



The Relationship Between Digital Health Program Activity Tracking and Medication Adherence Among Members Age 50+ years

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BACKGROUND

A national community pharmacy offers an online digital health program—Balance Rewards for healthy choices[®]—to help members improve their health. Members earn points, redeemable for store purchases, by making healthy choices like tracking exercise, body weight, blood pressure and glucose, connecting health devices and apps, quitting tobacco, and setting and achieving goals for behavioral health risks modification and chronic conditions management. Participation in the Balance Rewards for healthy choices[®] program is encouraged for all ages.

OBJECTIVE

To determine the relationship between Balance Rewards for healthy choices[®] engagement, biometric device use and adherence to antihypertensive, oral antidiabetic, and antihyperlipidemic medications for members age 50 years and older.

METHODS

Study Design: Retrospective cohort study.

Study Sample: Patients filled an antihypertensive, oral antidiabetic, or antihyperlipidemic medication and were ≥ 50 years old between March and October 2014. They also needed ≥ 2 fills and tracked ≥ 2 Balance Rewards for healthy choices[®] activities on different dates during a 12-month follow-up period (N=10,642). The sample was further restricted to patients tracking physical activity, blood pressure, or blood glucose; they were 66.4% female with an average age of 58.7 (n=6,566).

Outcome Variable: Adherence was measured using Proportion of Days Covered (PDC) and calculated over a 12-month period from each member's first prescription fill date. Optimal adherence was measured as PDC ≥ 80%.

Statistical Analysis: Descriptive analysis, Student's t-test, and chi-square test were applied, with a significance level of 0.05. All statistical analyses were conducted using SAS version 9.3. (SAS Institute Inc., Cary, NC)

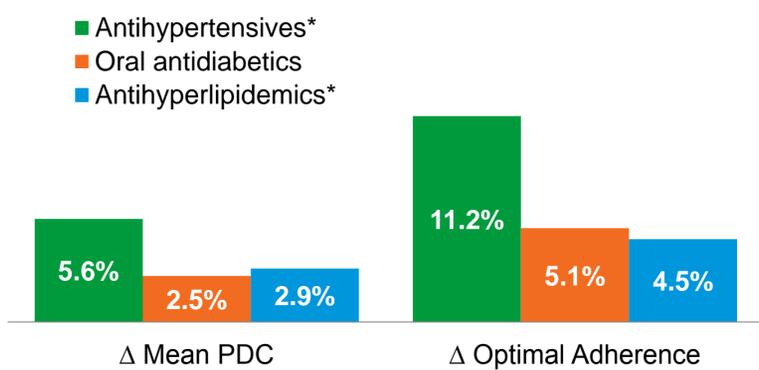
RESULTS

Table 1. Number of members segmented by medication class, level of physical activity, and use of relevant biometric devices

Sample Sizes	Physical Activity		Blood Pressure		Blood Glucose	
	≥ 4/week	< 4/week	≥ 2/week	< 2/week	≥ 1/week	< 1/week
Antihypertensives	596	1,039	327	1,490		
Antidiabetics	191	432			269	494
Antihyperlipidemics	1,986	3,288				

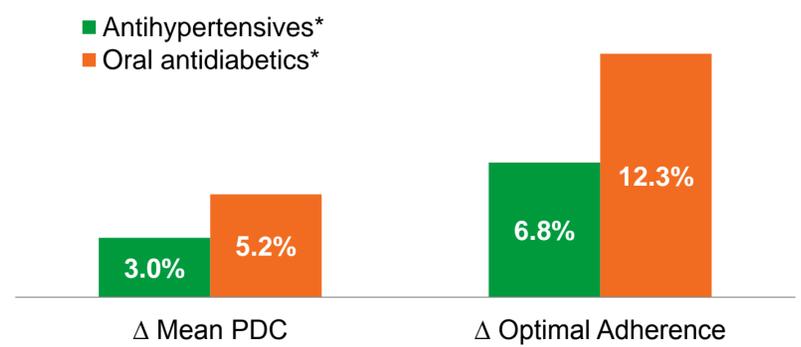
Unadjusted Results – outcome differences between levels of physical activity and use of relevant biometric devices

Figure 1. PDC and optimal adherence differences between Physical Activity tracking segments [≥4 times a week vs. < 4 times a week]



*Denotes p<0.01

Figure 2. PDC and optimal adherence differences between Blood Pressure or Blood Glucose tracking segments [Blood pressure: ≥ 2 times a week vs. < 2 times a week] [Blood glucose: ≥ 1 time a week vs. < 1 time a week]



*Denotes p<0.01

Adjusted Results – including members with complete data on all covariates, controlling for age, gender, number of different drug classes, region, and socioeconomic indicators such as race, education, and median household income.

Table 2. Adjusted odds ratios of patients achieving optimal adherence by Physical Activity tracking segments, Blood Pressure tracking segments, and Blood Glucose tracking segments

	Physical Activity Segments: ≥ 4/week vs. < 4/week			Blood Pressure Segments: ≥ 2/week vs. < 2/week			Blood Glucose Segments: ≥ 1/week vs. < 1/week		
	Odds Ratio	Confidence Interval	P value	Odds Ratio	Confidence Interval	P value	Odds Ratio	Confidence Interval	P value
Antihypertensives	1.66	1.32 - 2.09	<.0001	1.31	1.00 - 1.71	0.0524			
Antidiabetics	1.26	0.82 - 1.94	0.2908				1.78	1.22 - 2.58	0.0027
Antihyperlipidemics	1.18	1.04 - 1.33	0.0100						

CONCLUSION

Tracking physical activity 4 or more times a week was associated with significantly higher adherence and optimal adherence to antihypertensive and antihyperlipidemic medications. Tracking blood pressure twice or more a week or blood glucose once or more a week was associated with significantly higher adherence and optimal adherence to antihypertensive and oral antidiabetic medications.

This study demonstrated a significant relationship between higher levels of engagement in Balance Reward for healthy choices[®] and greater adherence to antihypertensive, antidiabetic, and antihyperlipidemic medications for members 50+ years.