruction</td>
<td>25</td>
<td>21.2</td>
</tr>
<tr>
<td>Evaluating programs</td>
<td>75</td>
<td>63.6</td>
</tr>
<tr>
<td>Administration</td>
<td>62</td>
<td>52.5</td>
</tr>
<tr>
<td>Other</td>
<td>22</td>
<td>18.6</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded.
Table 3. Chronic Pain, Disability and Coping Strategy Training

<table>
<thead>
<tr>
<th>Items</th>
<th>Chronic pain</th>
<th>Disabilities</th>
<th>Coping strategies for managing health conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate health education courses</td>
<td>18 32.1</td>
<td>19 33.9</td>
<td>47 83.9</td>
</tr>
<tr>
<td>Other undergraduate courses</td>
<td>11 31.4</td>
<td>17 48.6</td>
<td>25 71.4</td>
</tr>
<tr>
<td>Graduate health education courses</td>
<td>17 38.6</td>
<td>19 43.2</td>
<td>35 79.5</td>
</tr>
<tr>
<td>Other graduate courses</td>
<td>4 20.0</td>
<td>8 40.0</td>
<td>14 70.0</td>
</tr>
<tr>
<td>Continuing education opportunities</td>
<td>29 50.9</td>
<td>31 54.4</td>
<td>45 78.9</td>
</tr>
<tr>
<td>Training on the job</td>
<td>34 54.8</td>
<td>31 50.0</td>
<td>47 75.8</td>
</tr>
<tr>
<td>Self-taught on the job</td>
<td>41 67.2</td>
<td>34 55.7</td>
<td>49 80.3</td>
</tr>
<tr>
<td>Volunteer experience</td>
<td>12 30.8</td>
<td>23 59.0</td>
<td>26 66.7</td>
</tr>
<tr>
<td>Personal experience through experiencing chronic pain</td>
<td>29 63.0</td>
<td>14 30.4</td>
<td>37 80.4</td>
</tr>
<tr>
<td>Personal experience through a friend or family member who has experienced chronic pain</td>
<td>35 68.6</td>
<td>22 43.1</td>
<td>37 72.5</td>
</tr>
<tr>
<td>Other setting (please fill in)</td>
<td>2 50.0</td>
<td>1 25.0</td>
<td>4 100.0</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded.
### Table 4. Percentage of Job Dedicated Toward Chronic Pain

<table>
<thead>
<tr>
<th>In my work…</th>
<th>Always or Almost Always (76-100% of the time)</th>
<th>Sometimes (26-75% of the time)</th>
<th>Rarely or Never (0-25% of the time)</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Assess the health education needs of individuals/communities related to Chronic Pain</td>
<td>12 11.0</td>
<td>17 15.5</td>
<td>81 73.6</td>
<td>1.91</td>
</tr>
<tr>
<td>I Plan effective health education programs to address Chronic Pain</td>
<td>13 12.0</td>
<td>8 7.4</td>
<td>87 80.6</td>
<td>1.77</td>
</tr>
<tr>
<td>I Implement health education programs to address Chronic Pain</td>
<td>13 11.8</td>
<td>10 9.1</td>
<td>87 79.1</td>
<td>1.77</td>
</tr>
<tr>
<td>I Evaluate the effectiveness of health education programs that address Chronic Pain</td>
<td>12 11.1</td>
<td>10 9.3</td>
<td>86 79.7</td>
<td>1.72</td>
</tr>
<tr>
<td>I Coordinate the provision of health education services that address Chronic Pain</td>
<td>10 9.2</td>
<td>14 12.8</td>
<td>85 78.0</td>
<td>1.68</td>
</tr>
<tr>
<td>I Act as a resource person in health education for individuals/communities in regards to Chronic Pain</td>
<td>19 17.2</td>
<td>21 19.1</td>
<td>70 63.7</td>
<td>2.12</td>
</tr>
<tr>
<td>I Communicate health and health education needs, concerns and resources to and for individuals/communities who experience Chronic Pain</td>
<td>23 21.1</td>
<td>17 15.6</td>
<td>69 63.3</td>
<td>2.16</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded. Higher mean scores indicate higher percent of time on a 1 (Never, 0% of the time) to 5 (Always, 100% of the time) scale.
Table 5. Knowledge of Chronic Pain – True/False Questions

<table>
<thead>
<tr>
<th>Statement</th>
<th>Correct N</th>
<th>Correct %</th>
<th>Incorrect N</th>
<th>Incorrect %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic pain is considered a disability when it causes visible, physical limitations.</td>
<td>26</td>
<td>26.0</td>
<td>74</td>
<td>74.0</td>
</tr>
<tr>
<td>Symptoms related to chronic pain can be stable, progressive or transitory.</td>
<td>91</td>
<td>91.0</td>
<td>9</td>
<td>9.0</td>
</tr>
<tr>
<td>Individuals with chronic pain can have permanent tissue damage due to their condition.</td>
<td>82</td>
<td>82.0</td>
<td>18</td>
<td>18.0</td>
</tr>
<tr>
<td>Healthy People 2020 includes objectives that specifically address chronic pain.</td>
<td>38</td>
<td>38.0</td>
<td>62</td>
<td>62.0</td>
</tr>
<tr>
<td>People with chronic pain should avoid participation in fitness because it can exacerbate their pain.</td>
<td>86</td>
<td>86.9</td>
<td>13</td>
<td>13.1</td>
</tr>
<tr>
<td>Stigma/discrimination experienced by people who have chronic pain can be more debilitating than the condition itself.</td>
<td>85</td>
<td>85.0</td>
<td>15</td>
<td>15.0</td>
</tr>
<tr>
<td>Chronic pain costs the US over $100 billion dollars in medical costs and lost wages annually.</td>
<td>70</td>
<td>70.0</td>
<td>30</td>
<td>30.0</td>
</tr>
<tr>
<td>Individuals with sedentary jobs experience less chronic pain than those with manual jobs.</td>
<td>78</td>
<td>78.0</td>
<td>22</td>
<td>22.0</td>
</tr>
<tr>
<td>Chronic pain negatively affects productivity in the workplace.</td>
<td>92</td>
<td>93.9</td>
<td>6</td>
<td>6.1</td>
</tr>
<tr>
<td>The prevalence of chronic pain is high but stable.</td>
<td>31</td>
<td>31.6</td>
<td>67</td>
<td>68.4</td>
</tr>
<tr>
<td>Chronic pain significantly affects one’s overall quality of life.</td>
<td>97</td>
<td>97.0</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>Up to 1/3 of all absenteeism is attributable to musculoskeletal disorders.</td>
<td>64</td>
<td>64.6</td>
<td>35</td>
<td>35.4</td>
</tr>
<tr>
<td>Pain medication is the most effective treatment for chronic pain.</td>
<td>73</td>
<td>73.0</td>
<td>27</td>
<td>27.0</td>
</tr>
<tr>
<td>Coping skills are considered a possible strategy when working with those suffering from chronic pain.</td>
<td>88</td>
<td>88.0</td>
<td>12</td>
<td>12.0</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded.
Table 6. Attitudes About Chronic Pain & Health Promotion and Education Profession

