

Impact and clinical outcomes of a pharmacist and dietitian co-led employee wellness program

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Abstract

Background: Hypertension and diabetes are prevalent chronic disease states. Pharmacists and dietitians collaborated to develop and implement employee benefit programs for hypertension and diabetes at a regional grocery store. The hybrid program included virtual education modules and check-in calls to monitor participants.

Objectives: The primary objective of this study is to measure the change in blood pressure, hemoglobin A1c (HbA1c), and/or weight through program participation. The secondary objective is to evaluate the participants' reported impact through survey results.

Methods: Blood pressure, HbA1c, and weight data were collected at baseline and 3 months post-program participation.

Investigators utilized descriptive statistics and a paired t-test to evaluate retrospective clinical data. Participants were recruited via email to complete a questionnaire to assess the reported impact. The questionnaire evaluated the impact on health, quality of life, lifestyle modifications, and knowledge through a four-point Likert Scale. Questionnaire data was analyzed using descriptive statistics and content analysis.

Results: A total of 15 participants completed the employee wellness program, with 80 enrolling in the hypertension program and 35 in the diabetes program. Of the 115 participants, 66 chose to complete the survey. Clinical results of the hypertension program were average changes in systolic blood pressure of -4.15 mmHg ($p < 0.014$), diastolic blood pressure -3.55 mmHg ($p < 0.001$), and weight -2.95 lbs ($p = 0.001$). Results of the diabetes program were average changes in HbA1c of -0.43% ($p = 0.004$) and weight -4.57 lbs ($p = 0.004$). Participants reported a positive impact on all aspects evaluated through the questionnaire. Content analysis identified program benefits including knowledge gained, condition improvements, positive experiences, and willingness to recommend to others.

Conclusion: There was a clinically and statistically significant reduction in blood pressure, HbA1c, and weight from completing a pharmacist and dietitian co-led employee wellness program. Participants reported a positive impact on health, quality of life, lifestyle, and understanding of their condition.

Keywords: chronic disease, diabetes mellitus, employee health, health promotion, hypertension, interprofessional relations

Background

Approximately 129 million people in the United States (U.S.) have at least one chronic medical condition.¹ Hypertension and diabetes are two of the most common chronic medical conditions. In the U.S., the annual costs associated with healthcare and lost productivity have been estimated at \$327 billion for diabetes and \$198 billion for hypertension.^{2,3} Disease state management services primarily target chronic conditions due to their high prevalence and significant financial burden.⁴

The World Health Organization (WHO) reported that common modifiable risk factors underlie the major chronic diseases.⁵ Risk factors that are common across multiple disease states include poor nutrition, inactivity, excessive alcohol use, and tobacco usage.⁶ Both hypertension and diabetes are associated with multiple risk factors that can lead to comorbidities, negative impact on quality of life, worse clinical outcomes, and increased hospitalization.

Management of risk factors is one method to improve individuals' outcomes, minimize lost productivity, and decrease healthcare-associated costs.⁷

Worksite wellness interventions by pharmacists have been well-established in the literature. In 2003, the Asheville Project evaluated pharmacist-provided services in an employer-sponsored wellness program across 12 community pharmacies. Participants in this program saw a reduction in mean HbA1c at every follow-up, there was an increase in those with an optimal HbA1c $< 7\%$, and mean low density lipoprotein (LDL) decreased with all follow-ups.⁸ A 2022 study reinforced the finding that pharmacists are some of the most accessible healthcare providers.⁹ The integration of pharmacists in interprofessional environments can expand services, assisting in management of the large burden of chronic disease.

The workforce needs better access to care and effective chronic disease management to improve health and productivity. The Healthy People 2030 initiative includes multiple developmental objectives regarding the wellness of the workforce and programs available in the workplace. These objectives include increasing the proportion of worksites that

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offer an employee health promotion program, physical activity program, and nutrition program.¹⁰ This study, and similar reports, can aid in establishing baseline data to promote these Healthy People 2030 objectives and promote the development of similar employee programs in other organizations.

Objectives

Primary Objective

- The primary objective of this study is to measure the change in participant blood pressure, HbA1c, and/or weight through participation in a pharmacist and dietitian co-led employee wellness program.

Secondary Objective

- The secondary objective is to evaluate the reported impact from participants who enrolled in at least one employee wellness program.

Methods

Regional Grocery Store Employee Wellness Program

In 2021, a regional grocery store chain and employer group in the Northeast created and implemented two employee benefit programs, one focusing on hypertension and the other on diabetes. Full- and part-time employees with hypertension and/or diabetes or prediabetes have the opportunity to enroll, on a first-come, first-served basis, if they meet diagnostic criteria.

The programs consist of virtual modules that educate on the disease state, risks and reducing risks, weight, physical activity, medications, adherence, and monitoring. Modules are released weekly, and the program takes place over a period of three months. The team consists of two pharmacists and two dietitians.

