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# Implementation and reach of health coaching using motivational interviewing to reduce cardiovascular disease risk in uninsured Illinois women

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## Abstract

**Context:** Cardiovascular disease (CVD) is the leading cause of mortality for US women; lack of health insurance contributes to poor control of risk factors and increased mortality. Health coaching including motivational interviewing can support primary and secondary CVD prevention, but among uninsured women, improving health outcomes is dependent on successfully reaching priority populations.

**Objective:** We evaluated the implementation and reach of health coaching with motivational interviewing among clients in the Illinois WISEWOMAN Program (IWP), a CVD screening and risk-reduction program for uninsured women aged 40–64.

**Intervention:** Following CVD screening, motivational interviewing is offered to all IWP clients via four 30-minute one-on-one health coaching sessions to offer personalized guidance on setting and achieving health behavior goals.

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Author roles:
As our author list has exceeded the limit of six, we have outlined the author roles below:
• Zimmermann: Conceptualization, project administration, writing-original draft, writing-review and editing
• Cui: Data curation, formal analysis, Visualization, writing-original draft
• Kaur: Writing-original draft, writing-review and editing
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• Curtis: Funding acquisition
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**Setting:** Our analysis included clients from the 8 community-based Illinois agencies that implemented IWP from 2019–2023.

**Design & Measures:** We assessed client demographic and baseline health characteristics among all IWP clients, those who participated in health coaching by attending at least one session, and those who completed health coaching by attending at least three of four sessions. We also assessed health coaching participation and completion by agency and examined agency-specific associations between client characteristics and health coaching participation and completion.

**Results:** Among IWP enrollees (n = 3,094), 89.7% participated in at least one health coaching session but only 31.4% completed health coaching by attending at least three sessions. Over 90% of IWP clients participated in at least one health coaching session at four IWP agencies. Further, over 85% of health coaching participants completed health coaching at four agencies. Across agencies, no client-level characteristics were consistently associated with health coaching participation or completion.

**Conclusions:** High motivational interviewing participation rates support its acceptability among uninsured women, but agency-level community-level barriers likely prevent client engagement in multiple sessions. Reducing CVD risk requires working with partner agencies to address barriers to reaching the priority population.

### Keywords

Women's health services; Cardiovascular disease; Primary prevention; Secondary prevention; Community health services

## INTRODUCTION

Cardiovascular disease (CVD) is the leading cause of death for women in the United States, and although mortality rates from CVD are declining overall, this decline is happening at a much slower rate for women than men.[1,2] While some precursor characteristics such as blood pressure (BP) tend to be higher in men during the reproductive years, once women enter menopause they show a sharp increase in BP resulting in a greater incidence of CVD in older women than men.[3] Despite women's risk for high BP increasing after menopause, CVD can negatively affect women of all ages.[4]

Socioeconomic factors such as lack of insurance are heavily associated with CVD risk as they are linked to lack of access to preventative care and increased mortality.[5] Further, in addition to CVD posing a mortality threat to women, it can also be a significant financial burden that can leave a multitude of negative impacts on the individual, especially uninsured women.[6] In response to elevated risk for CVD among uninsured women ages 40–64, in 1993, the Centers for Disease Control and Prevention (CDC) received authorization from the US Congress to create the WISEWOMAN (Well-Integrated Screening and Evaluation for WOMen Across the Nation) Program,[7] which supports CVD screening, with a particular focus on BP screening and management; referrals to treatment; and primary prevention of CVD (i.e., preventing its onset) and secondary prevention of CVD (i.e., managing CVD risk factors to prevent progression to CVD) using evidence-based strategies available in community locations. WISEWOMAN services are offered at no cost to clients.

Health coaching, one strategy that has been adopted in WISEWOMAN,[8] uses a personalized, goal-driven, process focused on health-centered outcomes to promote behavioral modifications and achieve specific goals.[9,10] Health coaching has previously demonstrated efficacy in supporting primary and secondary prevention of CVD by promoting behavioral changes to improve cardiovascular health including blood pressure management; however, several studies state a need for further research on older individuals and underrepresented groups, such as individuals with lower socioeconomic status, racial and ethnic minorities, and uninsured individuals.[9,10] Further, health coaching that includes motivational interviewing (MI), in which health coaches use open-ended questions to assist individuals in finding what motivates them to reach their goals,[11] has demonstrated efficacy in improving BP control among patients with hypertension through improved medication adherence; however, research involving underrepresented study populations such as those who lack access to health insurance or quality care are needed.[12]

Previous literature outlines the effectiveness of MI on lowering CVD risk and severity of symptoms; however, effective community-level implementation requires demonstrating success in reaching those for whom the intervention is intended.[13] Overall, MI has been shown to be highly feasible and it contributes to higher participation in health promotion activities compared to interventions without MI.[14,15] Despite the promises of health coaching with MI, the priority population of WISEWOMAN—uninsured, low-income women—likely may face multiple barriers to participating in health interventions and engaging in health promoting behaviors,[8] and knowledge about reach in such populations is limited.[16] Evaluating reach is therefore imperative to understanding the number and representativeness of individuals willing to participate in WISEWOMAN as well as factors affecting participation.[13,17]

Heart disease is the leading cause of death in Illinois with deaths due to heart disease and stroke combined representing nearly 29% of all deaths in the state in 2017.[18] Approximately 7.8% of Illinois women ages 35–64 are uninsured.[19] To identify and address CVD needs among uninsured Illinois women, the Illinois Department of Public Health (IDPH) began participating in WISEWOMAN in 2001. The Illinois WISEWOMAN Program (IWP) model involves a collaboration between IDPH, which oversees statewide implementation, and 8 partner agencies—six local health departments and two federally qualified health centers that coordinate services at the local level to serving residents of 15 Illinois counties. The IWP's approach includes CVD screening and risk reduction counseling provided to all IWP clients and health coaching with MI using an evidence- and theory-based curriculum consisting of four sessions. Due to the diverse populations served by the IWP, each partner agency developed strategies for maximizing client reach.