<table>
<thead>
<tr>
<th>In my work...</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree Nor Disagree</th>
<th>Strongly Disagree or Disagree</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health promotion &amp; education professionals should be competent when working with clients/students who experience chronic pain.</td>
<td>78 79.6</td>
<td>13 13.3</td>
<td>7 7.1</td>
<td>4.03</td>
</tr>
<tr>
<td>Professional preparation curricula should include chronic pain as an important health condition to be considered in HPE program planning, implementation and or evaluation.</td>
<td>74 75.5</td>
<td>17 17.3</td>
<td>7 7.1</td>
<td>3.89</td>
</tr>
<tr>
<td>Because chronic pain is a prevalent health condition affecting a significant proportion of communities across the US it should be a high priority in HPE research.</td>
<td>67 68.3</td>
<td>21 21.4</td>
<td>10 10.2</td>
<td>3.76</td>
</tr>
<tr>
<td>Health educators should address issues related to stigma toward people experiencing chronic pain.</td>
<td>79 80.7</td>
<td>12 12.2</td>
<td>7 7.1</td>
<td>3.96</td>
</tr>
<tr>
<td>Awareness of chronic pain should be an advocacy priority for HPE professionals.</td>
<td>65 67.7</td>
<td>23 24</td>
<td>8 8.3</td>
<td>3.75</td>
</tr>
<tr>
<td>Health educators can play an important role in improving self-efficacy and coping strategies for managing chronic pain.</td>
<td>86 87.7</td>
<td>5 5.1</td>
<td>7 7.1</td>
<td>4.11</td>
</tr>
<tr>
<td>Primary, secondary and/or tertiary strategies are appropriate and can be effectively utilized to address chronic pain HPE needs of our communities.</td>
<td>85 86.7</td>
<td>6 6.1</td>
<td>7 7.1</td>
<td>4.09</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded. Higher mean score reflects more positive attitudes, as rated on a 1 (Strongly disagree) to 5 (strongly disagree) scale.
### Table 7. Inferential ANOVA Testing for Research Questions 1-6

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Experience</td>
<td></td>
<td>4.503</td>
<td>.037*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Level</td>
<td></td>
<td>10.66</td>
<td>2.045</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Level</td>
<td></td>
<td>9.56</td>
<td>2.813</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certifications</td>
<td></td>
<td>4.859</td>
<td>.011*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCHES</td>
<td></td>
<td>11.53</td>
<td>1.187</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHES</td>
<td></td>
<td>9.45</td>
<td>2.549</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Certification</td>
<td></td>
<td>10.21</td>
<td>2.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attitudes</strong></td>
<td></td>
<td>7.211</td>
<td>.009*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Prep.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Preparation</td>
<td></td>
<td>29.63</td>
<td>5.113</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Preparation</td>
<td></td>
<td>26.27</td>
<td>6.422</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Experience</td>
<td></td>
<td>3.385</td>
<td>.031*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td></td>
<td>18.83</td>
<td>8.704</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 years</td>
<td></td>
<td>30.0</td>
<td>4.147</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-5 years</td>
<td></td>
<td>30.85</td>
<td>3.288</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 + years</td>
<td></td>
<td>26.92</td>
<td>9.042</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05. Means sharing a superscript are not statistically different from each other. Means not sharing a superscript are statistically different from each other.
MANUSCRIPT TWO- Chronic Pain: The Role of Professional Experience, and Preparation on Self-Efficacy of Health Educators
Background

As chronic pain becomes more visible in the public eye as a health concern that commands additional effort and attention due to the breadth of its impact, health educators and health promoters have the opportunity to provide a significant level of service for those with this chronic illness. Unfortunately, there appears to be some inconsistency with who is addressing chronic pain, a lack of understanding of the job tasks that health educators perform in the field, what their educational and development background is with regards to training specifically for addressing chronic pain, but more importantly, what their self-efficacy is for addressing chronic pain in the field (Baisch, Krajny, Wagner and Symons, 2015). By learning more about health educators that are working on chronic pain already, we can better understand how to best prepare those that are new in the field who may encounter chronic pain in their future career. Additionally, knowing whether or not health educators have self-efficacy to address chronic pain can enlighten program directors as to the sufficiency of existing efforts, or if a more concerted effort needs to be made to train and prepare health educators to address the chronic pain epidemic both at the university level and by way of continuing and developmental education.

Training

At the present time, we do not have a good understanding about the abilities of health education and promotion professionals to work with those suffering from chronic pain. Reports have just begun to shed light on what health promotion and health education may be able to do to relieve the stress of chronic pain (Johnson & Dixey, 2012), but it is not clearly understood what training is available to health educators as they prepare for their professions in the ways of chronic pain education, awareness and best practices. Because this aspect of health does not have a great depth of research to support programming options, it is believed that many
individuals working in the field toward improving the lives of those experiencing chronic pain are doing from trial and error instead of empirically tested protocols, and are doing so as they have assessed a need. Professional education in higher education has foundational courses about theory and professional practice, however, addressing chronic pain specifically as a health condition does not appear to be set as a priority.

**Self-Efficacy**

Literature which looks at the experience of workers and individuals who have chronic pain to learn about their experiences and challenges from their perspective is growing, which will help us to determine the most effective means to reaching those individuals affected (Dionne, Bourbonnais, Fremont, Rossignol, Stock & Laperriere, 2013). Health educators will be faced with a need for a breadth of knowledge about chronic pain but also with the skill to reach those individuals and to be effective, keeping in mind those they are trying to reach may be nervous and hesitant to disclose their condition much less take the steps to address it. One aspect to consider is that many of the people in a workplace setting with chronic pain will not be available to participate in programming – as they could be on leave or in too much pain to participate, thus we’ll need to be creative not only in our programming but also in our delivery to reach all individuals suffering from chronic pain (Odeen, 2012). It is important to remember that programs need to be inclusive of all, yet research has shown tailoring programs based on diagnoses or where someone may be with their condition can be very effective (Odeen, 2012). Health educators can work to solve this conundrum and provide recommendations for worksites and individuals alike to adopt to better provide an environment for those with chronic pain, because as Johnston & Shaw (2013) state, the worksite is a positive health behavior, and keeping people there results in positive health outcomes.
**Professional Practice**

Health educators have a professional obligation to be competent in a number of areas of responsibility, with most competencies being relevant for the conversation of chronic pain. To demonstrate this perspective, consider competency 1.4, which shares that a health educator should be able to "examine relationships among behavioral, environmental and genetic factors that enhance or compromise health," which in practice describes the need to determine what may be causing chronic pain in the population one is serving to best determine the needs for health education. Another competency that is particularly important to the conversation of chronic pain is competency 1.7, which explains that health educators should be able to "assess and prioritize health information and advocacy needs" while competency 7.5 shares the need for health educators to "influence policy to promote health." There is a framework shared by our competencies for working toward chronic pain, however, significant change needs to occur to see this framework utilized (NCHEC, 2015).

Chronic pain has a relationship with each of the four overarching goals of Healthy People, 2020. These goals include the need for individuals to attain longer, and higher-quality, lives free of illness or disability while striving to have health equity, and a minimizing of disparities. Healthy People, 2020 also aims to create environments that can help individuals achieve good health and promote the notion of quality of life and positive healthy practices at all ages. Measures of this progress now include chronic disease prevalence, unhealthy days due to both physical and mental health, and the ability to participate in common activities. Health topics identified that are related to chronic pain include arthritis, osteoarthritis and chronic back pain, disability and health, health related to quality of life and well-being and occupational safety and health. Specifically, arthritis, osteoporosis and chronic back conditions are described in
detail as a topic & objective to address in public health. As health educators, knowing the expectations set forth by our federal government planners, it is imperative that we build our ability to work with those with chronic pain so we can collaboratively develop a means of controlling and improving the symptoms and experiences of those suffering.

Health education and promotion research has not yet focused on chronic pain. Johnson and Dixey (2013) described this need in an article about the health promotion agenda, stating that pain or the lack thereof needs to be added to the definition of health, that we need to add it to the discussion of healthcare access, equality and justice as well as provide education to build confidence in both the individuals experiencing pain and those of us hoping to address it so we have empowerment to improve this important descriptor of health. A quote by Robertson from 1998 discusses the role of health education and promotion professionals, stating:

Health promotion makes room for the stories which individuals and communities tell about their everyday experience of health, which legitimizes them as being as important to our understanding of health as statistics on morbidity and mortality rates (Johnson and Dixey, pg. 43).