Participants are randomly assigned to a dietitian or pharmacist to serve as their primary coach. Four required, 15-minute check-in calls are scheduled throughout the program. The first call is with the participant's primary coach before beginning the program, the second is with either pharmacist after module one, the third is with either dietitian after module three, and the final call is with the primary coach after the last module. Each call provides participants the opportunity to discuss the previous modules, ask questions relating to the topics and their health, and develop/discuss progress on a smart goal.

Program participants are also provided with a welcome kit that contains monitoring tools (blood pressure monitor or HbA1c test kit), a scale, and resistance bands. Data used to evaluate patient progress, blood pressure, HbA1c, and weight are self-reported by the participant using the tools in the kit. Participants are incentivized to complete modules and check-in calls during scheduled work hours.

Study Design

Investigators combined a quantitative analysis of clinical data with a quantitative and qualitative analysis of a questionnaire. Inclusion criteria included employees of a regional grocery store chain diagnosed with hypertension and/or diabetes or prediabetes who completed the hypertension or diabetes employee wellness program(s). The Wilkes University Institutional Review Board approved the project as exempt in November 2023.

Clinical Markers

Retrospective participant clinical outcome data, blood pressure, HbA1C, and weight at baseline compared to final measures were analyzed with descriptive statistics and a paired t-test for significance using the Statistical Package for the Social Sciences (SPSS) program. Prior to the start of the program, participants used the scale and blood pressure monitor or HbA1c test kit to collect the clinical information for program documentation. Data was self-reported by each participant into the participant's online program profile at baseline and again after the completion of the 3-month program. The program lead contact (dietitian) compiled retrospective participant clinical outcomes into a de-identified Excel sheet for the primary investigator's use.

Questionnaire

The program lead contact recruited participants via email, using Survey Monkey (Appendix 1), to complete an anonymous questionnaire developed by primary investigators. The questionnaire accepted responses for one month, with a reminder email sent after two weeks and again after three weeks. Investigators developed the questions based on topics discussed in each module of the wellness program. Utilizing a four-point Likert Scale, the questionnaire asked nine questions that evaluated the impact on health, quality of life, diet, physical activity, medication adherence, and participant understanding of their condition, and included an open-ended section for the participant to elaborate on answers. Participants created a unique code at the start of the questionnaire to ensure that no duplicate responses were recorded. Investigators analyzed questionnaire Likert Scale data through descriptive statistics and evaluated open-ended responses with a content analysis, using NVivo Version 14. At the completion of the questionnaire, there was an incentive for participants to opt into a gift card raffle using an additional Survey Monkey, unassociated with participants' questionnaire responses, to collect names and emails.

Results

Clinical Outcomes

A total of 115 participants completed the employee wellness program, with 80 enrolling in the hypertension program and 35 in the diabetes program. The mean age of all participants was 52.26 years. Participants were 39% male and 61% female.

Clinical outcomes are highlighted in Table 1. Results of the hypertension program were average changes in systolic blood pressure of -4.15 mmHg, diastolic blood pressure of -3.55 mmHg, and weight of -2.95 lbs. Results of the diabetes program were average changes in HbA1c of -0.43% and weight of -4.57 lbs. Program results from baseline to 3 months were all statistically significant.

Table 1: Clinical Outcomes

	Diabetes Program (n=35)			
	Baseline	3 months post	Mean decrease	p
HbA1c (%)	7.097	6.667	0.43	0.004
Weight (lbs)	224.94	220.37	4.571	0.004
	Hypertension Program (n=80)			
	Baseline	3 months post	Mean decrease	p
Systolic (mmHg)	133.86	129.71	4.15	<0.014
Diastolic (mmHg)	84.36	80.81	3.55	<0.001
Weight (lbs)	232.72	229.77	2.94	0.001

Questionnaire Outcomes

Of the 115 participants who completed the employee wellness program and were invited to complete the questionnaire, 66 responded, yielding a 57% response rate. The mean age of participants completing the questionnaire was 52.92 years. Respondents were 36% male and 64% female.

The questionnaire Likert scale questions and results are highlighted in Table 2. Participants responded favorably to all nine Likert-scale questions that evaluated the impact of the employee wellness program. The content analysis of the open-ended questions, along with supporting quotes, can be found below.

Theme 1: Knowledge Gained/Shared

Participants found the knowledge gained from the program to be beneficial and were able to incorporate the information into their lifestyle and/or share it with others.