The objective of this study was to evaluate the reach of motivational interviewing among clients across 8 agencies participating in the IWP between 2019–2023. Currently there is a gap regarding evaluating interventions with uninsured women; however, with their increased risk factors linked to lack of access, it is important to assess best practices in implementation of interventions to reduce CVD risk.

## METHODS

The current study is a secondary analysis of data collected from IWP clients, as required by the CDC. The study has been approved by the University of Illinois College of Medicine Rockford Institutional Review Board.

### Participants

IWP clients are uninsured women aged 40–64, living at or below 250% of the federal poverty level, who are enrolled in the Illinois Breast and Cervical Cancer Program (IBCCP) and receive services from one of the 8 agencies participating in the IWP program. Clients are recruited via IBCCP; IWP is provided as either a component of IBCCP or as an optional program and is offered to all who meet the eligibility criteria. The current study includes all individuals who participated in IWP between February 1, 2019-June 30, 2023.

### Interventions

**CVD Screening:** All IWP clients receive an office appointment with a clinical provider and CVD screening that includes assessments of height and weight, systolic and diastolic BP, total cholesterol, and fasting glucose or hemoglobin A1c. The CVD screening also includes discussion of medications and previous CVD diagnoses, dietary habits, physical activity habits, and smoking status.[7]

**Risk Reduction Counseling:** Based on the CVD screening results, all clients receive risk-reduction counseling, typically conducted by the clinical provider during the clinical appointment, or, if full screening results are not available at the time of the appointment, by agency staff, typically within one week of the clinical appointment. During risk reduction counseling, providers/staff discuss screening results, provide follow-up guidance for identified needs, identify and address treatment barriers, establish health behavior goals, and facilitate access to healthy behavior support options, including health coaching with MI. Medical follow-up may be recommended for clients with abnormal or alert BP or laboratory values, based on the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) guidelines.[20] Clients who remain eligible for the IWP are advised to return for annual rescreening.

**Health Coaching with Motivational Interviewing:** After screening and risk-reduction counseling, all IWP clients are offered one-on-one health coaching using the 4-session "Be Wise" curriculum developed for the IWP based on social cognitive theory and the transtheoretical model.[21,22] Be Wise is an evidence-based curriculum based on the 12-session IWP curriculum that was tested in a randomized controlled trial, and was reduced to 4 sessions to increase client retention.[23] Be Wise topics include healthy eating, physical activity, social support, setting goals, identifying community resources for healthy eating and physical activity, and staying on track.

Health coaching sessions are implemented by lead agency staff who are trained in motivational interviewing, and typically begin on the same day as Risk Reduction Counseling or soon after. Sessions are designed to address CVD risk factors, as identified

in the clients' clinical screening and shared in risk reduction counseling. Thus, while Be Wise covers specific topics, health coaches tailor content to client needs and priorities. Each session lasts approximately 30 minutes and agencies are advised to implement sessions according to the timeline that best meets the needs of individual clients.

Each partner agency has developed specific strategies for implementing Be Wise, including in-person and phone-based health coaching, offering health coaching in the evenings to accommodate clients' schedules, using phone and text-based reminders to support participation, following up with clients to reschedule missed health coaching sessions, and conducting two sessions during a health coaching encounter. Agencies also have the option to provide clients with tools at not cost to clients to support health coaching and subsequent behavior change, such as portion plates and food scales to support dietary behaviors, and resistance bands and pedometers to support physical activity behaviors.

## Measures and Outcomes

IWP client information is collected by partner agency staff and entered into a database managed by the IDPH. At the time of their enrollment, each client is assigned a random identification number generated by the database program. Client information included in the current study includes demographic information, clinical and behavioral screening measures, and health coaching participation and completion.

**Demographic Information:** At the time of enrollment in the IWP, clients provide demographic data via self-report. The data used for this study included age, race/ethnicity, and education level.

**Clinical Screening Measures:** During clinical screenings, clients indicate previous high cholesterol, hypertension, and type 2 diabetes diagnoses via self-report. Height, weight, and blood pressure are measured by medical providers during the screening visit. Laboratory values, including cholesterol, are obtained through blood draw within 30 days before or after the screening visit. All values are reported to the client's agency for data entry. Height and weight were used to calculate body mass index (BMI). The National Cholesterol Education Program, Adult Treatment Panel III Report[24] and the JNC 7 guidelines[20] were used to categorize cholesterol and blood pressure, respectively, into normal and abnormal/elevated categories.

**Behavioral Measures:** Physical activity self-reported by clients who are asked a single, open-ended question: How many minutes of physical activity (exercise) do you get in a week?

**Health Coaching Participation and Completion:** Health coaching "participation" is defined as engaging in one or more sessions. Health coaching "completion" is defined as engaging in three or more sessions. Dates of participation in health coaching sessions were used to determine health coaching participation (Yes/No) and health coaching completion (Yes/No) based on the number of health coaching sessions attended.

