

DOES A HYPERTENSION GUIDELINE ASSIST PROVIDERS WITH PERCEIVED
CONFIDENCE WITH HYPERTENSION MANAGEMENT IN A RETAIL SETTING?

by

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Abstract

This study evaluates the impact of training on providers' confidence about using the MinuteClinic (MC) hypertension (HTN) guideline to conduct HTN management visits in MC. MC providers who participated or did not participate in the training/webex education sessions provided prior to the commencement of HTN chronic care services were surveyed and their confidence scores measured. T-test analysis did not show any statistically significant difference between the Trained group and the Non-Trained group. Factors enabling the lack of significant difference between the two groups and suggestions for further studies are discussed.

DOES A HYPERTENSION GUIDELINE ASSIST PROVIDERS WITH PERCEIVED
KNOWLEDGE AND COMPETENCE?

Introduction

Problem Description

In the United States, hypertension, also called high blood pressure, is a prevalent condition affecting approximately 30 percent of the adult population (United States Preventive Services Task Force [USPSTF], 2015). It is the most commonly diagnosed condition at outpatient office visits, contributing to or being the primary cause of death for over 362,000 Americans in 2010 (USPSTF, 2015). High blood pressure is a major contributing risk factor to heart failure, heart attack, stroke, chronic kidney disease and death (USPSTF, 2015). This common and dangerous condition, which occurs in about 1 out of 3 U.S. adults or approximately 75 million Americans, occurs when the blood pressure is higher than it should be (i.e. $\geq 140/90$), thus becoming a major risk factor for heart attack, heart failure, chronic kidney disease and stroke (CDC, 2017). Called “a silent killer” since there are no symptoms or warning signs, hypertension is controllable, and only about half of the 75 million people (54%) have their blood pressure controlled (CDC, 2017).

Under current outline, hypertension is defined as having a systolic or a diastolic blood pressure reading equals to or greater than 140 mmHg and 90 mmHg respectively, or those taking antihypertensive medications for persons 18 years and older (Yaxley & Thambar, 2015). Though a dangerous condition, the good news is that hypertension can be controlled. Therefore, controlling hypertension is important in preventing the negative consequences of uncontrolled hypertension. Lifestyle modifications and pharmacologic therapy are the mainstays of treatment. Approximately 10 percent of patients have resistant hypertension – i.e. blood pressure remaining

high despite the use of three antihypertensive medications from different classes one of which must be a diuretic (Yaxley & Thambar, 2015).

The risk of death from stroke and heart attack doubles with every 20 mmHg systolic or 10 mmHg diastolic increase among people between ages 40 to 89 (AHA, 2017). Therefore, utilizing both the lifestyle modifications and pharmacotherapy to control blood pressure is essential if the target organs usually damaged by uncontrolled hypertension are to be spared. Lifestyle modifications such as weight loss, increased physical activity, and healthy diet options are the first line of treatment recommendations (Masuo, 2015). Moreover, many classes of well-tolerated and inexpensive antihypertensive medications are available to control hypertension and prevent the damage of target organs.

Hypertension is a medical diagnosis arrived at after having blood pressure readings of 140/90 or greater for an otherwise healthy adult on at least 2 separate occasions (Schwartz & McManus, 2015). Therefore, the number one sign of HTN is high blood pressure $\geq 140/90$. The main goal of treatment is preventing HTN, and not waiting until the target organs are damaged before intervention is administered. This explains why prevention of hypertension has been one of the core objectives of national health goals such as the Healthy People 2020. As a major risk factor for the first and fifth leading causes of death in the United States (heart disease and stroke respectively), uncontrolled hypertension amongst other modifiable risk factors such as high cholesterol, cigarette smoking, diabetes, unhealthy diet, physical inactivity, overweight, and obesity account for approximately \$320 billion healthcare expenditures annually (Healthypeople2020, 2014). In addition, heart disease and stroke (consequences of uncontrolled hypertension) can result in significant debility, poor quality of life, disability, and loss of billions of dollars in national economic output annually (Healthypeople2020, 2014).

The causes of uncontrolled hypertension are multifactorial, and studies have been conducted on many of them. Patient-related factors (such as sociodemographic, individual's knowledge/skills, individual's beliefs and perceptions, physical and mental abilities), health system-related factors (such as adherence to clinical practice guidelines, quality of healthcare services, cost of treatment, patient's resources) and provider-related factors (such as provider-patient relationship, provider-patient communication) have been identified as the three domains of factors affecting antihypertensive treatment adherence (Alsolami et al., 2012). Also, physician's knowledge, attitudes, or behavior have been found to be barriers to treatment adherence (Alsolami et al., 2012).

However, no study has been found on whether providers' adherence to clinical guidelines assist with their perceived knowledge, confidence, and competence. The present study aims to evaluate whether the adoption of a hypertension guideline by a practice and providers assists with their self-identified confidence and competence. In this case, providers' self-identified confidence and competence in the management of hypertension in a retail setting will be evaluated and compared with whether their confidence is affected by their receiving additional training/webex or not. It is important that capability barriers, intention barriers, and health system barriers should be removed if the improvement of hypertension control is to be achieved (Khatib et al., 2014). The null hypothesis is that providers who followed the guidelines and also participated in the pre-roll out hypertension services webex educational session will self-identify improved confidence in hypertension management services in a retail clinic setting.

Available Knowledge

The Institute of Medicine (IOM) in 2011 released a report, titled “Clinical Practice Guideline We Can Trust,” concerning clinical practice guidelines (CPGs). They defined CPGs as statements of recommendations intended to optimize patient care formed from systematic review of evidence and assessment of the pros and cons of alternative care choices. CPGs are becoming standards of care for many health conditions including management of hypertension. Choosing a CPG that satisfies the essential eight conditions, set forth by the IOM report is crucial since it is not only based on sound review of evidence but also devoid of conflict of interest on the part of the developers (IOM, 2011). The IOM in its 2011 report called for the development of guidelines that are high quality and based on the systematic review of evidence.

