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Increasing Compliance and Patient Outcomes In Hypertensive Patients Using the Hill- Bone High Blood Pressure Compliance Scale

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Introduction

Hypertension has been globally rated the most common non-communicable disease as well as the most common cause of premature death (Johnson, et al., 2019). The number of patients being diagnosed with uncontrolled hypertension has gradually increased throughout the years. Eskas, et al states uncontrolled hypertension is present in approximately 30% of the adult population (Eskas, et al., 2015). Along with the risks elevated blood pressure creates on its own, hypertension also increases the risk for heart attack, heart failure, kidney disease, stroke, and cognitive decline (Ahuja, et al., 2018). One of the most common causes of uncontrolled hypertension is poor medication adherence. Poor medication adherence has been associated with suboptimal health outcomes and elevated rates of mortality. The World of Health Organization (WHO) has highlighted the rise of multi-morbidity globally and the importance of medication adherence in order to manage disease (Tan, et al., 2019). Lifestyle changes alone or in combination with pharmacological treatment is often enough to achieve a target blood pressure, yet patients all around the world are continuing to suffer from uncontrolled hypertension. The identified problem of focus for this project was to increase medication compliance within hypertensive patients as well as increase provider knowledge of compliance issues with the utilization the Hill-Bone High Blood Pressure Compliance Scale. The Hill-Bone High Blood Pressure Compliance Scale looks at the following three areas: medication adherence, sodium intake, and the ability of the patient to keep follow-up appointments. By measuring these three areas, providers are able to evaluate the gaps causing decreased patient compliance involved with individualized patient treatment plans.

Literature Review

After researching for a short amount of time, it was evident medication compliance is a large issue within the world of healthcare. According to the World Health Organization, adherence by patients who have chronic illness is only 50% in developed countries such as the United States (Lam & Fresco, 2015). The importance of medication adherence is far greater than most of the general population believes. The World Health Organization (WHO) stated "increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any other improvement in specific medical treatment" (Lam & Fresco, 2015).

The research indicated patient factors that contribute to medication adherence are cognitive impairment, psychopathology, the patient's motivation for treatment and change, and the health literacy of the patient (Krevolin & Ilagan, 2015). Other factors include the frequency of follow up appointments and patient to provider relationships (Krevolin & Ilagan, 2015). For patients with hypertension, medication adherence should include sticking to a recommended diet, exercising, following a medication regimen, and monitoring and keeping a blood pressure log (Masumeh Hemmati Maslakpak, & Safaie, 2016). Clinicians can improve medication adherence by improving a patient's health literacy. Face to face education has been shown to be the most effective in improving health literacy and overall medication compliance (Tan et al., 2019). Face-to-face education has been found to build trust, provide education engagement, and to help providers to learn from their patient if there are any barriers to medication adherence (Tan et al., 2019). Clinicians can also increase the rate of adherence by utilizing motivational interviewing methods, detecting and addressing hypothetical difficulties to adherence, and collaborating on the strategies of treatment (Krevolin & Ilagan, 2015).

Throughout our research, our goal was to find a tool that had already been created and had been deemed successful in improving medication adherence with hypertensive patients. The Hill-Bone High Blood Pressure Compliance Scale is a tool that allows clinicians to be made aware of the barriers to medication compliance their patients are facing and the issues that need to be addressed with each individual patient during their scheduled office visits. The Hill-Bone Compliance Scale measures both a patient's medication-taking behavior and their barriers to medication adherence (Lam & Fresco, 2015). It is made up of three components, medication-taking, sodium intake, and the ability to keep follow-up appointments (Lam & Fresco, 2015). Providers can use the information from this tool to address the barriers that patients face when trying to maintain compliance and can address them as well as provide resources or alternative treatments if needed.

Project Methods

The goal of this project was to improve medication compliance within hypertensive patients by providing a case study to Illinois nurse practitioners that belong to the Illinois Society for Advanced Practice Nursing (ISAPN) teaching them how to utilize the Hill-Bone High Blood Pressure Compliance Scale. We administered a case study via Qualtrics to Illinois nurse practitioners via the ISAPN email list-serve. We provided an anonymous pre-and post-survey to each participant regarding their current area of practice, patient history taking behaviors, and views on the ease of use of the Hill-Bone High Blood Pressure Compliance Scale. The information that we received from each survey remained confidential and no participant identifiers were utilized. Each individual was walked through a case study using the scale as if it were being used on a real patient. The answers on the survey were multiple choice arranged in a numerical Likert format. Each individual question was scored and compared to determine

healthcare provider's beliefs about compliance both before and after the Hill-Bone High Blood Pressure Compliance Scale administration. Success would result in the ability of participants to identify the barriers that prevent patients from following their blood pressure treatment plan. The IRB proposal was developed and submitted for approval in December of 2020. Once approval of IRB was obtained, an email was sent to the ISAPN list serve containing directions, our case study, and surveys. The link remained active for 14 days.

