Reducing Blood Pressure through Education on Lifestyle Interventions

Charlotte Michelle Fuller, MSN, APRN, FNP-C
Shannon Harris, DNP, FNP, CCRN
Mohammad A. Naeem, MD
UNIVERSITY OF SOUTH ALABAMA, MOBILE, AL

UNIVERSITY OF SOUTH ALABAMA

UNIVERSITY OF SOUTH ALABAMA

Purpose

- Reduce blood pressure (BP) for patients with BP >130/80 mm Hg
- Increase knowledge and self-efficacy of lifestyle interventions proven to help lower BP
- Develop a standard education plan for patients with elevated BP
- Increase scheduled follow-up visits for patients with elevated BP
- Improve overall health of patients with elevated BP

Background

- High BP is classified as systolic BP $\geq$ 130 mm Hg or diastolic BP $\geq$ 80 mm Hg and increased risk for chronic disease development including
  - Cardiovascular disease (CVD)
  - Chronic kidney disease (CKD)
  - Stroke (American College of Cardiology [ACC], 2017)
- 46 million people in the United States have high blood pressure (Whelton & Carey, 2017)
- All treatment for high blood pressure should start with lifestyle interventions and some may need pharmacological therapies (Whelton et al., 2018)
- The number one leading cause of death in Louisiana in 2019 was CVD with HTN being a leading contributing factor (Louisiana Department of Health [LDH], 2017)
- Louisiana ranked in top 10 states for rates of obesity (LDH, 2017)
- Problems with patients presenting to clinic required attention
  - Many had BP $\geq$130/80 mm Hg
  - Lack of knowledge on the DASH diet
  - Lack of knowledge and self-efficacy of lifestyle interventions to lower BP
  - Lack of exercise in those with elevated BP
  - No scheduled follow-up visits due to nature of walk-in clinic
- Patients with high BP should be knowledgeable of lifestyle interventions proven to lower BP

Setting & Sample

- Primary care family practice walk-in clinic
- Located in Southeast Louisiana
- Convenience and purposive sampling of adult patients with systolic BP $\geq$130 mm Hg or diastolic BP $\geq$ 80 mm Hg
- Sample size = 38 participants
  - 25 males
  - 13 females
  - Mean age 53 years old (SD=13.07)

Methodology

- 3-month QI project implementation
- Data collection:
  - Participants age and sex
  - Pre- and post-intervention measurements
    - BP
    - Weight
    - BMI
    - Waist circumference
    - Knowledge of DASH diet
    - Exercise status
    - Self-reported health status
- Tools
  - Patient Activation Measure (PAM) questionnaire(Centers for Medicare & Medicaid Services [CMS], n.d.)
    - Used to assess participants self-reported ability and confidence to manage their own health pre- and post-intervention
  - Medical Outcomes Study (MOS) Measure of Patient Adherence (Hays, n.d.)
    - Used to assess adherence to lifestyle changes pre-intervention
    - Too cumbersome post-intervention, not utilized for data analysis
- Follow-up scheduled within 1-3 months of initial visit
- Post-intervention measurements within 1-3 months of project initiation
- All participants participated in individualized instruction on DASH diet and EBP lifestyle interventions to lower BP (ACC, 2017; NIH, 2015)
- Additional communication was provided via patient portal messages, text messages, follow-up visits, or follow-up phone calls
- Participants were assisted to schedule follow-up visit within 1-3 months of initial consult

Results

- Success of the QI project was evident by pre- and post-intervention measurements (see Figure #1)
  - A mean decrease in SBP and DBP
    - SBP -16.57 mm Hg, p ,0.0001
    - DBP -9.35, p – 0.0008
  - A mean decrease in weight, BMI, and waist circumference
    - Weight -8.84 lb, p-0.299
    - BMI -0.98 p = 0.000₃
    - Waist circumference -0.46 inches, p = 0.0129
  - Increased (see Figure #2)
    - Knowledge of the DASH diet
      - 100% of participants were aware of the DASH diet post-intervention
    - Rates of exercise
      - For15 participants that reported they did not exercise, 33% of those participants reported participating in exercise post-intervention
    - Scheduled follow-up visits
      - 86.49% of participants had a scheduled follow-up visit
    - Mean PAM scores
      - Increased 2.22, p = 0.0084 suggesting participants were more confident with controlling their own health
    - Improved self-reported health status
      - 63% of participants reported feeling better about their overall health post-intervention