### Statistical Methods

Data analyses were conducted using SAS software, Version 9 (SAS Institute Inc., Cary, NC). Descriptive statistics were used to assess demographic and health characteristics of all clients. Within-agency comparisons were made to assess health coaching participation and completion for agencies with sufficient variation in outcomes; however, across lead agencies, high rates of participation in any health coaching and health coaching completion limited our ability to perform these analyses across all agencies. Comparisons between groups using continuous measures (e.g., age) were assessed using two-sample t tests. For categorical measures, we used chi-square tests, or for small sample sizes, Fisher's Exact Test, to assess whether the proportion of individuals who participated (or completed health coaching were contingent upon other demographic or health (e.g., self-report of a previous hypertension diagnosis). We used $p < .05$ as our level of significance.

## RESULTS

### Descriptive Characteristics

During the study period, a total of 3,094 women were enrolled in the IWP through 8 partner agencies. Agency H began participating in IWP in November 2019. Agency E stopped participating in IWP in September 2020. Agency A had the highest enrollment (72.2%; n = 2 233) (Table 1). Across all IWP clients, the mean age was 51.0 years (SD = 7.1). The majority were Asian (50.7%; n = 1 569) followed by Latino (30.3%; n = 939). Nearly 70% of clients (n = 1 997) had a high school degree or less. Overall, the majority of clients had an elevated, hypertensive, or alert blood pressure level at baseline screening (59.9%). Additionally, 45.8% of clients had borderline high or high cholesterol, 71.4% of clients (n = 2 197) had a body mass index (BMI) of 25 or more and 86.4% (n = 2 674) engaged in less than 150 minutes of physical activity per week. The following conditions were self-reported at baseline by clients: hypertension (28.4%; n = 878), high cholesterol (22.9%; n = 708), and diabetes (13.3%; n = 412).

### Health Coaching Participation and Completion

Of all enrollees, 89.7% (n = 2 775) participated in at least one health coaching session. Among health coaching participants, 35% (n = 971) completed health coaching. Agency A, which served the most IWP clients, also served the majority of health coaching participants (n = 2 025, 72%); however, only 43.4% of health coaching completers were from Agency A (Table 1). Six of the 8 agencies had health coaching participation rates above 80% (Table 2). Five agencies had greater than 90% completion rate, while Agencies A, G, and H had completion rates that were substantially lower.

### Associations Between CVD Risk Factors and Health Coaching Participation and Completion

Of all enrollees at Agency A (n = 2 233), 90.7% (n = 2 025) participated in health coaching by attending at least one session (Table 3). Clients who were more likely to participate in health coaching were those with 150 minutes or more of physical activity at the time of enrollment (98.0%, p = .001), those with a BMI of 25 or greater at enrollment (91.8%,

p = .04), those without a self-reported hypertension diagnosis at enrollment (92.0%, p = .009), and those without a self-reported high cholesterol diagnosis at enrollment (91.7%, p = .02). In contrast, at Agency G, only race/ethnicity was associated with health coaching participating, with 98.1% of Latinos of any race participating in health coaching compared with between 60.0%–76.0% in other racial/ethnic groups (p = .000)

Examining health coaching completion among those who participated in health coaching, no demographic or health related characteristics were associated with health coaching completion (Table 4).

## DISCUSSION

CVD is the leading cause of death in Illinois women, those who lack health insurance are particularly vulnerable to CVD morbidity and mortality.[1,2,6] The IWP supports CVD screening and primary and secondary prevention for uninsured Illinois women aged 40–64 to facilitate risk awareness and access to necessary treatment and opportunities to reduce their CVD risk through community-based strategies including health coaching with MI.

In assessing health coaching participation, most partner agencies were successful in reaching the majority of their clients who attended at least one health coaching session. Agencies A and G had sufficient variation in health coaching participation rates to assess participation by demographic and health characteristics, but trends in participation were inconsistent. Similarly, for half of the agencies, the majority of IWP clients completed health coaching by attending at least three out of four sessions. Agencies A and G had sufficient variation in health coaching completion, however, none of the client characteristics were associated with health coaching completion.

The health coaching participation and completion findings suggest agency-specific factors, not individual-level factors, account for health coaching participation and completion. Among the agencies with the lowest participation and/or completion, Agency E struggled with overall recruitment and subsequently left the program. Agency A may have faced challenges in achieving completion due to their high caseload. The low proportion of health coaching participants and completers at Agency H may be related to being a new WISEWOMAN agency and staff time required to learn how to best reach clients. In contrast, most other partner agencies had been implementing WISEWOMAN prior to the 2019 in previous grant cycles, so likely had fewer needs related to start-up and had developed best practice strategies for reaching clients. Findings suggest the ability to reach IWP clients is dependent on a number of factors including having staff capacity to serve clients and the ability to engage with and accommodate clients' diverse backgrounds and needs, such as language, culture, and scheduling considerations, a finding that is consistent with research from other WISEWOMAN programs.[8,25] Additionally, agencies with high caseloads may best support their communities by prioritizing highest-need clients, such as those with uncontrolled hypertension or diabetes.[26] Implications for these findings include the need for agency-specific technical support or other resources to overcome challenges and facilitate reach.[27]

In Agencies A and G, individual-level differences in participation in any health coaching sessions were observed within each agency, but these differences were not consistent across the agencies. Specifically, in Agency A, individuals were more likely to participate in health coaching sessions if they had a BMI of 25 or greater, had 150 minutes or more of weekly physical activity, and did not have hypertension or high cholesterol. In contrast, in Agency G, only client race/ethnicity was associated with participation in any healthy coaching. Further exploration is warranted to understand the role of individual-level barriers to participating in health coaching, which may include lack of time due to work and other personal commitments,[8] perceptions of the agency's ability to provide culturally appropriate health coaching, and the extent to which clients believe they have control over their own health.