- “It was interesting learning about which medications to take for high blood pressure My primary doctor never told me this.” - Participant 14

Table 2: Questionnaire Data

Question	Strongly Disagree	Disagree	Agree	Strongly Agree
The program helped me learn about my condition (diabetes, high blood pressure).	0% (0)	0% (0)	48% (32)	52% (34)
The program helped me make sustainable (long lasting) changes to my diet	0% (0)	1.5% (1)	61% (40)	38% (25)
The program helped me understand how to read a nutrition label.	0% (0)	0% (0)	41% (27)	59% (39)
The program helped me understand the importance of eating the right amount (more or less) of certain nutrients in my diet (for example, sodium, potassium, carbohydrates/sugars).	0% (0)	0% (0)	44% (29)	56% (37)
The program helped me make sustainable (long lasting) changes to my physical activity.	0% (0)	6% (4)	62% (41)	32% (21)
The program helped me understand why it is important to remember to take my medications, and to take them as directed by the provider.	0% (0)	1.5% (1)	50% (33)	48.5% (32)
Having both pharmacists and dietitians involved in the program made it better.	0% (0)	3% (2)	33% (22)	64% (42)
If I could go back, I would choose to do this program again.	0% (0)	4.5% (3)	41% (27)	54.5% (36)
Overall, being in the program had an impact on my quality of life (for example, by promoting physical fitness, reducing stress, improving mental health, improving physical health, and/or providing access to nutritional guidance).	0% (0)	1.5% (1)	48.5% (32)	50% (33)

- “The program is awesome and impressed my doctors and dietitian I already had. It did show me stuff I did not know, it would be helpful to have videos of other associates [employees] who went through the program to share their knowledge about the program and life changes.” - Participant 22
- “I thought the whole program was very good. I learned a lot and had some interesting conversations about private health matters with the dietitians and the pharmacists.” - Participant 47

Theme 2: Participant Perceived Disease Improvements

Participation in the program allowed for improvements in patients' conditions and lifestyles.

- "I liked the program. It provided good information. There were a lot of positive gains from it. I have come off a medicine from using the knowledge gained from it." - Participant 11
- "I really learned a lot in this program. I knew my blood pressure wasn't well controlled, but I didn't really understand what blood pressure even was or why it wasn't getting better even with the help of medication. After taking this course, my cardiologist has told me that I'm medically boring. I'll take medically boring any day! Thank you to everyone who put this course together and really helped me understand how to help control my blood pressure." - Participant 35
- "This program has helped me, and I now have my pressure under control thank you." - Participant 48

Theme 3: Positive Experiences

Participants expressed appreciation for the program offerings, incentives, and support of the pharmacists and dietitians.

- "I think it was a good idea that [the organization] provided these programs to their employees. I did appreciate it very much. I believe this is a good program and am very impressed with [the organization] that they would provide it to their employees." - Participant 1
- "I enjoyed the program, the items we received are awesome. A blood pressure monitor that is accurate, and a nice scale. I've always had [a] cheap blood pressure over the wrist that was never accurate." - Participant 56
- "I liked the program because it was not overwhelming or pushy. I also liked the follow-up call to answer questions I had." - Participant 49

Discussion

The study demonstrates that the collaboration between a pharmacist and dietitian in an employee wellness program for hypertension and diabetes led to improvements in systolic and diastolic blood pressure, HbA1c, and weight in participants. Most participants agreed with statements suggesting that the program had a positive impact beyond the clinical markers shown. The program highlighted benefits including knowledge gained/shared and condition improvements. Participants expressed appreciation for the program offerings, incentives, and support of the pharmacists and dietitians, and after participation in the program participants believed the experience was worth recommending to others. The study results suggest that pharmacist and dietitian collaboration in

developing and delivering employee wellness services provides both clinical benefits and perceived improvements for participants.

Participants in the hypertension program had an average post-completion BP of 129.7/80.8 mmHg. Per the American College of Cardiology (ACC) 2018 Hypertension Guidelines, the target BP for most people with hypertension is <130/80 mmHg. Program interventions lowered participant BP to an average systolic at goal and an average diastolic close to goal. The ACC guidelines report a systolic BP reduction of 5 mmHg with weight loss, 11 mmHg with a healthy diet, 5-6 mmHg with sodium reduction, and 5-8 mmHg with physical activity. Results of the employee wellness program revealed a 4.15 mmHg decrease in systolic BP, which is close to aligning with most guideline-reported reductions.

Participants in the diabetes program had an average HbA1c, post-completion, of about 6.7%. According to the 2024 American Diabetes Association (ADA) guidelines, the target HbA1c for most people with diabetes is <7%.¹¹ The ADA also reports an anticipated HbA1c reduction of 0.46% in certain populations receiving structured diabetes education.¹² Results of the employee wellness program align with guideline-reported reductions, with a mean decrease of 0.43%.

Both wellness programs highlight lifestyle modifications, promote adherence, and offer education to empower participants to understand their condition. Providing this education and support to employees through wellness programs can assist in lowering clinical markers at or close to the goal for both hypertension and diabetes.