There are many opportunities for health education and health promotion to serve the needs of those experiencing chronic pain - yet we don’t have the evidence yet to prove it.

Issues that impact those with disability reach across many focus areas for health promotion professionals to interact with: education, training, research and service. Rimmer (2011) recommends that those involved with the American Public Health Association consider ways to bring awareness of disability issues and needs into each section of the organization, a recommendation that will hopefully begin to work itself outside of the professional organization and into practice. His proposal shared that leadership of disability messaging and promotion
needs to travel horizontally instead of vertically to increase the ability of issues to be heard and understood at all levels of public health (Rimmer, 2011).

Health education and promotion professionals have a significant opportunity to effect change for those with chronic pain specifically in the work setting as more organizations are adopting comprehensive wellness programming and turning to health educators to implement them. The workplace is a “fruitful” setting for health promotion as there are social networks, a large proportion of the population as well as a large amount of time that individuals spend there (Rongen, Robroek, van Lenthe & Burdorf, 2008). This is believed to be why research is showing workplace health promotion programs to reduce time for sickness and that they improve productivity and work ability (Brown, Gilson, Burton & Brown, 2013; Cancelliere, Cassidy, Ammendolla & Cote, 2011; Rongen et al., 2008).

A variety of methods could be used by health educators to create an impact on chronic pain sufferers. One study that took a narrative approach to reporting a counseling initiative for those with low back pain found the minimal treatment left those tested feeling "active and in control" after feeling like a victim as they were able to work beyond the occupational and psychosocial barriers and learn how to assimilate back into their role and return to work (Angel, Jensen, Gonge, Maribo, Schiottz-Chrsitensen & Buus, 2011). This study proved that just taking the time to listen and to talk through options and alternatives made a big impact on the return to work of the participants, demonstrating a role health educators could take in a workplace setting. Draper, Reid, and McMahon (2011) found similar research and reported that those with disabilities need counseling, education and contact to reduce health related stigma. What is challenging is that often health educators aren't utilized or sought out in the occupational environment, and models and approaches for working with individuals with chronic pain to
manage and cope are "only rarely in an occupational health context" (Coutu, Baril, Durand, Cote & Rouleau, 2007).

A qualitative study by Ashby, Richards and James (2010) found that many with chronic pain (in their case low back pain) experienced kinesiophobia, or a fear of movement, as they had incorrect interpretations of what they had learned from their healthcare providers. Upon acting on these fears, or more so as a result of their inactivity in response, they began to have greater self-perception of disability, deconditioning and lower performance on tests – thus losing self-efficacy and in turn further disabling themselves. Hearing this from the lens of health education means there’s a gap between knowledge received and understanding it’s meaning that could be resolved with proper training and implementation of professionals equipped to handle such situations. Having health educators involved in the care process for those with chronic pain

Another way health educators can make a difference for those suffering with chronic pain is through education and training in the workplace for management. In the workplace, there is "insufficient expertise among managers and occupational health in modifying for employees," which is a task health education and promotion could easily take on (Coole, Watson & Drummond, 2010, pg.1). Working collaboratively with occupational health nurses, public health administration, human resources and other professionals to develop training methods, protocols and education could help management to better address their employees experiencing difficulty in the workplace. Research has shown that managers who work with their employees to provide workplace accommodations see benefits in retention rates, worker productivity, and eliminating the costs related to recruitment and training of new staff (Solovieva, Dowler & Walls, 2011). Solovieva et al. also found that providing accommodations helped interpersonal connections to improve between employees and their management, along with overall morale, and a significant
way for health educators to help companies to see a return on efforts made to work with those suffering from chronic pain (2011).

**Significance of Study**

The significance of this study was to provide recommendations to improve the outcomes for those with chronic pain by better equipping health educators to address their needs in professional practice. It is believed that health educators may not be aware of the significance of chronic pain and that there may be opportunity to improve through professional development what capabilities health educators have to address chronic pain in their setting.

**Purpose of Study**

This study was focused upon self-efficacy, training, competencies and both professional practice and preparation of health educators for working with those with chronic pain. Specifically, the study answered the research questions:

1. Does self-efficacy for working with those with chronic pain differ by the level of experience of a health educator, considering their years of experience specifically working in chronic pain or the percentage of their job dedicated toward chronic pain?

2. Does self-efficacy for working with those with chronic pain differ by the training a health educator receives, specifically related to condition and treatment specific training around chronic pain, disability and coping strategies?

3. Does self-efficacy for working with those with chronic pain differ if a health educator has personal experience with chronic pain or disability, either themselves or from a friend or family member?
4. What settings are more likely to require sufficient professional preparation in chronic pain?

5. What recommendations do health educators have for future professional development for working with those who have chronic pain?

By learning more about health educators that are working on chronic pain already, we can better understand how to best prepare those that are new in the field who may encounter chronic pain in their future career. Additionally, knowing whether or not health educators have self-efficacy to address chronic pain can enlighten program directors to whether what is in existence is enough, or if a more concerted effort needs to be made to train and prepare health educators to address the chronic pain epidemic both at the university level and by way of continuing and developmental education.

Methods

A cross-sectional online survey tool was used to measure the self-efficacy, training competencies and professional practice and preparation of health educators working with chronic pain and determine how best health educators can prepare to serve in a role to improve the lives of those affected by chronic pain. The University of Cincinnati Institutional Review Board review was completed to confirm no harm to subjects for research that is expected to shed light on this important health topic.

Procedures

To assess the self-efficacy of health educators in relationship with chronic pain and their experiences and recommendations for future professional practice, this study was conducted via an online survey. With the approval of the University of Cincinnati Institutional Review Board (See Appendix A), an online version of the survey was created using Qualtrics and was available
across devices (e.g. computer, tablet & smart phone). The survey was internally evaluated and distributed via email to potential participants.

**Recruitment**

The study link was shared with health educators via SOPHE state/regional chapter delegates which is anecdotally the best way to reach practicing health educators. Other studies have conducted research using this method and it is accepted as valid for our profession as a means of capturing a representative sample. Additional recruitment was performed using snowball sampling, including messages sent to wellness program managers, field health educators and other professional colleagues who were willing to forward along. Snowball contacts received the same email link and script. Recruitment emails were sent out in late October with 2 two-week follow up reminders. The survey was closed in mid-December of 2015.

The script that accompanied the study participation request described the purpose and intention of this research project, the research questions to be answered and the desired outcome of developing best practices and suggestions for the future role of health educators in addressing the chronic pain epidemic and invite them to help further the practice of health education. It also provided contact information for any questions about the study. The Institutional Review Board template for informed consent was utilized when developing the consent for this study. Consent for the study was be granted by continuing to complete the survey questions beyond the informed consent language at the beginning of the instrument.

**Participants**

It is not clear how many total health educators received the emailed script. It is known that 145 potential participants reached the survey page, 144 started the survey and 122 completed most of the items. Only 101 participants completed 100% of the items. This produces a
participation rate of 84.72% and a completion rate of 70.01% for those who read the consent form, self-selected as eligible and consented to participate in the study.

**Instrument**

The instrument was designed using a blend of question styles and evaluated internally with subject matter experts in survey development and health education (n=3). Testing was performed on the instrument and revised for technical issues, usability and timing. The instrument took 13 minutes on average to complete. Appendix A includes a complete copy of the survey tool.