The Eighth Joint National Committee (JNC-8) in 2014 released its current version of adult hypertension management guidelines that are based on strong evidence (James et al., 2014). This current version was borne out of the necessity to update the previous guideline, JNC-7, to be in line with the IOM’s call for high quality evidenced-based guidelines (Kovell et al., 2015). Developed from the collaboration of hypertension experts conducting a systematic review of the literature with emphasis on randomized, controlled trials, this guideline attempts to answer three key questions, with nine recommendations and the strength of evidence graded from A (strongest) to C and E (the weakest evidence and expert opinion respectively) (Hernandez-Villa, 2015). The three key questions focused on what threshold pharmacologic antihypertensive should be initiated, benefits or otherwise of goal setting, and whether drug classes differ on their outcome (Hernandez-Villa, 2015). Although a controversy arose due to the recommendation for systolic threshold for treating patients older than 60 years old, experts agree the JNC-8 is an improvement over the earlier versions (Hernandez-Villa, 2015).

The JNC-8 emphasizes lifestyle modification as the initial and concurrent therapy with pharmacotherapy, if needed, in addition to other recommendations (Whelton et al., 2017). The 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults is a useful, updated CPG using evidence-based systematic review and meeting the standards as stipulated by the IOM. These guidelines should not replace the provider's clinical judgement but are intended to improve patients' quality of care and align with patients' interests (Whelton et al., 2017). Both the JNC-8 and the 2017 ACC/AHA guidelines meet the IOM high quality CPG standards.

Both guidelines emphasize lifestyle modification as a keystone for hypertension management. Lifestyle modification, which is a form of nonpharmacological therapy, alone is especially useful in preventing hypertension in adults with elevated blood pressure and the management of adults with milder forms of hypertension (Whelton et al., 2017). Among the recommended lifestyle changes are weight loss in overweight adults, a heart-healthy diet such as DASH (Dietary Approaches to Stop Hypertension), smoking cessation, sodium reduction (to ≤ 2400 mg/day) and potassium supplementation (unless contraindicated), control of blood glucose and lipids, increased physical activity (moderate-to-vigorous activity 3-4 days/week averaging 40 mins/session), and moderate alcohol consumption (adult males and females should drink ≤ 2 and 1 standard drink(s)/day, respectively) (Glenn, & Taylor, n.d.; Whelton et al., 2017). The DASH diet alone – comprising of diet rich in fruits, vegetables, whole grains, and low-fat dairy products with reduced content of saturated and total fat – can reduce the systolic blood pressure by 11mmHg (Whelton et al., 2017).

With regards to pharmacologic intervention, both guidelines differ slightly in their recommendations. JNC-8 recommends initiation of pharmacologic therapy for adult aged ≥ 60 years at the blood pressure of $\geq 150/90$ and those aged < 60 years at the blood pressure of $\geq 140/90$ while patients of all ages who have diabetes, chronic kidney disease or both, their pharmacotherapy commences at the blood pressure of $\geq 140/90$ (Glenn, & Taylor, n.d.). On the other hand, the 2017 ACC/AHA guideline recommends pharmacotherapy initiation at a blood pressure $\geq 130/80$ for patients with a high risk of atherosclerotic cardiovascular disease (ASCVD) and $\geq 140/90$ for everyone else (Whelton et al., 2017). Moreover, both guidelines recommend initiation of antihypertensive pharmacotherapy for African American patients with thiazide-type diuretic or a calcium-channel blocker alone or in combination (Glenn, & Taylor, n.d.; Whelton et al., 2017). Also included in the guidelines are recommendations on how to adjust therapy to meet the set blood pressure goal, safe regimen for special populations such as pregnant women, etc., and intervals for follow up, lab studies, etc.

In the management of hypertension, different blood measurement techniques have been used. Although the United States Preventive Services Task Force (USPSTF) did not find evidence to suggest that one particular office blood pressure measurement protocol was more accurate than any other, it reported, however, that ambulatory blood pressure monitoring (ABPM) devices provided a better method to predict long-term cardiovascular disease outcomes than did office blood pressure readings (Whelton et al., 2017). In addition, compared with office measurement, ABPM removes observer bias and measurement error, minimizes the white-coat effect (i.e. when the blood pressure rises at the doctor's office due to the anxiety upon seeing the clinician's lab coat) and has a greater reproducibility, and therefore, provides a better estimate of a patient's

usual blood pressure and cardiovascular prognosis (Persu, O'Brien, & Verdecchia, 2014). The USPSTF recommends ABPM as the best method for diagnosing hypertension (USPSTF, 2015).

The literature describes many causes for hypertension. Some of the risk factors are modifiable while others are not, just as there are also essential hypertension (no identifiable causes) and secondary hypertension (one that resolves if the underlying condition is treated) (Yaxley & Thambar, 2015). While the modifiable risk factors were already addressed with lifestyle modification in the preceding paragraphs, a few of the non-modifiable risk factors deserve mention. Age (>45 in males and >65 in females), race (more common in blacks), family history, and stress (Mayoclinic, 2017). Secondary hypertension usually occurs in younger persons aged 18-40 years of age (Charles et al., 2017). Risk factors include obstructive sleep apnea, kidney problems, adrenal gland problems, thyroid problems, congenital defects in blood vessels, certain medication consumption, illegal drug consumption, and alcohol abuse or chronic alcohol use problems (Mayoclinic, 2016). Other risk factors include white coat syndrome, choice of blood pressure measuring device, cuff size, body position, arm position, differences between the 2 arms, interval between measurements, stress, training and skill of the person doing the measurement, and whether the patient and provider are silent during the measurement (Pickering et al., 2005).

The purpose of controlling hypertension is to reduce fatal and nonfatal hypertensive complications, in addition to slowing down the progression to target organ failure (Mensah et al., 2002). The target organs include the brain, eye, heart, blood vessels, and kidney. These organs are damaged due to hypertension's association with platelet activation, endothelial dysfunction, and altered angiogenesis in both the microvascular (retinopathy, nephropathy, and vascular dementia) and macrovascular injuries (stroke and heart attacks) (Nadar, 2015). The result of this

damage includes stroke, vision loss, heart failure, heart attack, kidney disease/failure, and sexual dysfunction (AHA, 2017). Hypertension-related target organ damage is most affected by systolic blood pressure level, socioeconomic and demographic factors that affect access and quality of care, presence of risk factors for comorbidity, and whether treatment is adequate to target blood pressure levels (Mensah, 2016).

Though hypertension is responsible for 13% of death worldwide, its detection, awareness, treatment, and control are low globally (Khatib et al., 2014). Several barriers at different levels that impede blood pressure control have been identified in different studies; their role, importance, and generalizability are yet to be examined systematically (Khatib et al., 2014). These barriers are present at the providers' level (such as clinical guidance adherence), patient's level (such as patient's hypertension awareness, treatment adherence, and follow up with a provider), and health systems level (such as affordability, availability and acceptability of care) (Khatib et al., 2014).