Similar to other health coaching programs,[28] IWP partner agencies have adopted a variety of strategies to facilitate health coaching completion, including offering phone-based health coaching, completing two sessions during a single health coaching appointment, combining health coaching appointments with other in-person healthcare appointments, and offering evening health coaching to accommodate work and family schedules. At the onset of the COVID-19 pandemic, phone-based health coaching was particularly important for reaching IWP clients. Adoption of phone-based health coaching may have been a key strategy for agencies with high completion rates.

Study limitations included the lack of variation within several agencies, which inhibited our ability to assess agency-specific factors related to reach. Additionally, we have not included an analysis of the relationship between reach and effectiveness in changing health behaviors or improved outcomes. Finally, the extent to which the COVID-19 pandemic affected the reach and implementation of health coaching is unknown. Much of the public health workforce shifted their focus to COVID-19 in 2020, causing an overall decrease in IWP enrollments, screenings, and subsequent health coaching. While COVID-19 restrictions in Illinois inhibited in-person health coaching during the peak of the pandemic, it may have supported greater acceptability of phone-based health coaching offered by agencies. Despite these limitations, reach as it relates to primary and secondary CVD prevention among uninsured women is an important and understudied concept. IWP partner agencies include federally qualified health centers and local health departments that serve large urban, small urban, suburban, and rural communities and reach diverse populations of uninsured women across the state. Thus, the lessons that can be learned from WISEWOMAN are likely generalizable across a variety of settings engaged in community-based health promotion activities.

The IWP, led by the IDPH, is implemented in a variety of local health department and clinical settings around the state. Overall, the high level of health coaching and participation and completion among agencies, with agency-specific variations in participation and completion, suggests the need for strategies to pilot test and evaluate innovating strategies at the agency level to address challenges and barriers, prioritization of high-need clients when staff capacity is low, and the importance of agency-specific tailoring to ensure interventions can best accommodate community needs. Further research is also needed to evaluate the

effectiveness of community-based implementation of health coaching with MI in reducing CVD risk in uninsured populations.

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## REFERENCES

1. Bairey Merz CN, Andersen H, Sprague E, et al. Knowledge, Attitudes, and Beliefs Regarding Cardiovascular Disease in Women: The Women's Heart Alliance. J Am Coll Cardiol. 2017;70(2):123–132. doi:10.1016/j.jacc.2017.05.024 [PubMed: 28648386]
2. Go AS, Mozaffarian D, Roger VL, et al. Heart Disease and Stroke Statistics—2013 Update: A Report From the American Heart Association. Circulation. 2013;127(1). doi:10.1161/CIR.0b013e31828124ad
3. Colafella KMM, Denton KM. Sex-specific differences in hypertension and associated cardiovascular disease. Nat Rev Nephrol. 2018;14(3):185–201. doi:10.1038/nrneph.2017.189 [PubMed: 29380817]
4. Ivey SL, Hanley HR, Taylor C, et al. Early identification and treatment of women's cardiovascular risk factors prevents cardiovascular disease, saves lives, and protects future generations: Policy recommendations and take action plan utilizing policy levers. Clin Cardiol. 2022;45(11):1100–1106. doi:10.1002/clc.23921 [PubMed: 36128629]
5. Lindley KJ, Aggarwal NR, Briller JE, et al. Socioeconomic Determinants of Health and Cardiovascular Outcomes in Women. J Am Coll Cardiol. 2021;78(19):1919–1929. doi:10.1016/j.jacc.2021.09.011 [PubMed: 34736568]
6. Slavin SD, Khera R, Zafar SY, Nasir K, Warraich HJ. Financial burden, distress, and toxicity in cardiovascular disease. Am Heart J. 2021;238:75–84. doi:10.1016/j.ahj.2021.04.011 [PubMed: 33961830]
7. Centers for Disease Control and Prevention. WISEWOMAN Home. Published September 8, 2023. Accessed November 15, 2023. https://www.cdc.gov/wisewoman/index.htm
8. Park Y, King J, Eggleston MM, Elias TI. Critical Lessons in Tailoring Interventions: Listening to WISEWOMAN Participants. Am J Health Promot. Published online September 5, 2023:08901171231200779. doi:10.1177/08901171231200779
9. Meng F, Jiang Y, Yu P, et al. Effect of health coaching on blood pressure control and behavioral modification among patients with hypertension: A systematic review and meta-analysis of randomized controlled trials. Int J Nurs Stud. 2023;138:104406. doi:10.1016/j.ijnurstu.2022.104406 [PubMed: 36473304]
10. Olsen JM. Health Coaching: A Concept Analysis: Health Coaching Concept Analysis. Nurs Forum (Auckl). 2014;49(1):18–29. doi:10.1111/nuf.12042
11. Ismail K, Bayley A, Twist K, et al. Reducing weight and increasing physical activity in people at high risk of cardiovascular disease: a randomised controlled trial comparing the effectiveness of enhanced motivational interviewing intervention with usual care. Heart. 2020;106(6):447–454. doi:10.1136/heartjnl-2019-315656 [PubMed: 31831574]
12. Huang X, Xu N, Wang Y, Sun Y, Guo A. The effects of motivational interviewing on hypertension management: A systematic review and meta-analysis. Patient Educ Couns. 2023;112:107760. doi:10.1016/j.pec.2023.107760 [PubMed: 37075650]
13. Glasgow RE, Harden SM, Gaglio B, et al. RE-AIM Planning and Evaluation Framework: Adapting to New Science and Practice With a 20-Year Review. Front Public Health. 2019;7:64. doi:10.3389/fpubh.2019.00064 [PubMed: 30984733]
14. Van De Ven D, Schuring M, Kouwenhoven-Pasmooij TA, Blom P, Burdorf A, Robroek SJW. Reach and effectiveness of a worksite health promotion program combining a preventive medical examination with motivational interviewing; a quasi-experimental study among workers in low