Evaluation

Our project consisted of a Qualtrics survey evaluating the perceived effectiveness of the Hill-Bone High Blood Pressure Compliance Scale. In order to evaluate the effectiveness of the tool, our survey included a pre/post survey, a case study, and a completed Hill-Bone High Blood Pressure Compliance Scale. The Qualtrics survey was provided to Nurse Practitioners that belong to the Illinois Society for Advanced Practice Nursing (ISAPN), we had 87 participants. Geographically our responses were mostly from Northern Illinois 59.7%, Midwestern Illinois 21.94%, and Southern Illinois 12.64%. The APRNs that completed the Qualtrics survey consisted of 41.38% with 16 years or more practice, 10.34% with 11-15 years, 27.59% with 6-10 years of experience, 18.39% with 1-5 years of experience, and 2.3% with 1 year or less. 56.32% of the participants worked in a Primary Care Setting, 5.75% in Geriatrics, 3.45% Cardiology, 2.3% Neurology, 1.15% Nephrology, and 31.03% other. The participating APRNs patient populations were 47.37% urban, 28.95% rural, and 23.68% low-socioeconomic status/ underserved.

Our implementation process provided us with the knowledge that 89.66% of the surveyors had never used the Hill-Bone High Blood Pressure Compliance Scale within their practice. After reviewing our case study and the completed Hill-Bone Blood Pressure

Compliance Scale, 71.66% of providers agreed or strongly agreed that they would use the tool within their participants agreed or strongly agreed that poor communication could be a barrier to medication compliance and that the Hill-Bone High Blood Pressure Compliance Scale could help improve patient care outcomes and continuity of care.

The limitations of our project included the lack of requirement of participants to complete the Qualtrics survey in its entirety. Twenty-seven participants only completed the first half of the survey, while sixty participants completed the entire survey. Another limitation found was that we included "other" as an option for what type of setting the nurse practitioner worked in but failed to leave a text box for the provider to specify their work setting. This limitation left us with having 31.03% of our participants working in an unknown area of patient population. The last limitation noted within our project implementation was having to change our implementation process to be virtual due to the limitations of COVID-19. Although we were still able to gather adequate data to indicate the importance of medication compliance within hypertensive patients as well as the success the Hill-Bone High Blood Pressure Compliance Scale can provide to increase the compliance rate, we were unable to complete an in-person implementation process to actually visualize the change our tool provided to the compliance rate of hypertensive patients.

Impact on Practice

The data collected through our implementation process indicated that majority of nurse practitioners agreed medication compliance within hypertensive patients is an ongoing problem throughout healthcare. The immediate impact shown within our survey results indicated participants were not aware of the Hill-Bone High Blood Pressure Compliance Scale and therefore had never implemented the use of the scale within their practice. After reviewing the case study and the research driven benefits of the Hill-Bone High Blood Pressure Compliance

Scale, respondents agreed the scale would provide knowledge of compliance issues and therefore increase medication compliance within the hypertensive population. The predicted long-term impact of our project is that a percentage of providers who participated in our project implementation will consider the use of the Hill-Bone High Blood Pressure Compliance Scale within their practice, therefore increasing the overall medication compliance within hypertensive patients. Ideally, for further implementation of our project, we would prefer to implement within an actual primary care office setting to ensure adequate use of the Hill-Bone High Blood Pressure Compliance Scale as well as to personally see the increase of compliance within the patients involved within the implementation.

Conclusion

Due to COVID-19 restrictions, we were limited on how we could implement this project. Although this was not our original method, the results from our survey were very encouraging. Many Illinois Nurse Practitioners had never previously heard of or used the Hill-Bone High Blood Pressure Compliance Scale, but most found that it was relatively easy to use and would consider implementing its use into their routine practice. The evidence is clear that it is important to improve medication compliance for patients with hypertension. We recommend that in the future that the Hill-Bone High Blood Pressure Compliance Scale should be implemented into practice and measured to see if it truly made a positive impact on the compliance of hypertensive patients.