Web-based education is increasingly being used as an alternative method to educate nurses and has been deemed to be as effective as face-to-face method (Khatony, Nayery, Ahmadi, Haghani, & Vehvilainen-Julkunen, 2009). Web-based learning has not only made distance learning a possibility, saved time, and made shared skills and information possible; participants' experiences have mostly been positive, and it includes increased learner satisfaction, ease of access, meeting their working conditions and needs including conflicting work schedules and intensive workload (Khatony et al., 2009; Liaw et al., 2015). Other studies have shown that nurses who participated in web-based learning show improved knowledge, skill, changed beliefs and confidence (Liaw et al., 2017; Yank et al., 2013).

This study will be using the MC HTN guideline that was developed from the synthesis of JNC-8 guideline, 2017 ACC/AHA guideline, and current evidence by MC HTN guideline committee for use by MC providers. The guideline to be used for this study is the MC HTN guideline, which is a proprietary information that the company does not want to share. MC providers' participation in the educational sessions entail joining the live session (with opportunities to ask questions), and/or viewing the recorded session if the provider was unable to attend live sessions.

Rationale

This study will be using the Chronic Care Model (CCM) as the theoretical framework. This model, which was developed by Wagner et al, and reported by Porter and Wilson in 2017, is a model of care process designed to optimize each health care team member's capabilities, expertise, and willingness to achieve high quality health outcomes (Potter, & Wilson, 2017). The model has six components which focus on the community, the health system, the patient, and the clinical staff with the goal of creating improved health outcome via planned and productive visits.

Using this framework, a review of the current hypertension guideline at a retail clinic was conducted by the DNP student researcher. This guideline's adoption was preceded by the practice-provided in-service to providers before the commencement of hypertension care service by the retail practice. Emphasis is placed on the provider's knowledge, skills, education, and expertise in screening and managing hypertension for improved outcome.

Specific Aims

The purpose of this study is to elucidate whether engaging providers in pre-roll out online educational opportunities in their practice will increase their confidence and competence in

successfully managing hypertension visits. The patient is the ultimate beneficiary. This study will determine whether providers in the retail clinics using their practice's hypertension guideline perceive that they are competent and knowledgeable to screen and manage hypertension that will result in improvement in their patients' outcome.

In this study, the providers knowledge and confidence about this guideline will be compared to whether they participated in the hypertension services pre-roll out in-service that was provided by their employer.

Methods

Context

This study is a DNP project designed using provider's response (to survey), MC's hypertension guideline (a proprietary document), and evidence-based education to ascertain provider's confidence and competence in hypertension management. Participants were MC's providers working in retail settings across Pennsylvania, Maryland, Ohio, New Jersey, Virginia, Michigan, New York, Connecticut, Washington , DC, Indiana and Kentucky. These providers were recruited via voluntary participation using MC's email apparatus. Participants were given questionnaires, and their responses were analyzed. A total of 1,290 providers, who are mostly nurse practitioners, comprising of both males and females aged 18 and above, participated in the study. An inclusion criterion is that all participants are providers (NPs mostly, PAs and MDs) working for MC. An exclusion criterion is non-MC providers.

Interventions

In this context, the intervention is to determine, first, if the provide-participant did or did not complete the hypertension services pre-roll out online education via webex by MC. This online education was derived from MC's proprietary hypertension guideline, which itself was

developed by a team of MC's guidelines committee from current hypertension guidelines by hypertension specialty organizations such as the 2014 JNC 8 and 2017 AHA/ACA Guidelines for Management of High Blood Pressure in Adults (James et al., 2014; Cifu, & Davis, 2017). Providers were encouraged to watch the online webex live by educators. Participants had the opportunity to ask questions about the workflow for a hypertension care visit. Providers who were not able to join the online webex events were encouraged to view the recorded webex via their work computer in their spare time. This education took place several weeks before the hypertension guideline and services went into effect. The education sessions lasted for 30 minutes, focusing on completing HTN care visits in Epic (MC's electronic medical record operating system) using MC's HTN guideline.

The second intervention is to determine if there is a difference in provider's perceived confidence after the MC hypertension education program versus those who did not complete the MC hypertension training.

Study of the interventions

The survey consists of the first polar question and 10 questions, the latter of which are derived from two scales in Self-Determination Theory, as put forward by Edward Deci and Richard Ryan (2000). Written permission to use the Self-Determination Theory scales for academic purpose was obtained from the Center of Self-Determination Theory via email. One of the two scales, Perceived Competence Scales (PCS), consists of four questions and the other scale, which is an intrinsic motivation inventory (IMI) called Post-Experimental Intrinsic Motivation Inventory (Perceived Competence Task Evaluation Questionnaire [PCTEQ]), consists of the remaining six questions representing that subscale of the seven subscales of the 45-item IMI questionnaire (Deci, Eghrari, Patrick, & Leone, 1994; Ryan, Koestner, & Deci, 1991; Williams, Freedman, &

Deci, 1998). The IMI was found to have a strong validity in a subsequent study, while the PCS's alpha measure of internal consistency was above 0.80 in two separate studies (McAuley, Duncan, & Tammen, 1987; Williams, Freedman, & Deci, 1998; Williams, & Deci, 1996). In the context of this study, both scales assess providers' perceived competence and confidence in effectively managing HTN chronic care visits using MC's proprietary clinical practice guideline. Participants had an opportunity to indicate via a check box whether they received or did not receive the pre-roll out online education by MC before the beginning of the hypertension services. This question was asked prior to continuing with the rest of the survey.

Measures

1. Please indicate whether you viewed the live or recorded hypertension services pre-roll out webex session
 Yes No

The PCS, which is a 4-item questionnaire is worded thus:

Please respond to each of the following items in terms of how true it is for you with respect to managing HTN chronic care visits in your retail clinic setting. Use the scale:

1	2	3	4	5	5	7
Not at all true			somewhat true			very true

2. I feel confident in my ability to manage HTN chronic care visit
3. I am capable of handling my HTN chronic care visits
4. I am able to do my own routine HTN chronic care visit
5. I feel able to meet the challenges conducting HTN chronic care visits.

The PCTEQ is a 45-item multiple dimensional measurement divided into seven subscales.