No significant differences were noted in mean change in measurements by gender pre- and post-intervention
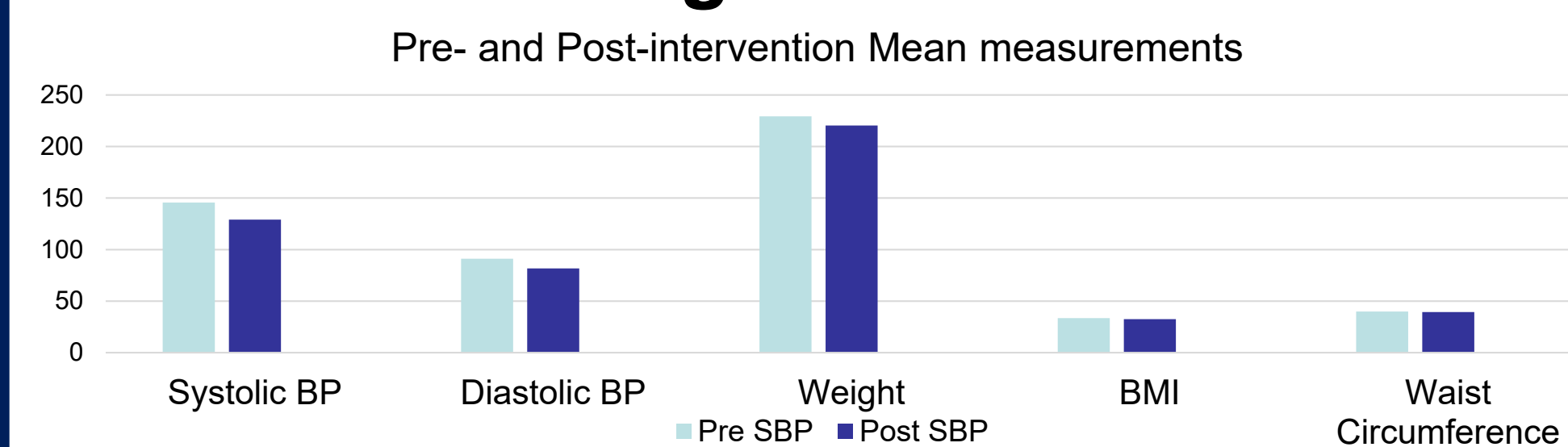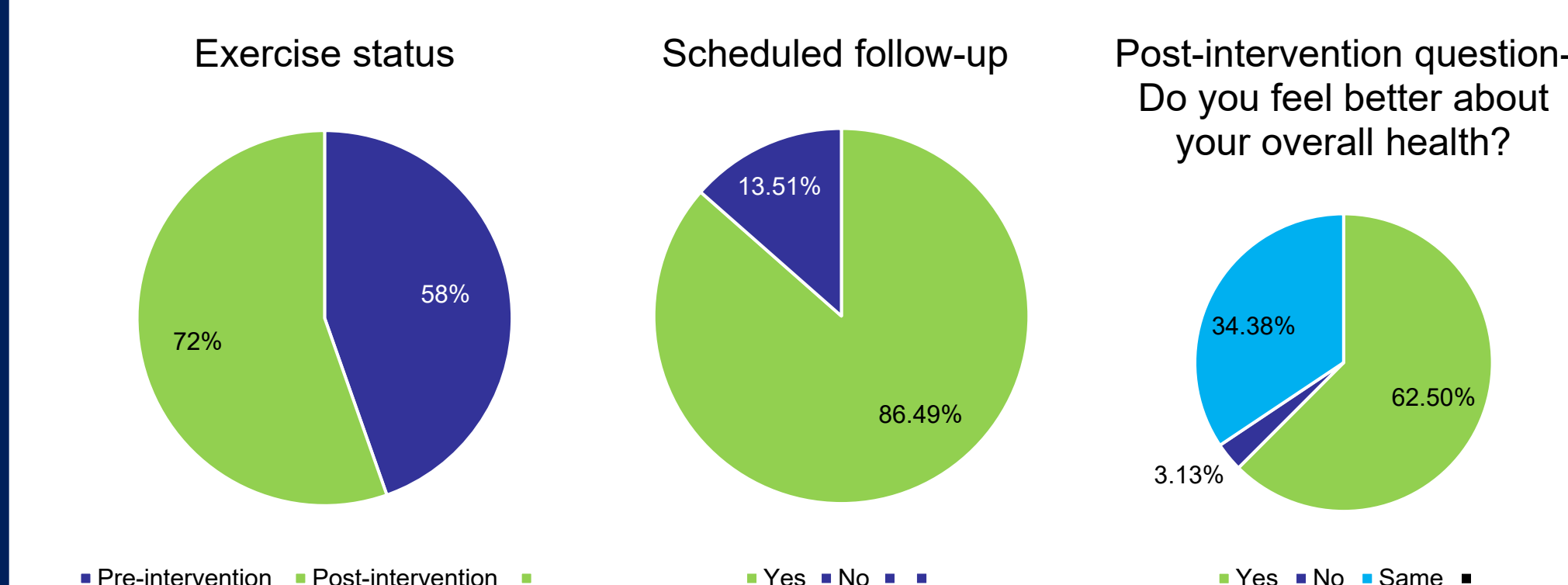
Figure #1