**About You & Self-Efficacy**

Participants were asked 10 items to learn about what state they worked, the professional preparation specific degrees earned in health education, professional credentials and certifications, the primary capacity they’ve worked in health education (full-time, part-time, etc.), job title and responsibilities as well as they are currently employed. Next, professional preparation in content and skill related to chronic pain, disabilities and coping strategies as asked as well as the setting they had work experience with chronic pain and the length of time spent working on this subject matter. An assessment of experience level was asked with 7 statements related to the health education competencies and 7 more statements asking about level of self-efficacy using a Likert scale.

**Knowledge and Attitudes**

Participants were asked to self-rate their knowledge and comfort levels with chronic pain as a health condition and when working in their community using a Likert scale. Knowledge level was tested with 14 statements with true, false and don’t know for the answer choices.
Understanding attitudes came from a series of 7 questions about the profession and its connection with health promotion to which participants had to provide their level of agreement.

**Recommendations for Professional Development**

Next, the survey asked participants whether or not chronic pain should be addressed in the professional preparation of health educators, with follow up questions asking whether it should be at the undergraduate or graduate level, and a chance to explain why they did or did not feel it should be. To better understand their perspective, participants shared whether they felt their preparations included enough about chronic pain and to share how the effects of chronic pain on quality of life could be embedded into curriculum of health education professionals.

**Personal Experience and Demographics**

To learn more about participant awareness of the issues that surround disability and chronic pain, the survey included questions about personal experience with both, including their own experience personally or with their friends, family, co-workers or those they’ve lived with. Demographics were then asked including age, gender, race, ethnicity, employment status and level of education (in any field).

**Data Analysis**

SPSS version 23 was used for analysis of the data collected in this study. The data was cleaned by removing data entry errors and evaluating missing data. The distribution of the data was reviewed including kurtosis statistics and the normality or skewness. Descriptive statistics were run to determine the count, percentage and central tendency for each variable within the data. Cronbach Alpha tests were run to learn about the reliability of each scale score. Scale reliability for the Self-Efficacy (alpha = .996, n=7), Knowledge (alpha = .676, n=14), and Attitude (alpha = .959, n=7) scales was found to be acceptable. ANOVA tests were conducted to
answer the inferential research questions and included testing of the assumption of homogeneity of variance for each computation. All findings are reported in the aggregate form.

**Results**

**Demographics**

The respondents to this survey had earned at least a bachelor’s (21.3%, n=26), but mostly a master’s (45.1%, n=55) or doctorate degree (26.2%, n=32) in health promotion or education, and nearly 80% (n= 67) are either CHES or MCHES credentialed. The majority of our participants are from the Midwest (52.2%, n=60) due to the snowball sampling that was utilized to recruit participants.

Participants were between 21 and 74 and evenly distributed amongst age and were then categorized as 18-20, 31-45, 46-64 and 65 and over. The survey was greatly representative of those who identify as female (89.9%, n=89) vs. male (8.1%, n=8), with another 2% (n=2) of respondents identifying as other. Race was divided amongst 4 categories, with the majority of respondents selecting White/Caucasian (80.8%, n=80) and African American (8.1%, n=8). Asian/Pacific Islander/Native American accounted for 4% (n=4) of respondents and another 7.1% (n=7) selected “other.” 7.3% (n=7) of respondents selected Latino ethnicity and 5.2% (n=5) selected Appalachian ethnicity.

**Current Employment**

Respondents to this survey mostly described their current employment to be full-time in the field of health promotion and education (83.8%, n=83), with some working part-time (11.2%, n=11), contractually (3%, n=3) and some unemployed (2%, n=2). Mostly, respondents worked in public universities/colleges (35.6%, n=42) and public health agencies (26.4%, n=31). This information is reported in detail in Table 8.
Length of time working in chronic pain and self-rated knowledge and comfort

Health educators have spent a varying amount of time working in the area of chronic pain, but most notably is that those who responded to this survey are either new to the field (<1 year (23.3%, n=10) or had been working in chronic pain for 5 or more years (34.9%, n=15). Overall, respondents indicated a fairly even distribution of their own self-knowledge of chronic pain when combining very high and high (37.2%, n=38), average (31.4%, n=32) and low and very low (31.4%, n=32). Respondents had higher results when asked about their comfort interacting with those with chronic pain when combining very comfortable and comfortable (56.9%, n=58), neutral (25.5%, n=26) and uncomfortable and very uncomfortable (17.6%, n=18). Results shared in Table 9.

Professional Preparation & Training

Professional preparation training received in the areas of chronic pain, disabilities and coping strategies for managing health conditions was assessed by asking the setting in which it was received, which included undergraduate and graduate courses, continuing education opportunities, training on the job, self-taught on the job, volunteer experience, and personal experience themselves or through a friend or family member. Of those that responded to the question, the top three answers for chronic pain were personal experience through a friend or family member (68.6%, n=35), self-taught on the job (67.2%, n=41) and personal experience with chronic pain (63.0%, n=29). For disabilities, the top three answers were volunteer experience (59.0%, n=23), self-taught on the job (55.7%, n=34) and continuing education opportunities (54.4%, n=31). Coping strategies had higher respondent ratings and the top three selected were undergraduate health education courses (83.9%, n=47), self-taught on the job (80.3%, n=49) and personal experience with chronic pain (80.4%, n=37). The total scores for
these questions were summarized to create a total professional preparation scale score with totals ranging from 0 to 30. The average score for total professional preparation training was 7.3 (SD = 4.809). This score was dichotomized using the mean (M=12.98) for analysis to indicate higher level of professional preparation and lower level of professional preparation.

Self-Efficacy

Regardless of length of time spent working toward chronic pain and amount of time at work addressing the issue, the participants were also asked to share their confidence in working with chronic pain. On a 5-point scale where higher means indicated higher confidence, the highest mean was for “coordinating the provision of health education services for individuals/communities with chronic pain” with a mean of 2.69 (SD = 1.046) and the lowest mean was for “communicating health and health education needs, concerns and resources to and for individuals/communities with chronic pain,” with a mean of 2.43 (SD = 1.071). All responses shared in Table 10. The self-efficacy scale score was created using the responses to question 14 which asked participants about their confidence in situations related to the health education competencies. The answer choices ranged from extremely confident to not at all confident. The scale scores ranged from 7-28 with an average score of 16.79 and a standard deviation of 6.579.

Impressions of chronic pain in health promotion and education professional preparation

When asked if professional preparation should be covered in health education professional preparation, 13.1% (n=13) individuals responded no, where 86.9% (n=86) responded yes. The respondents that selected yes were asked at what level, to which the vast majority felt both undergraduate and graduate levels (74.4%, n=64), with 15.1% (n=13) stating it should be covered in undergraduate and 10.5% (n=9) stating is should be covered in graduate level courses. For respondents that selected no, a follow up question “why” was asked, with
answers providing some insight. One respondent explained that their professional preparation
didn’t single any chronic disease out. Another felt it is not a public health focus – and it was best
to spend efforts on those driving trends like diabetes, injury prevention and chronic disease
prevention, another respondent adding they felt that chronic pain is a condition to be addressed
on an individual level. Another felt it was indirectly addressed, as chronic pain results from poor
health conditions that we do address, which also explains another response that “it can be
integrated.” Some other answers including a perception that it’s more of a medical vs.
preventive condition to treat, and a shift in the health education and promotion agenda toward
policy, systems and environmental change. Lastly, a suggestion that more time spent learning
anatomy and physiology would allow health educators to address chronic pain due to increased
preparation.