One of the seven subscales "Perceived Competence," is a 6-item scale, with one of the questions scored in a reverse format. The 6-item Perceived Competence scale is worded thus:

For each of the following statements, please indicate how true is it for you regarding HTN chronic care visits, using the following scale:

1	2	3	4	5	6	7
Not at all true		somewhat true			very true	

6. I think I am pretty good at this activity
7. I think I did pretty well at this activity, compared to other providers
8. I am satisfied with my performance at this task
9. I felt pretty skilled at this task
10. After working at this task for a while, I felt pretty competent
11. This was an activity that I could not do very well (R).

Analysis

In the PCS, a person's score is calculated simply by averaging his/her responses on the 4 items. For the PCTEQ, on the other hand, item #10 with an "R" is a reverse score. This is calculated, by subtracting the item response from eight and using the resulting number as the item score. The rest of the PCTEQ scores are calculated by averaging all of the items on that subscale. Scores on the survey response will be correlated with whether the provider participated in the hypertension services pre-roll out online education/webex or not. Statistical analysis used included mean, standard deviation, skewness, kurtosis, statistical analysis and t-test analysis.

Ethical considerations

This project received the Institutional Review Board (IRB) approval from Edinboro University of Pennsylvania. Participants will be protected by existing laws such as HIPAA (Health Insurance Portability and Accountability Act) of 1996 and its modifications of 2013

(which includes HIPAA Privacy, Security, Enforcement, and Breach Notification Rules). Also, participants' personal identifiers will not be included. Their confidentiality will be protected by codes using individualized numbers. Participant's list with their identifying coded numbers will be kept in a folder that is password protected and accessible only by the project's primary secondary researcher and MC's Project Advisor.

There is no conflict of interest. No monetary reward was handed out to participants for participating. Participation was completely voluntary.

Results

The latest version of SPSS, version 25.0, was used for statistical analysis. SPSS (Statistical Package for the Social Sciences) is a statistics software used for statistical analysis. The data analysis plan was conducted in two phases. First, all study variables were presented using descriptive statistics, such as, means, standard deviation, and minimum/maximum values for continuous variables (Interval/Ratio level) and frequencies and percentages for categorical variables (Nominal/Ratio level). Next, a series of bivariate tests were used to produce inferential findings. Specifically, a series of independent samples t-test were used to identify if dependent variable scores (i.e., *Provider Confidence*) differed by study group in terms of the overall composite measure, as well as by individual scale items.

Within the final inferential analysis presented, the parametric test assumptions of normality revealed no significant problems (please note in Table 2 the skewness and kurtosis are approximately 3 times the standard error of each or less). Regarding the assumption of no undue influence of outlier scores, the *Explore* function in SPSS indicated there were 2 outlier scores the dependent variable score distribution. All t-test were conducted with and without the outlier scores included and revealed the findings were the same in terms of statistical significance. Thus,

these outlier scores did not evidence an undue influence on the findings and were included in the final analysis.

Regarding missing data, three study participants failed to provide data for a single item on the *Total Provider Confidence Composite Scale*. The valid mean score for the 9 items with data were used to compute the composite score for these study participants. There were no other missing data in the dataset. A reliability analysis was conducted using the *Total Provider Confidence Composite Scale* to examine if the scale had an appropriate level of internal consistency (i.e., $\geq .70$). The analysis indicated that the scale had very good internal consistency with a Cronbach alpha rating of .93 for the current sample.

In terms of statistical power, the G*power software indicated that a medium/large size effect (Cohen's $d=.65$) between two independent groups using an independent samples t-test (2-tailed) with power set at .80 and alpha set at .05, would require a sample size of 78 study participants. Thus, the current sample of 82 study participants would provide approximately sufficient statistical power for the current analysis.

Descriptive Analysis

Table 1 presents a descriptive analysis of categorical study participant characteristics. Data indicated that about half of the sample ($n=44$; 53.7%) was in the Trained Group that viewed the hypertension services pre-roll out webex session, while the remainder of the sample were not ($n=38$; 46.3%).

Table 1**Descriptive Analysis of the Study Group Variable ($n=82$)**

Variable	N	%
<i>Study Group</i>		
Trained Group ¹	44	53.7
Non-Trained Group ²	38	46.3

¹Viewed hypertension services pre-roll out webex session

²Did Not view hypertension services pre-roll out webex session

Table 2 presents a descriptive analysis of the *Total Provider Confidence Composite Scale* scores. Data indicated that the score of the average study participant was 5.01 ($SD=1.18$, MIN/MAX=1.60-7.00).

Table 2**Descriptive Analysis of *Total Provider Confidence Composite Scale* Scores ($n=82$)**

Variable	M (SD)	Minimum/Maximum	Skew (SE)	Kurtosis (SE)
Provider Confidence	5.01 (1.18)	1.60-7.00	-.87 (.27)	.59 (.53)

Table 3 presents an independent samples t-test analysis of *Provider Confidence* scores by study group. Data indicated that mean *Provider Confidence* scores measured via the *Total 10-Item Provider Confidence Composite Scale* did not differ at a statistically significant level, $t(80)=-.23, p=.82$, between the Trained Group ($M=4.98, SD=1.17$) and Non-Trained Group ($M=5.04, SD=1.21$) (please see Figure 11). Analysis also indicated that the mean scores regarding the single items also did not differ at a statistically significant level by study group.

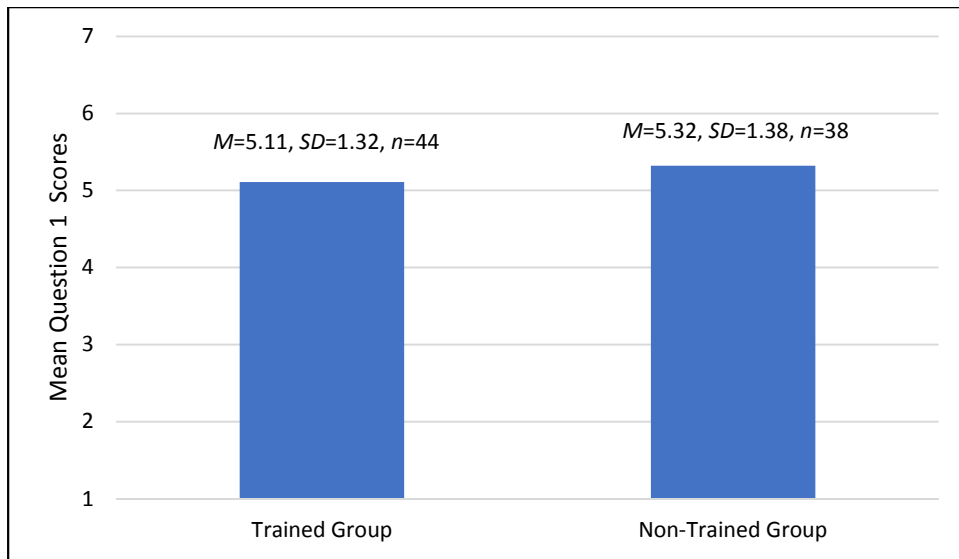
Table 3

Independent Samples T-Test Analysis of *Provider Confidence* Scores by Study

Group ($n=82$)

