22. Screening for chronic conditions during wellness programs? A case study

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Background/Purpose

Wellness programs, often overlooked as screening opportunities for chronic conditions, can facilitate early detection of chronic diseases. However, wellness programs are critical touchpoints between patients and care providers. Building upon clinical guidelines, we propose a practical, easy-to-implement approach for identifying patients susceptible of diabetes, high cholesterol, or high blood pressure during a wellness visit.

Method

Design: Voluntary wellness program administered by an interdisciplinary health center associated with an academic institution and accessible to all employees.

Sample: Observational study that uses a secondary dataset collected between 2000 and 2017 with 4,876 unique visits from 2,309 unique participants.

Measures: Leveraging clinical guidelines, we define criteria for classifying a patient as being ***susceptible***, or not, of a chronic disease. Based on a participant's blood work and blood pressure levels assessed during a wellness visit we defined three risk categories *Susceptible.Diabetes, Susceptible.HighBP* and *Susceptible.HighCholesterol*

Analysis: We calculated susceptibilities prevalence, differentiating between one-time and frequent participants. We quantified the association between the risk categories and patient demographics using logistic regression models. To understand the level of autocorrelation in susceptibilities between consecutive visits, we augment the logistic regression models to include, for each susceptibility, a visit lagged value of that particular dependent variable

Table 1. Demographics and prevalence of chronic diseases

Characteristic	One-time participant visits (n = 1,327)	Frequent participant visits (n = 3,549)
A. Demographics		
Age (mean)	44.05 years	49.46 years
< 40	525 (39.56%)*	603 (16.99%)
40-49	312 (23.51%)	1034 (29.13%)
50-59	358 (26.98%)	1338 (37.70%)
> 60	132 (9.95%)	574 (16.17%)
Gender		
Female	736 (55.46%)	2357 (66.41%)
Male	591 (44.54%)	1192 (33.50%)
Race/Ethnicity		
White	1032 (77.77%)	2835 (79.88%)
African American	96 (7.23%)	284 (8.00%)
Hispanic	28 (2.11%)	61 (1.72%)
Asian	67 (5.05%)	118 (3.32%)
Native American	104 (7.84%)	251 (7.07%)
BMI (mean)	27.91	27.61
Underweight	9 (0.68%)	31 (0.87%)
Normal weight	455 (34.29%)	1285 (36.21%)
Overweight	478 (36.02%)	1259 (35.47%)
Obesity	385 (29.01%)	974 (27.44%)
B. Risk prevalence results		
Susceptible Diabetes	226 (17.03%)	649 (18.29%)
Susceptible High Blood Pressure	594 (44.76%)	1713 (48.27%)
Susceptible High Cholesterol	119 (8.97%)	260 (7.33%)

Discussion

Individuals at risk for one chronic condition are also likely to be at risk for the other two; comprehensive screening for all three conditions is needed. Although wellness checks aren't designed for definitive diagnostics, they can nevertheless serve as viable screening opportunities for signs associated with chronic disease. At-risk patients must consult with their PCP to corroborate the screening results and seek further diagnostic and treatment.

Results

Demographic characteristics:

- One-time participants: average age 44.05 years and 39.56% being under 40 years old.
- Frequent participants: average age is 49.46 years and 37.70% between 50 and 59 years old.
- Gender: for both groups % women participants is higher than men, at 55.46% and 66.41%.
- Majority of participants are White, 77.77% being one-time participants & 79.88% frequent participants.

Prevalence of chronic diseases:

- 17.03% one-time participants and 18.29% frequent participants are ***susceptible for diabetes***.
- 44.76% one-time participants and 48.27% frequent participants are ***susceptible for high blood pressure***.
- 8.97% one-time participants and 7.33% frequent participants are ***susceptible for high cholesterol***.

Association between patient characteristics & chronic condition susceptibility:

- Risks of diabetes & high blood pressure increase with age.
- All three risks increase with BMI.
- Female participants are associated with a lower risk of diabetes & high blood pressure.
- Race is associated with higher risk of chronic conditions, except blood pressure; being White is associated with a lower blood pressure risk.
- All three risks are positively and strongly associated with the other two.
- Frequent participants have strong, positive correlation between contemporaneous value of each risk and its lagged value.