All respondents were asked whether they felt their professional preparation curriculum
provided enough knowledge about chronic pain, to which only 11.1% (n=11) stated it had.
Despite having some knowledge about and confidence to address chronic pain, 38.4% (n=38) of
respondents did not feel their preparation provided enough on chronic pain and the majority
(50.5%, n=50) selected they had had no professional preparation curriculum covering chronic
pain.

**Personal experience with chronic pain and disability**

No answer was exclusive of another, but it does appear the majority of participants have
had some experience with someone in their life with disability and chronic pain, if not
themselves personally, as seen in Table 11. Individuals who responded to this survey indicated
that 21.4% (n=21) had personal experience with disability and 41.4% (n=41) had personal
experience with chronic pain. The majority of participants had experience with disability through
a friend (73.7%, n=73) and/or family member (70.7%, n=70) and similarly with chronic pain through a friend (64.6%, n=64) and/or family member (70.7%, n=70).

**Chronic Pain Self-Efficacy, Professional Preparation and Professional or Personal Experience**

There was no statistically significant difference between groups when running a one-way ANOVA test comparing the self-efficacy score with the years of experience working in chronic pain $F(3,32) = 2.431, p = .085$. However, there was a statistically significant difference between self-efficacy scores and the percentage of one’s job dedicated toward working in chronic pain, $F(1,94) = 19.024, p < .000$. Indicating those that spent more time working toward chronic pain had higher self-efficacy toward working with chronic pain ($M = 19.46, SD = 5.577$ vs. $M = 14.06, SD = 6.417$) (Table 12).

A statistically significant difference was found between self-efficacy scale scores and total professional preparation training in chronic pain, disability and coping strategies, $F(1,89) = 10.922, p = .001$. Indicating that those who had more professional preparation also had a higher self-efficacy scores ($M = 19.45, SD = 5.840$) than those with less professional preparation ($M = 15.23, SD = 6.224$) (Table 12).

There was no statistically significant difference when comparing self-efficacy and personal experience with disability $F(1,94) = .230, p = .633$ or chronic pain $F(1,94) = 2.809, p = .097$ when completing a one-way ANOVA. Indicating that personal experience does not seem to have a relationship to self-efficacy.

**Professional Settings and Professional Preparation in Chronic Pain**

Due to the low response rate for the survey, this question did not yield enough power to determine, as results were spread across 7 categories. Those who had or currently work to
address chronic pain scored higher for professional preparation, with 32 individuals falling into the higher category vs. 9 in the lower category, however individual categories have too few respondents to determine statistical significance. To note, respondents were asked to share their current job title, as often health educators serve in roles that are not obviously held by a health educator. Responses to this question included Public Health Educator, Wellness Program Manager/Coordinator, Health Education Supervisor/Coordinator/Specialist, Adjunct/Assistant/Associate Professor, & Chair, Corporate Wellness Coach/Health Educator, Personal Trainer, Fitness Specialist, Health Advisor, Freelance Health and Medical Writer, Nutrition Educator, Education Content Manager. Specific titles of individuals who are founders or directors of programs cannot be shared as they are unique and may be identifiable.

**Recommendations of health educators for future professional development in Chronic Pain**

Participants were asked to share where they felt chronic pain fit in the health education curriculum and the open ended responses were distributed across five categories: 1) embedded into a class that already exists (42.3%, n=33), 2) holistic health, lifestyle and coping related electives (19.2%, n=15), 3) related to pharmacology and addiction studies (10.3%, n=8), 4) hands-on, practicum and case study experiences (7.7%, n=6), and the rest fell into 5) “other” (20.5%, n=16). It appears there may be a good amount of support for treating chronic pain just as any other chronic condition, especially because it is experienced as a co-morbidity of many conditions.

**Limitations**

This study does have limitations that need to be addressed. First, the initial low response rate when relying on recruitment through the SOPHE state chapters directed the study to a snowball sampling. This yielded additional responses, however, this also means that the
sampling is less random and open to the general population and instead those “invited” by colleagues of colleagues. The sample size of this study was exploratory in nature, thus, recommendations and conclusions are limited to this data set. Future research will need to be conducted to expand the recommendations to the larger population of health educators and to further recruit and analyze amongst practitioners in the field vs. educators in academia.

Many questions within this survey were self-reported, some of which were done so in an open-ended format. This allows for greater error in reporting and diversity with the interpretation. Having a larger sample size along with additional questions that can further identify aspects of being a health educator that are more quantitative could increase the power of recommendations developed.

**Discussion & Implications**

Health educators who participated in this study have spent a varied amount of time (less than a year to over five years) addressing chronic pain. Keeping this in mind, approximately 6 in 10 health educators felt their knowledge of chronic pain ranged between *average* and *very low* and just over half felt *comfortable* or *very comfortable* interacting with those who had chronic pain. The lack of self-efficacy was further seen in the results when health educators were asked about confidence in a variety situations they may find themselves in. Though health educators may be doing the work, they appear to lack the confidence and self-assurance that they are approaching the condition appropriately. To better address this identified gap between work experience and self-efficacy, additional training and experiences for health educators both during professional preparation and in professional development will need to focus on chronic pain research, treatment and coping methods and the means to reach those who are affected to help health educators to feel better equipped to manage this health condition. Research begun by
Coutu et al. (2007) could be built upon to learn how to better approach the self-efficacy of health educators while better addressing those with chronic pain and possible related disability.

Considering the number of individuals who reported their experience in chronic pain was mostly self-taught, on the job training or through personal experience, more effort needs to be spent to encourage learning about chronic pain pre-professionally and as continuing education to better prepare health educators to address chronic pain in the field and to have a consistent approach that is based in best practices used to address those affected by it. As found in the Role Delineation Project, there is a difference between the “state of the art” and the “state of the practice” with the profession of health education – but this is something that can be addressed (Baisch et al., 2015). The fitness industry has models in place that provide 1-day courses and online training on hands-on topics that could easily be replicated to teach modalities and strategies that health educators could use to provide training to individuals with chronic pain. Several respondents shared that though we often teach about chronic conditions, how to actually work with individuals with the conditions may be left out of the curriculum– indicating that by taking the time to give practical, useful strategies and tactics about chronic pain management, the ability to work in the field in a wider variety of settings could be improved for health education practitioners.

Asking health educators about how chronic pain may best be integrated into the professional curriculum shed some insight as to the perception of appropriateness and importance of this topic. Many felt it would be best to address chronic pain in courses that teach other health issues including epidemiology, health issues, health behavior, advocacy, drug awareness, chronic and communicable disease or a course on pain management, just as there are courses on stress management. Several people suggested it should be brought up at the same time
as disabilities or by using case studies, practicums, internships or program planning. It would be helpful to have this reviewed with a collaborative group to make collective decisions across accredited programs and to develop recommendations to implement into the curriculum. This would also be an excellent topic for round table discussions at professional conferences to determine strategies that would best meet the need to address chronic pain but also the needs of professionals throughout the field to obtain the training recommended.

The open-ended responses included recommendations to address chronic pain with safety in the workplace and occupational focused courses as well as those that cover substance abuse issues due to relationship of the two and impact on one another. As seen in the research, the workplace is a well-suited place to address modalities like self-management skills that can aid individuals with decision-making and resource utilization (Anderson, L.N., Jul-Kristensen, B., Roessler, K. K., Herborg, L.G., Sorensen, T.L. & Sogaard, K., 2013). This further supports that making an action plan can be instrumental for those with chronic health conditions to return to work or remain in work, leading to better health outcomes long-term (Johnston & Shaw, 2013). Finding new roles for health educators to begin to address chronic pain and partner with professions like occupational medicine and nursing (which may traditionally address these areas) may provide job opportunities and greater impact for those affected.