Variable	n	M (SD)	t (df)	p
<i>Q1: I feel confident in my ability to manage HTN care visits</i>			-.68(80)	.50
Trained Group	44	5.11 (1.32)		
Non-Trained Group	38	5.32 (1.38)		

Figure 1. Mean Scores for *Question 1: I feel confident in my ability to manage HTN care visits* by the Trained vs. Non-Trained Group

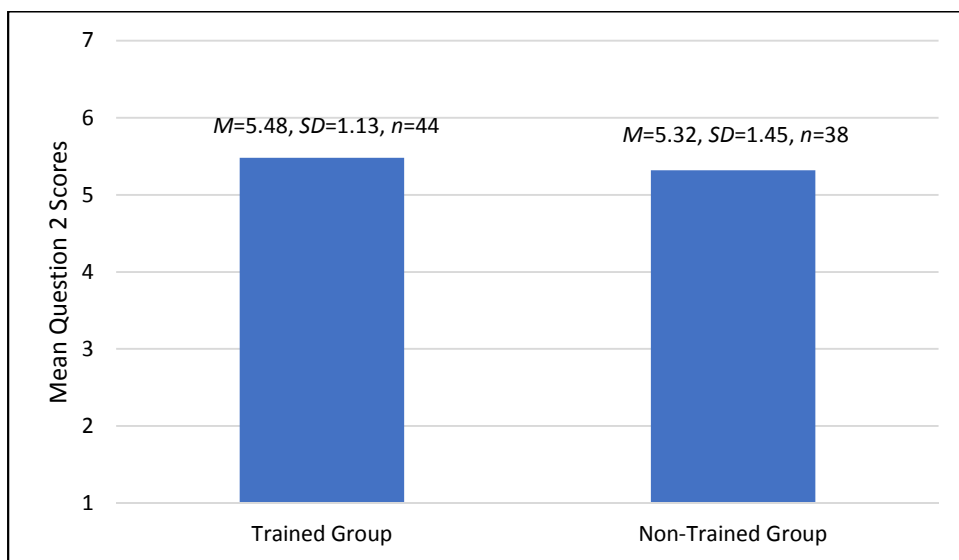


Q2: I am capable of handling my HTN chronic care visits **.53 (79)** **.60**

Trained Group 44 5.48 (1.13)

Non-Trained Group 37 5.32 (1.45)

Figure 2. Mean Scores for Question 2: I am capable of handling my HTN chronic care visits by the Trained vs. Non-Trained Group

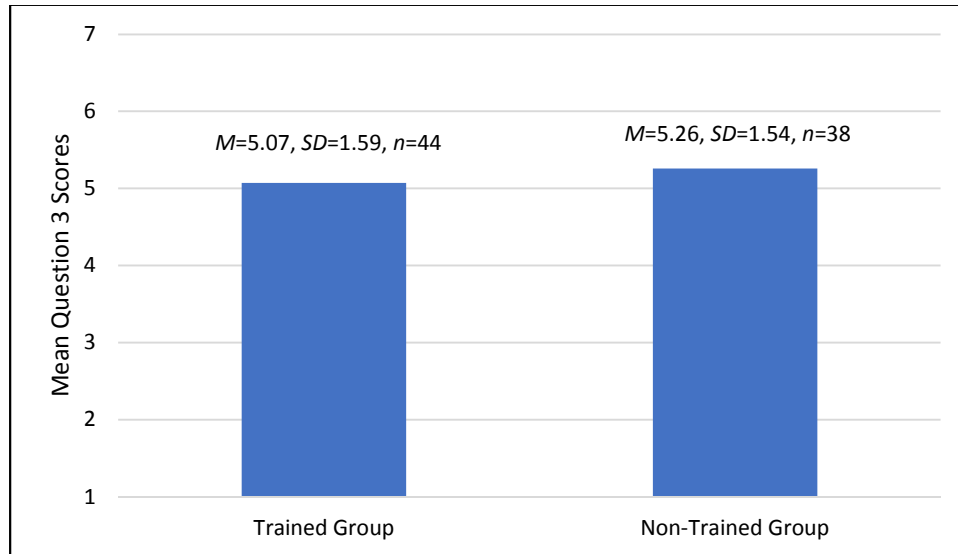


Q3: I am able to do my own routine HTN chronic care visits **-.56 (80)** **.58**

Trained Group 44 5.07 (1.59)

Non-Trained Group 38 5.26 (1.54)

Figure 3. Mean Scores for *Question 3: I am able to do my own routine HTN chronic care visits* by the Trained vs. Non-Trained Group

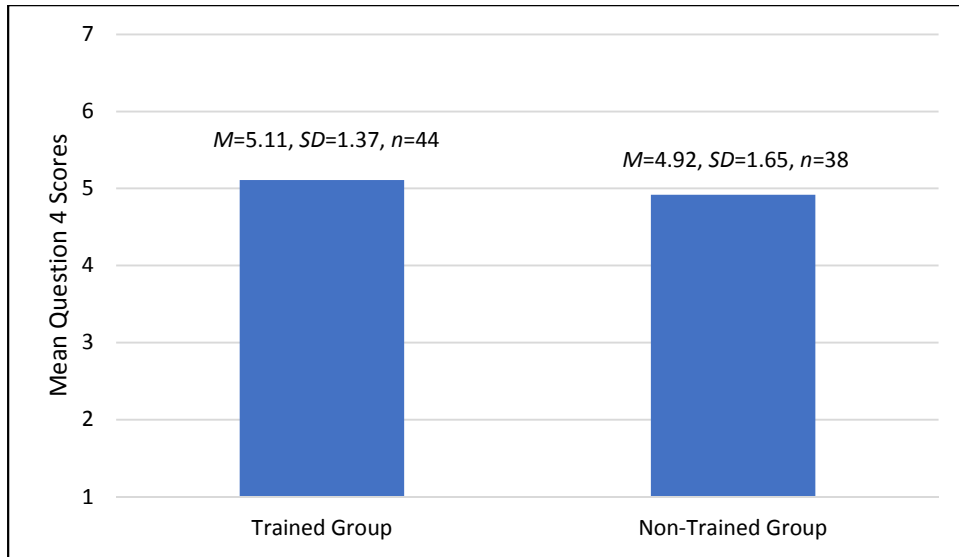


Q4: I feel able to meet the challenges conducting HTN visits **.58 (80)** **.57**