socioeconomic position. BMC Public Health. 2023;23(1):2130. doi:10.1186/s12889-023-16908-w [PubMed: 37904106]

15. Celano CM, Freedman ME, Harnedy LE, et al. Feasibility and preliminary efficacy of a positive psychology-based intervention to promote health behaviors in heart failure: The REACH for Health study. J Psychosom Res. 2020;139:110285. doi:10.1016/j.jpsychores.2020.110285 [PubMed: 33160091]
16. Goldstein KM, Voils CI, Bastian LA, et al. An Innovation to Expand the Reach of Peer Support: A Feasibility and Acceptability Study. Mil Med. 2023;188(7–8):e1569–e1575. doi:10.1093/milmed/usac295 [PubMed: 36226850]
17. Sweet SN, Ginis KAM, Estabrooks PA, Latimer-Cheung AE. Operationalizing the RE-AIM framework to evaluate the impact of multi-sector partnerships. Implement Sci. 2014;9(1):74. doi:10.1186/1748-5908-9-74 [PubMed: 24923331]
18. Illinois Department of Public Health. Heart & Stroke. Accessed November 10, 2023. https://dph.illinois.gov/topics-services/diseases-and-conditions/heart-stroke.html
19. American Community Survey, US Census Bureau. Health Insurance Coverage Status by Sex by Age. Accessed November 15, 2023. https://data.census.gov/table/ACSDT1Y2022.B27001?q=illinois+health+insurance&t=Age+and+Sex
20. National Heart, Lung, and Blood Institute, National Institutes of Health. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. National Heart, Lung, and Blood Institute (US); 2004. Accessed November 15, 2023. https://www.ncbi.nlm.nih.gov/books/NBK9630/
21. Bandura A Health promotion from the perspective of social cognitive theory. Psychol Health. 1998;13(4):623–649. doi:10.1080/08870449808407422
22. Prochaska JO, Redding CA, Evers KE. Chapter 5: The transtheoretical model and stages of change. In: Glanz K Rimer BK Lewis FM eds. Health Behavior and Health Education 3rd ed. San Francisco: Jossey-Bass Publ. 2002:99–120.
23. Khare MM, Huber R, Carpenter RA, et al. A Lifestyle Approach to Reducing Cardiovascular Risk Factors in Underserved Women: Design and Methods of the Illinois WISEWOMAN Program. J Womens Health. 2009;18(3):409–419. doi:10.1089/jwh.2008.0911
24. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report. Circulation. 2002;106(25):3143–3143. doi:10.1161/circ.106.25.3143 [PubMed: 12485966]
25. Mays GP, Hesketh HA, Ammerman AS, Stockmyer CK, Johnson TL, Bayne-Smith M. Integrating Preventive Health Services within Community Health Centers: Lessons from WISEWOMAN. J Womens Health. 2004;13(5):607–615. doi:10.1089/1540999041281070
26. Benson GA, Sidebottom A, Sillah A, et al. Reach and effectiveness of the HeartBeat Connections telemedicine pilot program. J Telemed Telecare. 2018;24(3):216–223. doi:10.1177/1357633X17692723 [PubMed: 29278986]
27. Pedamallu H, Ehrhardt MJ, Maki J, Carcone AI, Hudson MM, Waters EA. Technology-Delivered Adaptations of Motivational Interviewing for the Prevention and Management of Chronic Diseases: Scoping Review. J Med Internet Res. 2022;24(8):e35283. doi:10.2196/35283 [PubMed: 35943775]
28. LaRose JG, Guthrie KM, Lanoye A, et al. A mixed methods approach to improving recruitment and engagement of emerging adults in behavioural weight loss programs. Obes Sci Pract. 2016;2(4):341–354. doi:10.1002/osp4.71 [PubMed: 28090339]

## IMPLICATIONS FOR POLICY & PRACTICE

CVD is the leading cause of death in the US, and individuals without health insurance have greater risks for CVD diagnoses and mortality.[1,2,6] Despite the initiation of the Affordable Care Act, lack of insurance is a persistent concern for adult women. While CVD screening is critical to identify and treat conditions such as hypertension, high cholesterol, and diabetes, health coaching with motivational interviewing is an opportunity to support primary and secondary prevention to improve CVD outcomes. This research supports community-tailoring of evidence-based strategies such as health coaching with motivational interviewing to facilitate program reach. This research also supports the need for technical assistance and encouraging partner agencies to pilot test innovative strategies to increase reach in uninsured population.