A recent influx of news stories of individuals using drugs and causing dangerous and harmful situations for themselves and others, one respondent suggested that additional conversation should be focused on issues related to chronic pain like prescription medication use, disposal and crime surrounding its use. Specifically addressing the treatment aspect of chronic pain, other comments included a focus on early detection and holistic care and treatment, and utilizing multiple modalities (conventional and alternative) as well as addressing the “stigma,
myths facts about chronic pain, coping mechanisms and general education on how to advocate for chronic pain patients.” Health educators provided a great diversity of responses – the challenge will now be to expand this research and with the additional findings create a planned approach for integrating the education and experiences health educators have already begun to recognize they’ve missed in their own professional training. Luckily, continuing education can be offered in a variety of formats, including regional gatherings like the Health Educators’ Institute which may be most appropriate. Identifying the “experts” and learning more about best practices, if they exist, that may be available in other fields, could direct health educators to a specific course of action. Development of training in this area and it becoming a core requirement of professional preparation /continuing education could be a long-term goal to reach should the prevalence and incidence of chronic pain continue to rise along with healthcare costs. Initially, resources could be devised to share what is currently available by means of both professional education and curriculum as well as continuing education. Streamlining the access to the information and resources available will increase the likelihood of practitioners taking advantage of it, but can also aid in efforts to promote the subject matter as a priority area for health educators.

The impact of chronic pain is growing and health educators need to increase their role for addressing chronic pain by leveraging their educational background and utilizing the professional competencies to make a change for those affected (NCHEC, 2015). The recommendations put forth by Healthy People 2020 are increasing the focus on conditions with pain with each iteration. Health education practitioners must work to be ahead of the curve if they wish to be sought for new roles and opportunities to address this amongst other conditions in the greater community they work in. Because chronic pain is both a condition as well as the
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result of or co-existing with other health conditions, it is quite difficult to determine the right path to take to learn more about it, how to address it and to become proficient in the strategies available to address it. It would be helpful to first determine what gaps exist in education that could be developed, marketed and promoted through an analysis of programming in higher education, continuing education and conference settings. Noting that Baisch et al (2015) also recognized that many health educators are not professionally prepared and are not using evidence-based practices, it’s important our profession takes time to look at what we are doing to prepare our professionals for the field to best address the needs that exist.

Conclusions

Health educators can serve in many roles and capacities, addressing a variety of health conditions and populations. Arguably, health educators have not been trained or entrusted to work with those who deal with chronic pain, a condition becoming more prevalent. This investigation sought to find preliminary reasons to evaluate and expand upon what health educators are currently being taught around the topic of chronic pain. It appears there is a need to expand this research to a larger, national study, to better understand the current state of the field and our capacity and abilities to address chronic pain.

Based on the personal experiences, professional opinions and training of those surveyed, there is a basis for continued exploration for a set of best practices for entry level practitioners to gain awareness of this growing health problem, beginning in the classroom and including experiential learning such as practicum and internship opportunities. Considering the growing need for chronic pain to be addressed in an interdisciplinary way across many settings, health educators with adequate training can position themselves to gain entry into new roles and settings while serving a community who is in need of their help. Learning more about what is
currently being provided pre-professionally through conversations with academic leadership and continuing education opportunities through analysis of workshops, trainings and inter-agency education will help to create a master listing of what’s available, but also identify what is missing, allowing future recommendations to focus on the gaps that exist. Those in the field who may already be addressing this topic via self-taught methods will benefit from education developed by experts in the area of chronic pain, pulling individuals from a variety of backgrounds and specialties. As chronic pain is something that appears to be best addressed in a multi-modal fashion, it will be important to consider the many facets by which to reach individuals and work to create a series of programming to address each. This could be delivered in increments in an online format, making live programming for experiential learning available. This multidimensional approach to learning more and outlining recommendations for future practice will help health educators to build their awareness and self-efficacy, helping chronic pain to become an advocacy, research and practicing priority.
References


Coole, C., Watson, P.J. & Drummond, A. (2010). Low back pain patients’ experiences of


NCHEC, Health Education Specialist Practice Analysis (HESPA) (2015). *Seven areas of responsibility*. Retrieved from
http://www.nchec.org/assets/2251/hespa_sub-competencies_color_coded_33.pdf


### Table 8. Employment Status and Type of Organization

<table>
<thead>
<tr>
<th>Current Employment Status</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time</td>
<td>83</td>
<td>83.8</td>
</tr>
<tr>
<td>Part time</td>
<td>11</td>
<td>11.2</td>
</tr>
<tr>
<td>Contractual</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>Volunteer</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>99</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of organization, current employment</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public school, K-12</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Private school, K-12</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Public University/College</td>
<td>42</td>
<td>35.6</td>
</tr>
<tr>
<td>Private University/College</td>
<td>9</td>
<td>7.6</td>
</tr>
<tr>
<td>Non-for profit community agency</td>
<td>8</td>
<td>6.8</td>
</tr>
<tr>
<td>For profit community agency</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>Public Health Agency</td>
<td>31</td>
<td>26.4</td>
</tr>
<tr>
<td>Fitness/recreation center</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>Other</td>
<td>22</td>
<td>18.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>118</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded.
Table 9. Length of Time, Self-Rated Knowledge and Comfort Working in Chronic Pain

<table>
<thead>
<tr>
<th>Length of time in Chronic Pain</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>How long, in total, have you worked in chronic pain?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1 year</td>
<td>10</td>
<td>23.3</td>
</tr>
<tr>
<td>1-2 years</td>
<td>9</td>
<td>20.9</td>
</tr>
<tr>
<td>3-5 years</td>
<td>9</td>
<td>20.9</td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>15</td>
<td>34.9</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-rating of knowledge of chronic pain</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High</td>
<td>13</td>
<td>12.7</td>
</tr>
<tr>
<td>High</td>
<td>25</td>
<td>24.5</td>
</tr>
<tr>
<td>Average</td>
<td>32</td>
<td>31.4</td>
</tr>
<tr>
<td>Low</td>
<td>20</td>
<td>19.6</td>
</tr>
<tr>
<td>Very Low</td>
<td>12</td>
<td>11.8</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comfort with interacting with those with chronic pain</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Comfortable</td>
<td>21</td>
<td>20.6</td>
</tr>
<tr>
<td>Comfortable</td>
<td>37</td>
<td>36.3</td>
</tr>
<tr>
<td>Neutral</td>
<td>26</td>
<td>25.5</td>
</tr>
<tr>
<td>Uncomfortable</td>
<td>14</td>
<td>13.7</td>
</tr>
<tr>
<td>Very Uncomfortable</td>
<td>4</td>
<td>3.9</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded
Table 10. Self-Efficacy Working with Chronic Pain

<table>
<thead>
<tr>
<th>In the following situations my level of confidence is...</th>
<th>Extremely or Moderately Confident</th>
<th>Slightly or Not at all Confident</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessing the health education needs of individuals/communities related to Chronic Pain</td>
<td>42 41.6</td>
<td>59 58.4</td>
<td>2.63 .946</td>
</tr>
<tr>
<td>Planning effective health education programs that address individuals/communities with chronic pain</td>
<td>42 41.5</td>
<td>59 58.4</td>
<td>2.65 1.004</td>
</tr>
<tr>
<td>Implementing health education programs for individuals/communities with chronic pain</td>
<td>42 42.0</td>
<td>60 60.0</td>
<td>2.63 1.012</td>
</tr>
<tr>
<td>Evaluating the effectiveness of health education programs for individuals/communities with chronic pain</td>
<td>47 47.5</td>
<td>52 52.5</td>
<td>2.54 1.062</td>
</tr>
<tr>
<td>Coordinating the provision of health education services for individuals/communities with chronic pain</td>
<td>41 40.6</td>
<td>60 59.4</td>
<td>2.69 1.046</td>
</tr>
<tr>
<td>Acting as a resource person in health education for individuals/communities with chronic pain</td>
<td>51 50.5</td>
<td>50 49.5</td>
<td>2.48 1.083</td>
</tr>
<tr>
<td>Communicating health and health education needs, concerns and resources to and for individuals/communities with chronic pain</td>
<td>51 50.5</td>
<td>50 49.5</td>
<td>2.43 1.071</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded; higher means indicate higher self-efficacy, as rated on a 1 (Not at all confident) to 4 (Extremely confident) scale.
Table 11. Personal Experience with Disability and Chronic Pain