Pre- and Post-intervention Mean measurements

Figure #2

Exercise status

Scheduled follow-up

Post-intervention question- Do you feel better about your overall health?

Conclusions

- Results of the QI project support:
  - Evidence-based lifestyle interventions reduce BP
  - Education on the DASH diet is needed
  - Scheduled follow-up visits improves self-efficacy
- The project may serve as a model for primary care clinics
  - to improve BP and health outcomes
  - To offer a standardized education intervention
  - Schedule follow-ups at regular intervals
  - Increase communication with patients
  - Engage patients in self-care management
  - Increase health literacy
- Implications for practice
  - A standardized education plan for patients with elevated BP should be utilized
  - Focus education on DASH diet and lifestyle interventions proven to reduce BP
  - Schedule follow-up visits within 1-3 months for all patients with elevated BP
- Recommendations for the future
  - Longer duration for the intervention
  - More participants including support person for social support
  - Community outreach of the program to reach more people
  - Offering group classes with a Registered Dietician
  - Offering access to a health coach
  - Find a local health center or gym to offer exercise programs to participants
  - Provide a home BP monitor to all participants monitor
  - Replacement or condensing of MOS questionnaire
  - Include staff as participants to increase awareness and engagement in the program

References

1. American College of Cardiology (2017). *New ACC/AHA high blood pressure guidelines lower definition of hypertension-American College of Cardiology.*
2. Centers for Medicare & Medicaid Services (n.d). *Patient Activation Measure (PAM).* Centers for Medicare & Medicaid services.
3. Hays, R.D. (n.d.). *Measures of patient adherence survey.* RAND health care. https://www.rand.org/health-care/surveys_tools/mos/patient-adherence.html
4. Louisiana Department of Health (2021). *Hypertension | La dept. of health.* ldh.la.gov.
5. Louisiana Department of Health (2017). *Adult obesity department of health state of Louisiana.* Louisiana Department of Health. https://ldh.la.gov/index.cfm/page/2612
6. Whelton, P. K., & Carey, R. M. (2017). The 2017 clinical practice guideline for high blood pressure. JAMA, 318(21), 2073.
7. Whelton, P. K., Carey, R. M., Aronow, W. S., Casey, D. E., Collins, K. J., Dennison Himmelfarb, C., DePalma, S. M., Gidding, S., Jamerson, K. A., Jones, D. W., MacLaughlin, E. J., Muntner, P., Ovbiagele, B., Smith, S. C., Spencer, C. C., Stafford, R. S., Taler, S. J., Thomas, R. J., Williams, K. A.,...Wright, J. T. (2018). 2017 acc/aha/aapa/abc/acpm/ags/apha/ash/aspc/nma/pcna guideline for the prevention, detection, evaluation, and management of high blood pressure in adults. *Journal of the American College of Cardiology*, 71(19), e127–e248.