**Table 1.**

**Illinois WISEWOMAN Program Client Demographic and Health Characteristics, Overall and Among Health Coaching Participants and Completers, 2019–2023** (n = 3094) *

| | All clients (n = 3094) | | Health coaching participants† (n = 2775) | | Health coaching completers‡ (n = 971) | |
|---|---|---|---|---|---|---|
| **Demographic Characteristics** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| **Age, years** | 51.0 | 7.1 | 50.9 | 7.0 | 50.7 | 6.9 |
| | **n** | **%** | **n** | **%** | **n** | **%** |
| **Race/Ethnicity** | | | | | | |
| Latino | 939 | 30.3 | 851 | 30.7 | 457 | 47.1 |
| White, non-Latino | 426 | 13.8 | 365 | 13.2 | 160 | 16.5 |
| Asian, non-Latino | 1569 | 50.7 | 1416 | 51.0 | 311 | 32.0 |
| Black or African American, non Latino | 149 | 4.8 | 134 | 4.8 | 40 | 4.1 |
| Others§ | 11 | 0.4 | 9 | 0.3 | 3 | 0.3 |
| **Education** | | | | | | |
| <9th grade | 585 | 18.9 | 530 | 19.1 | 229 | 23.6 |
| Some high school | 539 | 17.4 | 477 | 17.2 | 185 | 19.1 |
| High school graduate or equivalent | 873 | 28.2 | 778 | 28.0 | 270 | 27.8 |
| Some college or higher | 892 | 28.8 | 809 | 29.2 | 236 | 24.3 |
| **Baseline screening levels** | | | | | | |
| ***Blood pressure*** ‖ | | | | | | |
| Normal *(SBP <120 mmHg and DBP <80 mmHg)* | 1225 | 40.1 | 1114 | 40.5 | 386 | 40.2 |
| Elevated *(SBP 120–139 mmHg or DBP 80–89 mmHg)* | 1310 | 42.8 | 1171 | 42.6 | 420 | 43.8 |
| Hypertensive *(SBP 140–159 mmHg or DBP 90–99 mmHg)* | 490 | 16.0 | 436 | 15.9 | 143 | 14.9 |
| Alert (*Systolic >180 mmHg SBP or DBP >110 mmHg)* | 33 | 1.1 | 29 | 1.1 | 11 | 1.2 |
| ***Total cholesterol*** ‖ | | | | | | |
| Desirable (<200) | 1492 | 54.2 | 1356 | 54.1 | 532 | 56.5 |
| Borderline High (200–239) | 886 | 32.2 | 802 | 32.0 | 289 | 30.7 |
| High (>239) | 375 | 13.6 | 351 | 14.0 | 120 | 12.8 |
| ***Body mass index*** | | | | | | |
| Greater than or equal to 25 | 2197 | 71.4 | 1989 | 71.9 | 724 | 74.9 |
| Less than 25 | 853 | 27.7 | 777 | 28.1 | 243 | 25.1 |
| ***Physical activity level*** | | | | | | |
| 150 minutes or more per week | 413 | 13.3 | 373 | 13.5 | 191 | 19.7 |
| Less than 150 minutes per week | 2674 | 86.4 | 2395 | 86.5 | 777 | 80.3 |
| **Previous diagnoses self-reported at baseline** | | | | | | |
| Hypertension | 878 | 28.4 | 771 | 27.8 | 238 | 24.5 |

| | All clients (n = 3094) | | Health coaching participants† (n = 2775) | | Health coaching completers‡ (n = 971) | |
|---|---|---|---|---|---|---|
| **Demographic Characteristics** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| High cholesterol | 708 | 22.9 | 620 | 22.3 | 220 | 22.7 |
| Type 2 Diabetes | 412 | 13.3 | 367 | 13.2 | 126 | 13.0 |
| **Partner Agency** | | | | | | |
| Agency A | 2233 | 72.2 | 2025 | 72.9 | 421 | 43.4 |
| Agency B | 50 | 1.6 | 48 | 1.7 | 44 | 4.5 |
| Agency C | 194 | 6.3 | 183 | 6.6 | 171 | 17.6 |
| Agency D | 182 | 5.9 | 178 | 6.4 | 176 | 18.1 |
| Agency E# | 11 | 0.4 | 5 | 0.0 | 5 | 0.5 |
| Agency F | 169 | 5.5 | 149 | 5.4 | 145 | 14.9 |
| Agency G | 202 | 6.5 | 164 | 5.9 | 1 | 0.1 |
| Agency H# | 53 | 1.7 | 23 | 0.8 | 8 | 0.8 |

*Missing data: Age 0.3%, Race 0.4%, Education 6.6%, Body Mass Index 0.9%, Physical Activity 0.2%, Hypertension 2.5%, High cholesterol 2.6%, Diabetes 2.8%

†Health coaching participants are those who participate in one or more health coaching sessions.

‡Health coaching completers are those who participate in 3 or more health coaching sessions.

§Includes American Indian or Alaska Native, Native Hawaiian, Other Pacific Islander, more than one race, or missing data.

‖Blood pressure categories based on Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) guidelines. Cholesterol categories based on National Cholesterol Education Program, Adult Treatment Panel III Report

#Agency E participated in the Illinois WISEWOMAN Program during the first and second program year only. Agency H joined the Illinois WISEWOMAN Program during the second program year.