<table>
<thead>
<tr>
<th>Personal Experience with Disability</th>
<th>Yes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you/have you ever had a disability?</td>
<td>21</td>
<td>21.4</td>
</tr>
<tr>
<td>Is/was disability invisible/difficulty for others to see?</td>
<td>15</td>
<td>71.4</td>
</tr>
<tr>
<td>Have you had a friend with a disability?</td>
<td>73</td>
<td>73.7</td>
</tr>
<tr>
<td>Have you had a family member with a disability?</td>
<td>70</td>
<td>70.7</td>
</tr>
<tr>
<td>Have you ever lived with a person with a disability?</td>
<td>32</td>
<td>32.3</td>
</tr>
<tr>
<td>Have you ever worked with a person you knew had a disability?</td>
<td>77</td>
<td>77.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personal Experience with Chronic Pain</th>
<th>Yes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever experienced chronic pain?</td>
<td>41</td>
<td>41.4</td>
</tr>
<tr>
<td>Have you had a friend with chronic pain?</td>
<td>64</td>
<td>64.6</td>
</tr>
<tr>
<td>Have you had a family member with chronic pain?</td>
<td>70</td>
<td>70.7</td>
</tr>
<tr>
<td>Have you ever lived with a person with chronic pain?</td>
<td>48</td>
<td>48.5</td>
</tr>
<tr>
<td>Have you ever worked with a person you knew had chronic pain?</td>
<td>59</td>
<td>59.6</td>
</tr>
</tbody>
</table>

Note. Missing values were excluded.
Table 12. Significant ANOVAs for Self-Efficacy and Chronic Pain

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Efficacy</td>
<td>Job Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Higher Level</td>
<td>19.46</td>
<td>5.577</td>
<td>19.024</td>
<td>.00*</td>
</tr>
<tr>
<td></td>
<td>Lower Level</td>
<td>14.06</td>
<td>6.417</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Professional Prep.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Higher Preparation</td>
<td>19.45</td>
<td>5.84</td>
<td>10.922</td>
<td>.001*</td>
</tr>
<tr>
<td></td>
<td>Lower Preparation</td>
<td>15.23</td>
<td>6.224</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .05. Higher means indicate higher self-efficacy.
Appendix A - IRB Letter

University of Cincinnati Institutional Review Board Student Research Approval Letter

Institutional Review Board - Federalwide Assurance #00003152

University of Cincinnati

Date: 10/23/2015

From: UC IRB

To: Principal Investigator: Ashley Varol

A&F Benefits

Re: Study ID: 2015-7143

Study Title: Health Educators and Chronic Pain

The above referenced protocol and all applicable additional documentation provided to the IRB were reviewed and APPROVED using an EXPEDITED review procedure in accordance with 45 CFR 46.110(b)(1)(see below) on 10/23/2015.

This study will be due for continuing review at least 30 days before: 10/22/2016.

The following was reviewed:

Study Documents

Ashley Varol_2015.doc

Chronic Pain Knowledge & Awareness; Considerations for Professional Preparation of Health Educators

COI form Guylfer

COI form Varol

Email Invitation Script and Reminders Final.docx

Information Sheet Final.docx

Protocol_Ashley Varol FINAL.docx

The IRB reviewer has determined that this research presents no greater than minimal risk.

Please note the following requirements:

Consent Requirements

Per 45 CFR 46.117 (21 CFR 56.109) the IRB has waived the requirement to obtain DOCUMENTATION of informed consent for all adult participants.
Parental Permission Requirements
There are no items to display

Assent Requirements
There are no items to display

HIPAA Requirements
There are no items to display

AMENDMENTS: The principal investigator is responsible for notifying the IRB of any changes in the protocol, participating investigators, procedures, recruitment, consent forms, FDA status, or conflicts of interest. Approval is based on the information as submitted. New procedures cannot be initiated until IRB approval has been given. If you wish to change any aspect of this study, please submit an Amendment via ePAS to the IRB, providing a justification for each requested change.

CONTINUING REVIEW: The investigator is responsible for submitting a Continuing Review via ePAS to the IRB at least 30 days prior to the expiration date listed above. Please note that study procedures may only continue into the next cycle if the IRB has reviewed and granted re-approval prior to the expiration date.

UNANTICIPATED PROBLEMS: The investigator is responsible for reporting unanticipated problems promptly to the IRB via ePAS according to current reporting policies.

STUDY COMPLETION: The investigator is responsible for notifying the IRB by submitting a Request to Close via ePAS when the research, including data analysis, has completed.

Please note: This approval is through the IRB only. You may be responsible for reporting to other regulatory officials (e.g., VA Research and Development Office, UC Health – University Hospital). Please check with your institution and department to ensure you have met all reporting requirements.

Statement regarding The International Conference on Harmonization and Good clinical Practices: The Institutional Review Board is duly constituted (fulfilling FDA requirements for diversity), has written procedures for initial and continuing review of clinical trials; prepares written minutes of convened meetings and retains records pertaining to the review and approval process; all in compliance with requirements defined in 21 CFR Parts 50, 56 and 312 Code of Federal Regulations. This institution is in compliance with the ICH GCP as adopted by FDA/DHHS.

Thank you for your cooperation during the review process.

Research Categories
7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)
Appendix B- Instrument

Chronic Pain Knowledge & Awareness
Considerations for Professional Preparation of Health Educators

Thank you for agreeing to take part in this study, which aims to understand the current status of health educators working with those who experience chronic pain and to provide recommendations for future professional development and education for those working in the field of health education. This survey should only take about 20 minutes to complete. Please know your answers will be kept in confidentiality and reported in aggregate both in a dissertation and to the state chapters of SOPHE (Society for Public Health Education).

About you
What state do you work in? ____________

What is your level of professional preparation specifically in Health Education?
___ Associate level degree
___ Minor in HPE
___ Bachelor’s degree
___ Master’s degree
___ Doctorate degree
___ Cognate in HPE
___ Other ________________
___ I have no professional training in health education

Other certifications or credentials:
___ CHES (Certified Health Education Specialist)
___ MCHES (Master Certified Health Education Specialist)
___ CPH (Certified in Public Health)
___ Certified Diabetes Educator
___ Other________________

In what capacity have you PRIMARILY worked in Health Education?
___ Full time employee
___ Part time employee
___ Contract work
___ Volunteer
___ Other __________________

What is your current job title? _____________________

Which of the following are included in your job responsibilities? (check all that apply)
___ Designing/Planning programs
___ Implementing/Delivering programs
___ Teaching health
___ Grant writing
___ Fitness/Exercise Instruction
___ Evaluating programs
___ Administration
___ Other __________________
What type of organization best describes your current place of employment?

____ Public school K-12  
____ Private school K-12  
____ Public University/College  
____ Private University/College  
____ Non-for profit community agency  
____ For profit community agency  
____ Public Health Agency  
____ Fitness/recreation center  
____ Other ____________________________

Chronic pain is pain that lasts longer than six months, can be mild or excruciating, episodic or continuous, merely inconvenient or totally incapacitating

Have you worked, or currently work, to address Chronic Pain related conditions through health education?  