Trained Group 44 5.11 (1.38)

Non-Trained Group 38 4.92 (1.65)

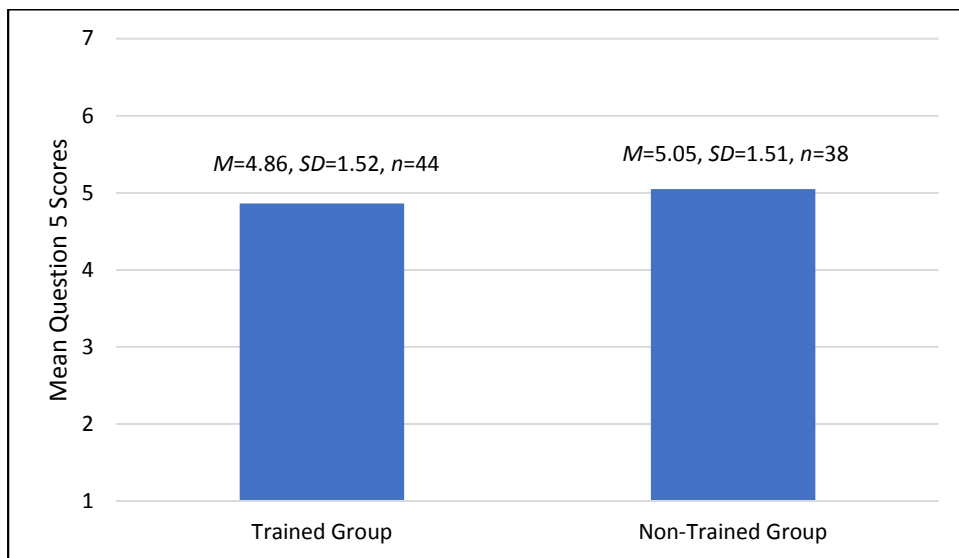
Figure 4. Mean Scores for *Question 4: I feel able to meet the challenges conducting HTN visits* by the Trained vs. Non-Trained Group



Q5: I think I am pretty good at this activity **-0.56 (80)** **.57**

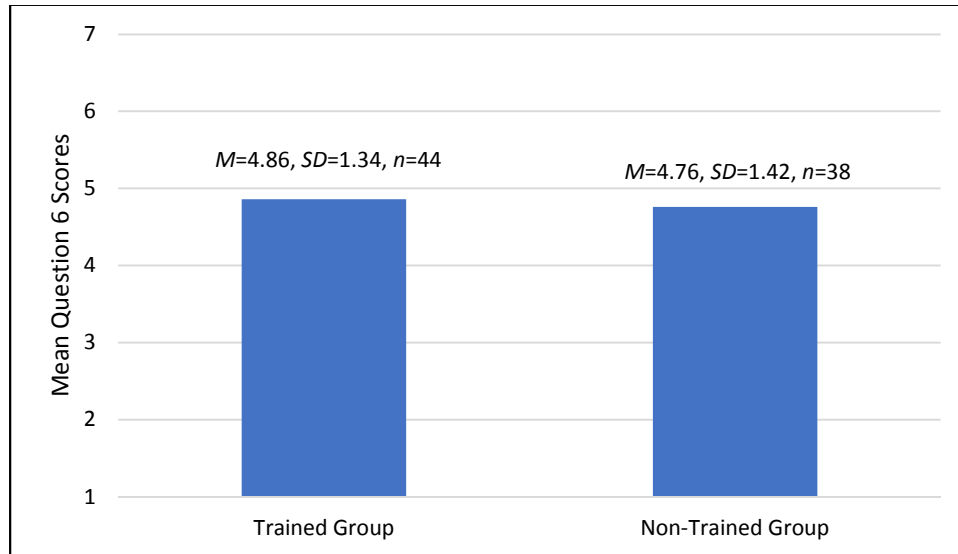
Trained Group	44	4.86 (1.52)
Non-Trained Group	38	5.05 (1.51)

Figure 5. Mean Scores for *Question 5: I think I am pretty good at this activity* by the Trained vs. Non-Trained Group



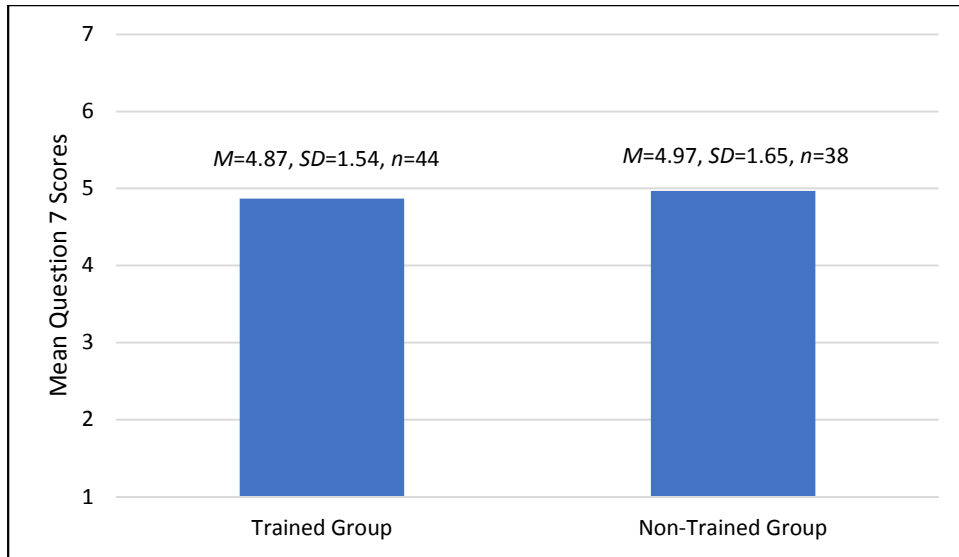
<i>Q6: I did well at this activity, compared to other providers</i>		.33 (80)	.74
Trained Group	44	4.86 (1.34)	
Non-Trained Group	38	4.76 (1.42)	