**Table 2.**

Health Coaching Participation and Completion by Lead Agency, Illinois WISEWOMAN Program, 2019–2023

| Lead Agency | Total Clients (n = 3 094) | Health coaching participation* (n = 2 775) | | Health coaching completion† (n = 971) | | |
|---|---|---|---|---|---|---|
| | | | | Among health coaching participants | | Among total clients |
| | | n | % | n | % | % |
| Agency A | 2 233 | 2 025 | 90.7 | 421 | 20.8 | 18.9 |
| Agency B | 50 | 48 | 96 | 44 | 91.7 | 88.0 |
| Agency C | 194 | 183 | 94.3 | 171 | 93.4 | 88.1 |
| Agency D | 182 | 178 | 97.8 | 176 | 98.9 | 96.7 |
| Agency E‡ | 11 | 5 | 45.5 | 5 | 100 | 45.5 |
| Agency F | 169 | 149 | 88.2 | 145 | 97.3 | 85.8 |
| Agency G | 202 | 164 | 81.2 | 1 | 0.6 | 0.5 |
| Agency H‡ | 53 | 23 | 43.4 | 8 | 34.8 | 15.1 |

*Health coaching participants are those who participate in one or more health coaching sessions.

†Health coaching completers are those who participate in 3 or more health coaching sessions.

‡Agency E participated in the Illinois WISEWOMAN Program during the first program year only. Agency H joined the Illinois WISEWOMAN Program during the second program year.

**Table 3.**

Health Coaching Participation by Lead Agency, Illinois WISEWOMAN Program, 2019–2023*

| | Agency A | | | Agency G | | |
|---|---|---|---|---|---|---|
| | Non-participant (n = 208) | Participant (n = 2025) | *p*-value | Non-participant (n = 38) | Participant (n = 164) | *p*-value |
| **Participant characteristic** | **n (%)** | **n (%)** | | **n (%)** | **n (%)** | |
| **Age** [M (SD)] | 52.1 (7.1) | 51.1 (7.1) | | 54.3 (7.6) | 50.9 (7.1) | |
| **Race/Ethnicity** | | | .29 | | | .000≠ |
| Latino | 32 (7.5) | 392 (92.5) | | 1 (1.9) | 53 (98.1) | |
| White, non-Latino | 18 (12.5) | 126 (87.5) | | 30 (24.0) | 95 (76.0) | |
| Asian, non-Latino | 149 (9.6) | 1 405 (90.4) | | 2 (40.0) | 3 (60.0) | |
| Black or African American, non-Latino | 8 (7.8) | 95 (92.2) | | 5 (27.8) | 13 (72.2) | |
| Other† | 1 (12.5) | 7 (87.5) | | 0 | 0 | |
| **Education** | | | .58 | | | .08≠ |
| Less than 9th grade | 35 (9.5) | 333 (90.5) | | 1 (3.6) | 27 (96.4) | |
| Some high school | 43 (11.0) | 348 (89.0) | | 3 (15.0) | 17 (85.0) | |
| High school graduate or equivalent | 56 (9.0) | 566 (91.0) | | 15 (25.0) | 45 (75.0) | |
| Some college or higher | 58 (8.5) | 625 (91.5) | | 19 (20.7) | 73 (79.3) | |
| **Baseline screening levels** | | | | | | |
| ***Blood pressure*** | | | .87 | | | .47 |
| Normal *(SBP <120 mmHg and DBP <80 mmHg)* | 82 (8.9) | 837 (91.1) | | 11 (15.7) | 59 (84.3) | |
| Abnormal, Hypertensive, or Alert *(SBP ≥ 120 mmHg and DBP ≥ 80 mmHg)* | 119 (9.1) | 1185 (90.9) | | 26 (19.8) | 105 (80.2) | |
| ***Total cholesterol*** | | | | | | |
| Normal (<200) | 74 (7.3) | 945 (92.7) | .90 | 18 (17.3) | 86 (82.7) | .53 |
| Abnormal (200+) | 64 (7.1) | 836 (92.9) | | 20 (20.8) | 76 (79.2) | |
| ***Body mass index*** | | | | | | |
| BMI 25 or greater | 124 (8.2) | 1392 (91.8) | .04 | 25 (16.0) | 131 (84.0) | .08 |
| BMI less than 25 | 77 (10.9) | 630 (89.1) | | 12 (27.9) | 31 (72.1) | |
| ***Weekly physical activity*** | | | .001 | | | 0.17 |

| | Agency A | | | Agency G | | |
|---|---|---|---|---|---|---|
| | Non-participant (n = 208) | Participant (n = 2025) | *p*-value | Non-participant (n = 38) | Participant (n = 164) | *p*-value |
| **Participant characteristic** | **n (%)** | **n (%)** | | **n (%)** | **n (%)** | |
| 150 minutes or more | 3 (2.0) | 149 (98.0) | | 19 (23.5) | 62 (76.5) | |
| Less than 150 minutes | 205 (9.8) | 1876 (90.1) | | 19 (15.7) | 102 (84.3) | |
| **Previous diagnosis self-reported at baseline** | | | | | | |
| Hypertension | 82 (11.5) | 633 (88.5) | .009 | 10 (27.0) | 37(73.0) | .65 |
| No Hypertension | 118 (8.0) | 1353 (92.0) | | 28 (18.3) | 125 (81.7) | |
| High cholesterol | 63 (11.6) | 480 (88.4) | .02 | 7 (22.6) | 24 (77.4) | .59 |
| No high cholesterol | 137 (8.3) | 1507 (91.7) | | 31 (18.5) | 137 (81.5) | |
| Diabetes | 34 (10.4) | 294 (89.6) | .39 | 1 (10.0) | 9 (90.0) | .69‡ |
| No diabetes | 165 (8.9) | 1693 (91.1) | | 37 (19.7) | 151 (80.3) | |

*Health coaching participation is defined as engaging in at least one health coaching session.