____ Yes   _____ No

If yes, in which of the following settings?

____ Public school K-12  
____ Private school K-12  
____ Public University/College  
____ Private University/College  
____ Non-for profit community agency  
____ For profit community agency  
____ Public Health Agency  
____ Fitness/recreation center  
____ Other

How long in total, have you worked in Chronic Pain?

____ 0 years  
____ < 1 year  
____ 1-2 years  
____ 3-5 years  
____ >5 years
**Chronic Pain Professional Preparation**

*Which of the following setting(s) provided you Content/Skill development in these areas?*  
*Check all that apply*

<table>
<thead>
<tr>
<th></th>
<th>Chronic Pain</th>
<th>Disabilities</th>
<th>Coping Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate health education courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other undergraduate courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate health education courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other graduate courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuing education opportunities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training on the job</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-taught on the job</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volunteer experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal experience through experiencing chronic pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal experience through a friend or family member who has experienced chronic pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other setting (please fill in)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have not received any professional preparation on this topic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Level of Experience addressing Chronic Pain**
Considering the competencies for health educators, please read through the statements below and answer what percentage of your job is dedicated to each of these tasks.

<table>
<thead>
<tr>
<th>In my work…</th>
<th>Always (100% of the time)</th>
<th>Almost Always (76-99% of the time)</th>
<th>Sometimes (26-75% of the time)</th>
<th>Rarely (1-25% of the time)</th>
<th>Never (0% of the time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Assess the health education needs of individuals/communities related to Chronic Pain</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I Plan effective health education programs to address Chronic Pain</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I Implement health education programs to address Chronic Pain</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I Evaluate the effectiveness of health education programs that address Chronic Pain</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I Coordinate the provision of health education services that address Chronic Pain</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I Act as a resource person in health education for individuals/communities in regards to Chronic Pain</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I communicate health and health education needs, concerns and resources to and for individuals/communities who experience Chronic Pain</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Considering the competencies for health educators, please read through the statements below and considering your personal experience, please select the best answer for each item.

<table>
<thead>
<tr>
<th>In the following situations my level of confidence is...</th>
<th>Extremely Confident</th>
<th>Moderately Confident</th>
<th>Slightly Confident</th>
<th>Not at all confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessing the health education needs of individuals/communities related to Chronic Pain</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Planning effective health education programs that address individuals/communities with chronic pain</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Implementing health education programs for individuals/communities with chronic pain</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Evaluating the effectiveness of health education programs for individuals/communities with chronic pain</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Coordinating the provision of health education services for individuals/communities with chronic pain</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Acting as a resource person in health education for individuals/communities with chronic pain</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Communicating health and health education needs, concerns and resources to and for individuals/communities with chronic pain</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Knowledge, Attitudes & Awareness of Chronic Pain

Again, Chronic pain is pain that lasts longer than six months, can be mild or excruciating, episodic or continuous, merely inconvenient or totally incapacitating.

How would you rate your knowledge of Chronic Pain as a health condition?

<table>
<thead>
<tr>
<th></th>
<th>very high</th>
<th>high</th>
<th>average</th>
<th>low</th>
<th>very low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

How comfortable are you interacting with community members who experience chronic pain?

<table>
<thead>
<tr>
<th></th>
<th>very comfortable</th>
<th>comfortable</th>
<th>neutral</th>
<th>uncomfortable</th>
<th>very uncomfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Please circle if True (T), False (F), or I don’t know (DK):

T  F  DK  Chronic pain is considered a disability when it causes visible, physical limitations.
T  F  DK  Symptoms related to chronic pain can be stable, progressive or transitory.
T  F  DK  Individuals with chronic pain can have permanent tissue damage due to their condition.
T  F  DK  Healthy People 2020 includes objectives that specifically address chronic pain.
T  F  DK  People with chronic pain should avoid participation in fitness because it can exacerbate their pain.
T  F  DK  Stigma/discrimination experienced by people who have chronic pain by can be more debilitating than the condition itself.
T  F  DK  Chronic pain costs the US over $100 billion dollars in medical costs and lost wages annually.
T  F  DK  Individuals with sedentary jobs experience less chronic pain than those with manual jobs.
T  F  DK  Chronic pain negatively affects productivity in the workplace.
T  F  DK  The prevalence of chronic pain is high but stable.
T  F  DK  Chronic pain significantly affects one’s overall quality of life.
T  F  DK  Up to 1/3 of all absenteeism is attributable to musculoskeletal disorders.
T  F  DK  Pain medication is the most effective treatment for chronic pain.
T  F  DK  Coping skills and resiliency are considered a possible strategy when working with those suffering from chronic pain.
What is your level of agreement with the following statements about Chronic Pain and the HPE Profession?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree Nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health promotion &amp; education professionals should be competent when working with clients/students who experience chronic pain.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Professional preparation curricula should include chronic pain as an important health condition to be considered in HPE program planning, implementation and or evaluation.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Because chronic pain is a prevalent health condition affecting a significant proportion of communities across the US it should be a high priority in HPE research</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Health educators should address issues related to stigma toward people experiencing Chronic pain.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Awareness of Chronic pain should be an advocacy priority for HPE professionals.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Health educators can play an important role in improving self-efficacy and coping strategies for managing chronic pain.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Primary, secondary and/or tertiary strategies are appropriate and can be effectively utilized to address chronic pain HPE needs of our communities.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Recommendations For Future Professional Development

A. Do you think chronic pain as a subject area should be covered in health education professional preparation?
   ___ Yes ___ No

   If yes, at what level?
   ____ Undergraduate ____ Graduate ____ Both

   If No, why?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

B. Do you feel your professional preparation curriculum provided enough knowledge about chronic pain?
   ___ Yes ___ No ____ Did not receive professional preparation

C. How do you think chronic pain and its effects on quality of life could best be integrated into the professional curriculum?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
Personal Experience with Disability
Disabilities are defined as long-term, irreversible conditions that impact or limit people in different ways including their ability to move, think, learn, remember, hear, see, communicate, or interact with others. Disabilities can include: auditory/hearing, intellectual/mental, physical/mobility, communication, learning, and visual among others.

Do you or have you ever had a disability? ☐Yes ☐No
If yes, is/was your disability invisible or difficult for others to see? ☐Yes ☐No
Have you had a friend with a disability? ☐Yes ☐No
Have you had a family member with a disability? ☐Yes ☐No
Have you ever lived with a person with a disability? ☐Yes ☐No
Have you ever worked with a person with a disability? ☐Yes ☐No

Personal Experience Chronic Pain
Chronic pain is pain that lasts longer than six months, can be mild or excruciating, episodic or continuous, merely inconvenient or totally incapacitating.

Have you ever experienced chronic pain? ☐Yes ☐No
Have you had a friend with chronic pain? ☐Yes ☐No
Have you had a family member with chronic pain? ☐Yes ☐No
Have you ever lived with a person you knew was experiencing chronic pain? ☐Yes ☐No
Have you ever worked with a person you knew had chronic pain? ☐Yes ☐No

Demographics
What is your age? _______

What is your gender: ___ Male ___ Female ___ Other

What is your race
____ White/Caucasian ___ Native American
____ African American ___ Pacific Islander
____ Asian ___ Other ______________

Ethnicity
Are you Latino ____ Yes ____ No Are you Appalachian ____ Yes ____ No

What is your level of education (any field)?
____ Some college
____ Associate’s degree
____ Bachelor’s degree
____ Master’s degree
____ Doctorate degree
____ Other ______________
What is your current employment status?

_____ Full time  _____ Part time  _____ Contractual  _____ Volunteer

_____ Unemployed