Questionnaire data revealed that the lowest-rated question was related to participants' belief that they were able to make sustainable changes to their physical activity. The employee program structure includes pharmacists and dietitians. Having professionals trained in nutrition, medications, monitoring, and understanding of medical conditions covers most of the topics discussed in each module. The only main educational topic that does not have a licensed professional tied to it is physical activity. A 2022 study evaluated community pharmacists' perceptions of lifestyle counseling and found that their willingness to provide such counseling was greater than their comfort in conducting it.¹³ Providing education, training, or certification in these additional specialties can increase pharmacists' comfort in providing support in the physical activity category. Another strategy to increase impact on physical activity is to include a professional trained in fitness. Participants reported that they found benefits from having both a pharmacist and dietitian involved in the program. Expanding the involvement of professionals into the categories where a pharmacist and dietitian are not specifically trained could positively impact participant perceived benefit.

Additional studies have shown benefits from similar programs led solely by pharmacists, further suggesting that expansion to additional professionals may enhance services.¹⁴ In Northwest and Central Missouri, researchers developed a study with 200 participants enrolled in an employee wellness program across 15 independent pharmacies.¹⁴ The program was implemented in self-insured, rural, independent community pharmacy chain locations. While this program was similar to ours in including a self-insured company and being implemented at multiple different locations, consisted solely of pharmacist coaches. The collaborative nature of our pharmacist and dietitian program distinguishes it from many other programs evaluated.

Evidence from this study, and others, highlights the value of employee wellness programs across a variety of settings. The results of this study can also provide a framework for other organizations to develop programs to enhance employee wellness, and can promote the use of collaboration between professionals to develop and lead successful programs. Understanding the variety of structures and offerings from various programs, in addition to the data evaluated and the benefits found, can assist in program development.

A limitation identified in this study is the use of participant-reported data. As described in the methods, all clinical data collected are participant-reported. Incorrect reports could come from improper storage/handling of BP monitors and HbA1c kits, incorrect techniques, and external factors that impact readings. To address this limitation, participants were provided with education and tutorials on how to perform BP measurements and HbA1c testing. Additionally, pharmacist support for data collection, via virtual video appointment, was available by request, with the pharmacist walking through the participant through the steps of using the equipment.

Conclusion

There was a clinically and statistically significant reduction in blood pressure, HbA1c, and weight from completing a hybrid pharmacist and dietitian co-led employee wellness program. Beyond clinical improvements, participants reported a positive impact on health, quality of life, lifestyle, and understanding of their condition. Other employers interested in an employee wellness program should consider an interprofessional approach to their program.

The results from this study demonstrate the impact of an interprofessional approach to employee wellness, utilizing the strengths of both pharmacists and dietitians. These results can be used to promote the expansion of wellness programs to address other health concerns such as cholesterol management, and showing significance in wellness initiatives can incentivize organizations and/or health plans to prioritize and promote opportunities geared towards employee well-being.

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Supplementary Material: Questionnaire

1. Please enter the **first letter of your middle name**, followed by the **first letter of your state**, and the **last 4 digits of your phone number** in the box.
Example: John A Smith from New York: AN5555
2. The program helped me learn about my condition (diabetes, high blood pressure).
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
3. The program helped me make sustainable (long lasting) changes to my diet.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
4. The program helped me understand how to read a nutrition label.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
5. The program helped me understand the importance of eating the right amount (more or less) of certain nutrients in my diet (for example, sodium, potassium, carbohydrates/sugars).
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
6. The program helped me make sustainable (long lasting) changes to my physical activity.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
7. The program helped me understand why it is important to remember to take my medications, and to take them as directed by the provider.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree
8. After the first module you had a check-in call with a Weis pharmacist. What did you learn from the pharmacist? If you do not remember, put N/A.
9. What else would you have likes to learn from the pharmacist? If nothing put N/A.

10. After the third module you had a check-in call with a Weis dietitian. What did you learn from the dietitian? If you do not remember, put N/A.

11. What else would you have likes to learn from the dietitian? If nothing put N/A.

12. Having both pharmacists and dietitians involved in the program made it better.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree

13. If I could go back, I would choose to do this program again.
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree

14. Overall, being in the program had an impact on my quality of life (for example, by promoting physical fitness, reducing stress, improving mental health, improving physical health, and/or providing access to nutritional guidance).
 - a. Strongly agree
 - b. Agree
 - c. Disagree
 - d. Strongly disagree

15. Optional: If you could change anything to the program, what would it be?

16. Optional: Please share any other thoughts, experiences, or information about your time in the program(s).

Demographic information questions:

17. Age
18. Gender
19. Zip code
20. Which program did you participate in?
 - a. Diabetes
 - b. Hypertension (High Blood Pressure)
 - c. Both
21. Did you complete the program(s)
 - a. Yes
 - b. No
 - c. Registered for both programs, only finished one