†Includes more than one race, American Indian or Alaska Native, Native Hawaiian, Other Pacific Islander or missing.

‡Fisher's exact test used due to small cell sizes

**Table 4.**

Health Coaching Completion Among Health Coaching Participants, by Agency, Illinois WISEWOMAN Program, 2019–2023 *

| | Agency A | | | Agency C | | |
|---|---|---|---|---|---|---|
| | Non-completer (n = 1604) | Completer (n = 421) | *p*-value | Non-completer (n = 12) | Completer (n = 171) | *p*-value |
| **Participant characteristic** | **n (%)** | **n (%)** | | **n (%)** | **n (%)** | |
| **Age** [M (SD)] | 51.1 (7.1) | 51.3 (7.2) | | 47.3(6.6) | 47.3 (6.6) | |
| **Race/Ethnicity** | | | .58 | | | .72≠ |
| Latino | 315 (80.4) | 77 (19.6) | | 10 (6.3) | 149 (93.7) | |
| White, non-Latino | 102 (81.0) | 24 (19.0) | | 2 (10.0) | 18 (90.0) | |
| Asian, non-Latino | 1102 (78.4) | 303 (21.6) | | 0 | 4 (100.0) | |
| Black or African American, non-Latino | 79 (83.2) | 16 (16.8) | | 0 | 0 | |
| Other† | 6 (85.7) | 1 (14.3) | | 0 | 0 | |
| **Education** | | | .48 | | | .24≠ |
| Less than 9th grade | 263 (79.0) | 70 (21.0) | | 6 (8.0) | 69 (92.0) | |
| Some high school | 265 (76.1) | 83 (23.9) | | 3 (7.9) | 35 (92.1) | |
| High school graduate or equivalent | 455 (80.4) | 111 (19.6) | | 0 | 42 (100.0) | |
| Some college or higher | 497 (79.5) | 128 (20.5) | | 1 (6.3) | 15 (93.7) | |
| **Baseline screening levels** | | | | | | |
| ***Blood pressure*** | | | .37 | | | .79 |
| Normal *(SBP <120 mmHg and DBP <80 mmHg)* | 655 (78.3) | 182 (21.7) | | 5 (6.0) | 78 (94.0) | |
| Abnormal, Hypertensive, or Alert *(SBP ≥ 120 mmHg and DBP ≥ 80 mmHg)* | 947 (80.0) | 238 (20.0) | | 7 (7.0) | 93 (93.0) | |
| ***Total cholesterol*** | | | .37 | | | .59 |
| Normal (<200) | 726 (76.8) | 219 (23.2) | | 6 (5.7) | 99 (94.3) | |
| Abnormal (200+) | 657 (78.6) | 179 (21.4) | | 6 (7.7) | 72 (92.3) | |
| ***Body mass index*** | | | .80 | | | 1.00≠ |
| BMI 25 or greater | 1105 (79.4) | 287 (20.6) | | 10 (6.8) | 137 (93.2) | |
| BMI less than 25 | 497 (78.9) | 133 (21.1) | | 2 (5.6) | 34 (94.4) | |
| ***Weekly physical activity*** | | | .21 | | | .46≠ |
| 150 minutes or more | 112 (75.2) | 37 (24.8) | | 1 (2.6) | 37 (97.4) | |

| | Agency A | | | Agency C | | |
|---|---|---|---|---|---|---|
| | Non-completer (n = 1604) | Completer (n = 421) | *p*-value | Non-completer (n = 12) | Completer (n = 171) | *p*-value |
| **Participant characteristic** | **n (%)** | **n (%)** | | **n (%)** | **n (%)** | |
| Less than 150 minutes | 1492 (79.5) | 384 (20.5) | | 11 (7.6) | 134 (92.4) | |
| **Previous diagnosis self-reported at baseline** | | | | | | |
| Hypertension | 493 (77.9) | 140 (22.1) | .38 | 2 (7.4) | 25 (92.6) | .65‡ |
| No Hypertension | 1077 (79.6) | 276 (20.4) | | 8 (5.4) | 141 (94.6) | |
| High cholesterol | 371 (77.3) | 109 (22.7) | .29 | 3 (6.8) | 41 (93.2) | |
| No high cholesterol | 1199 (79.6) | 308 (20.4) | | 7 (5.3) | 125 (94.7) | |
| Diabetes | 225 (76.5) | 69 (23.5) | .28 | 2 (16.7) | 10 (83.3) | .14‡ |
| No diabetes | 1343 (79.3) | 350 (20.7) | | 8 (4.9) | 155 (95.1) | |

*Health coaching completion is defined as attending 3 or more health coaching sessions.

†Includes more than one race, American Indian or Alaska Native, Native Hawaiian, Other Pacific Islander or missing.

‡Fisher's exact test used due to small cell sizes.

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