Figure 6. Mean Scores for *Question 6: I did well at this activity, compared to other providers* by the Trained vs. Non-Trained Group



<i>Q7: I am satisfied with my performance at this task</i>		-.25 (80)	.81
Trained Group	44	4.89 (1.54)	
Non-Trained Group	38	4.97 (1.65)	

Figure 7. Mean Scores for *Q7: I am satisfied with my performance at this task* by the Trained vs. Non-Trained Group

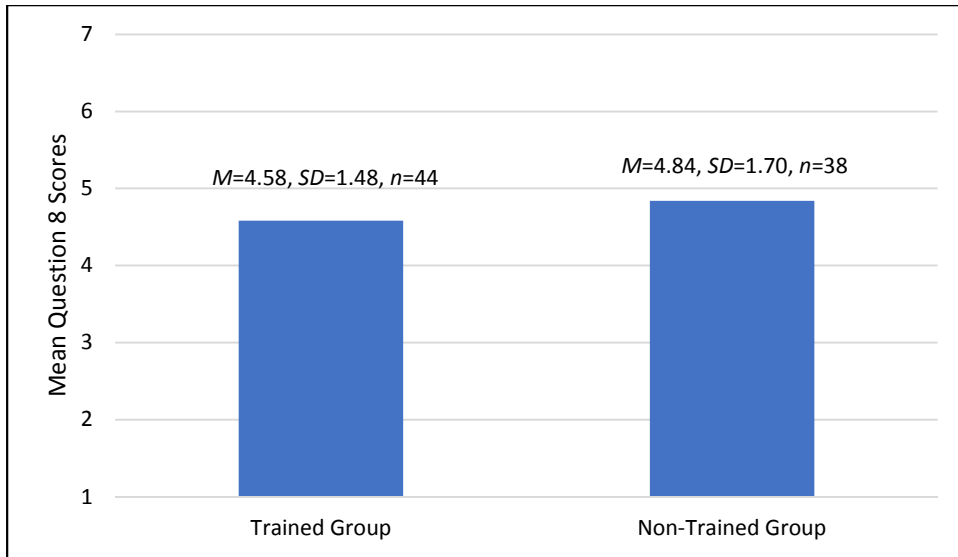


Independent Samples T-Test Analysis of *Provider Confidence Scores* by Study

Group ($n=82$)

Variable	n	M (SD)	t (df)	p
<i>Q8: I felt pretty skilled at this task</i>			-.74 (79)	.46
Trained Group	43	4.58 (1.48)		
Non-Trained Group	38	4.84 (1.70)		

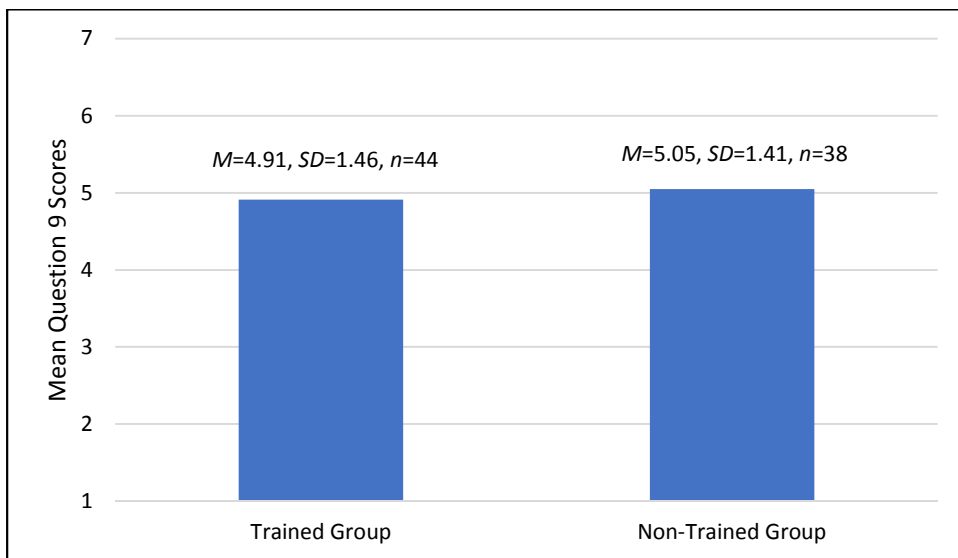
Figure 8. Mean Scores for *Question 8: I felt pretty skilled at this task* by the Trained vs. Non-Trained Group



Q9: After working at this task, I felt pretty competent -.45 (80) .65

Trained Group	44	4.91 (1.46)
Non-Trained Group	38	5.05 (1.41)

Figure 9. Mean Scores for *Question 9: After working at this task, I felt pretty competent* by the Trained vs. Non-Trained Group

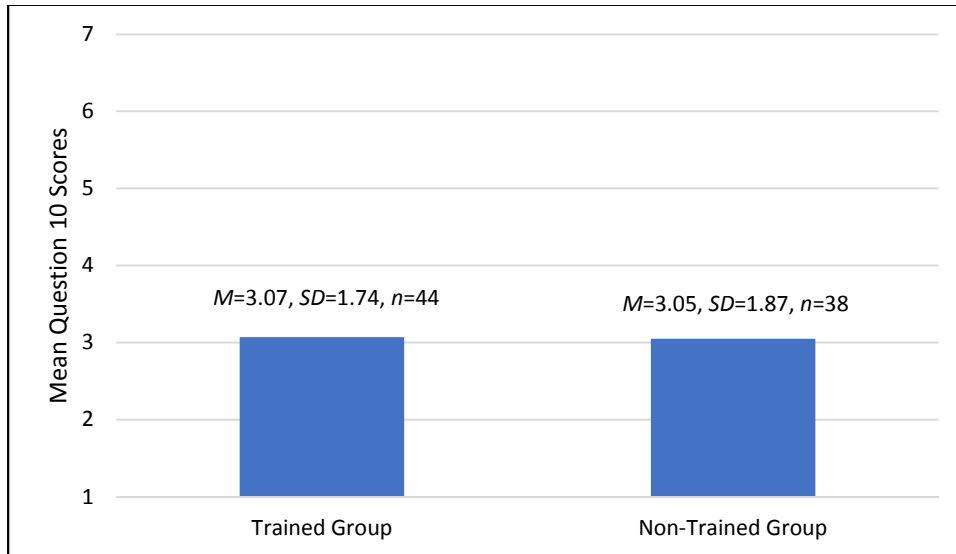


Q10: This was an activity that I could not do very well (reversed) -.04 (79) .97

Trained Group 44 4.93 (1.74)

