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Improving Knowledge and Competency of Self-Monitored Blood Pressure in Older Adults

Edna Koh Hwa Tang
University of Vermont

Melanie Keiffer DNP, APRN, ANP-BC, CNE
The University of Vermont

IMPROVING KNOWLEDGE AND COMPETENCY OF SELF-MONITORED BLOOD PRESSURE (SMBP) IN OLDER ADULTS

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AUTHORS

Edna Tang, DNPc, RN

Project Advisor:
Melanie Keiffer, DNP, APRN, ANP-BC, CNE

Site Mentors:
Erin Leighton, DNP, APRN, FNP-BC
Deborah Norton, Ed.D, APRN, CDE

AFFILIATIONS

THE UNIVERSITY OF VERMONT COLLEGE OF NURSING AND HEALTH SCIENCES

VERMONT DEPARTMENT OF HEALTH

INTRODUCTION

- Hypertension is a significant risk factor for stroke and heart disease. The risk for developing uncontrolled hypertension increases with age, and it remains under-controlled and underdiagnosed in rural areas.[1,7]
- With the COVID-19 pandemic, there has been a decrease in primary care visits, an increase of telehealth visits and significant decline in assessment of blood pressure.[1]
- Telemedicine in conjunction with SMBP are proven tools for remote hypertension management.[3]
- Patients benefit from structured training and education on accurate SMBP technique, how to interpret results, and how to act on abnormal readings.[2,5,6]
- After starting SMBP, patients benefit from consistent follow-up initiated by providers or clinic staff.[2,6]

AIM

To standardize processes for remote hypertension monitoring in older adult patients at a nurse practitioner-led primary care practice in the Northeast United States by January 2022.

To use telehealth in conjunction with patient education on SMBP as a strategy to improve remote hypertension monitoring at a nurse practitioner-led primary care practice in the Northeast United States by January 2022.

METHODOLOGY

- Patients were recruited by Epic MyChart messaging and phone to participate in an initial in-person office visit with the provider and hypertension RN for discussion of hypertension management and SMBP initiation (see QR Code).
- Patients were seen in office for the initial visit and received telephone follow-up within three business days of SMBP initiation.
- Patients were asked to participate in a follow-up visit with the hypertension RN within one month of initiation via telehealth (see QR Code). Support with set-up and use of telehealth was provided at patient request.

RESULTS

- Data were examined by calculating a mean difference score, the value of the mean post-test score minus the mean pretest score (*n*=12).
  - Patient knowledge assessment mean score improved 16.5% post-intervention (See Figure 1).
  - Competency checklist mean score improved 25.9% post-intervention (See Figure 2).
- The intervention resulted in an increase in mean patient knowledge assessment score and improved patient SMBP competency post-intervention demonstrating the value of patient SMBP education and nurse-driven telemedicine follow up.

Figure 1

Knowledge Assessment Mean Score: Pre-Intervention vs. Post-Intervention

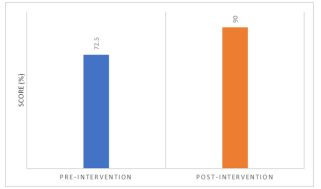


Figure 2

Competency Checklist Mean Score: Pre- Intervention vs. Post-Intervention

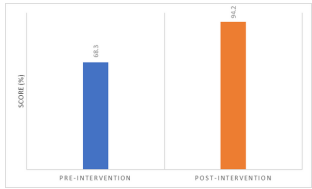


Figure 3

Frequency Distribution of Correct Knowledge Assessment Questions: Pretest vs. Posttest

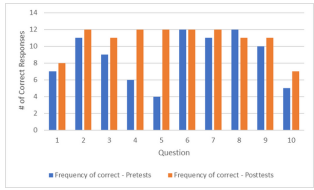
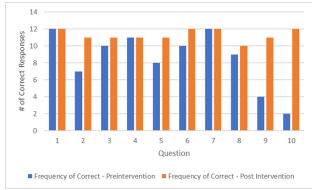


Figure 4

Frequency Distribution of Correct Competency Checklist Questions: Pretest vs. Posttest



CONCLUSIONS AND PRACTICE IMPLICATIONS

- With standardized initiation of SMBP, education, and nurse-driven follow-up of patients, the knowledge and competency of SMBP improves.
- A demonstrated need for patient teaching exists to achieve accurate SMBP.
- Using an RN rather than a provider to provide initial education and address blood pressure follow up was more time-efficient for clinic workflow and provided dedicated time to address patient concerns and promote follow-through.
- Telemedicine facilitates remote hypertension management, but obstacles to patient adoption remain.
- Further study to evaluate the cost-effectiveness and efficacy of self-monitoring of blood pressure to guide diagnosis and treatment in older adults is warranted.

LIMITATIONS

Limitations of this pilot project include a small sample size (*n*=12) and implementation of the project with only one provider's panel. Results may not be generalizable beyond this faculty-run primary care clinic.

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References: 1) Alexander, G.C., Tajanlangit, M., Heyward, J., Mansour, O., Qato, D.M., & Stafford, R.S. (2020). Use and content of primary care office-based vs telemedicine care visits during the COVID-19 pandemic in the US. JAMA Network Open, 3(10):e2021476. doi:10.1001/jamanetworkopen.2020.21476., 2) Andrews, J. A., Weiner, K., Will, C. M., Henwood, F., & Dickson, J. M. (2020). Healthcare practitioner views and experiences of patients self-monitoring blood pressure: A vignette study. BJGP Open, 4(5). https://doi.org/10.3399/bjgpopen20X101101, 3) Batsis, J. A., DiMilia, P. R., Seo, L. M., Fortuna, K. L., Kennedy, M. A., Blunt, H. B., Bagley, P. J., Brooks, J., Brooks, E., Kim, S. Y., Masutani, R. K., Bruce, M. L., & Bartels, S. J. (2019). Effectiveness of Ambulatory Telemedicine Care in Older Adults: A Systematic Review. Journal of the American Geriatrics Society, 67(8), 1737–1749. https://doi.org/10.1111/jgs.15959, 4) Edelman, R. & Gordon, J. (2017). From 70 to 80 percent: The hypertension management toolkit (Version 1.0). The Vermont Department of Health and The New England Quality Improvement Network. https://www.healthvermont.gov/sites/default/files/documents/pdf/HPDP%20Hypertension-Management-Toolkit_v1.0.pdf, 5) Fletcher, R. R., Hinton, L., Hartmann-Boyce, J., Roberts, N. W., Bobrovitz, N., & McManus, R. J. (2016). Self-monitoring blood pressure in hypertension, patient and provider perspectives: A systematic review and thematic synthesis. Patient Education and Counseling, 99(2), 210–219. https://doi.org/10.1016/j.pec.2015.08.026, 6) Liyanage-Don, N., Fung, D., Phillips, E., & Kronish, I. M. (2019). Implementing home blood pressure monitoring into clinical practice. Current Hypertension Reports, 21(2), 14. https://doi.org/10.1007/s11906-019-0916-0, 7) Homedust (Photographer). (2018) *Person Using Black Blood Pressure Monitor* [Photograph]. Retrieved February 27, 2022 from https://wordpress.org/openverse/image/34dc41f4-cf8e-48ba-95ca-f0b7deb9b1b5/, 8)Vermont Department of Health. (2016, August 18). 1305 surveillance: State public health actions to prevent and control diabetes, heart disease, obesity, and associated risk factors and promote school health — Data pages. http://healthvermont.org/sites/default/files/documents/2016/12/HS_1305_Data_Pages_08816.pdf