Non-Trained Group 37 4.95 (1.87)

Figure 10. Mean Scores for *Q10: This was an activity that I could not do very well* by the Trained vs. Non-Trained Group



Total Provider Confidence Composite Scale Scores (10-Items) -.23 (80) .82

Trained Group 44 4.98 (1.17)

Non-Trained Group 38 5.04 (1.21)

Figure 11. Mean Scores for *Total Provider Confidence Composite Scale Scores (10-Items)* by the Trained vs. Non-Trained Group

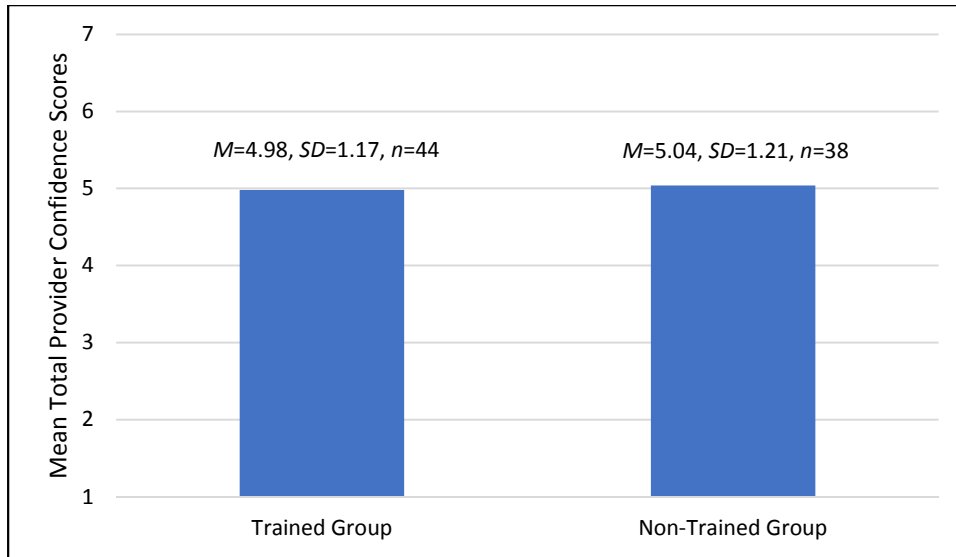


Figure 11 is a graphic depiction of the Total Provider Confidence Composite Scale Scores for the 10 items on the questionnaire combined. The Trained Group are those providers who participated in the webex training while the Non-Trained Group did not.

From the preceding tables, it can be seen that there was no significant difference between the trained group (i.e. providers who participated in the MC online webex) and the non-trained group (i.e. providers who did not participate in the online webex). Factors contributing to the lack of significant difference between the two groups will be explored in the discussion.

Discussion

Summary

The absence of a statistically significant difference between the trained group and non-trained group is a significant finding in this study. It is relevant to whether the training that was done was effective or not. In view of the non-difference between the two groups of providers who participated in the study, there has to be explanations as to why the training did not produce any advantage over non-training.

Interpretation

Individual provider's experience and training prior to the commencement of MC's HTN services is an explanation as to why there may not have been a difference between the 2 groups. Some of the provider participant of the study may have been well comfortable handling blood pressure visits, since it is a common diagnosis. This is one possible reason as to why there was no significant difference between the Trained group and the Non-Trained group.

Another possible explanation for the lack of significant difference between the two groups is due to the generalization of the survey questions asked. Making the questions more specific may have produced a different result. Generalization blurred the lines that specific questions could have elicited.

The third possible explanation of the almost similarity between the two groups may have been in the quality of the webex educational sessions themselves. There may be a better way to train the providers that could resulted in a higher confidence score. The training itself should be looked at and improved upon to deliver the much-needed benefit it was intended.

The last possible explanation is the smallness of the sample size. Only 82 providers, out of the 1,290 emails to the same number of providers, responded and completed the survey. If the sample size was bigger, a more accurate picture of the confidence score would have been obtained. This, in turn, may have yielded a higher confidence score for the Trained group.

Limitations

This project did not measure the barriers to HTN evaluation by providers. This is an area that has been studied but deserves further studies to examine. This is particularly important if optimum good control of the patient's blood pressure is the goal. Therefore, all stones must be upturned.

The competence of providers in managing HTN visits was not measured in this study. This is a suggestion for future studies. It is definitely something to address if the patient's blood pressure is to be controlled.

In addition, the study did not measure the prior experience of providers in HTN management before now. This will have an effect on the confidence score, especially of those who did not participate in the webex. It also leads to the increase in the confidence score of the Non-Trained, due to those providers who had prior experience with HTN care.

Finally, the findings of this study could not be generalized. This was done specific to MC HTN management visits only. A repeat of the study in a different setting is with similar findings warranted, before generalization could be made.

Conclusion

This study's purpose was to find out whether the providers who participated in MC's pre-HTN services WebEx education sessions were more confident in providing the services than those providers who did not participate in the education sessions. The analysis of the two groups of providers' confidence scores did not yield any statistically significant difference. While the result was not statistically significant, the usefulness of the right method of educational intervention in building the confidence of providers cannot be over-emphasized. Since most people equate confidence with competence, the confidence shown by a provider in satisfactory management of HTN visits may encourage the patient to adhere to the provider's HTN recommendations, thereby improving the patient's HTN outcomes. The relationship between provider confidence and patient's improved outcome is a subject for further studies. In order to generalize and apply the findings of this study, those factors that may have contributed to the results obtained, will need to be addressed. Those include using a larger sample size, prior

experience of providers in HTN management visits, tailoring the survey questions to be more specific, and studying the barriers of WebEx education sessions. It should also be noted, that hypertension is a fairly commonly found and treated condition. It may be that providers would perceive more confidence treating more rare conditions after being educated regarding conditions that they do not frequently encounter in practice. This would require further study. The measurement of provider confidence in the treatment of their patients with hypertension vs. the actual following of evidence-based guidelines in the practice of treating hypertension would be necessary to determine if confidence levels indicate competence level when treating patients.

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