Abstract

Objectives: To determine loss of health status, work productivity impairment, and activity impairment associated with non-adherent cost cutting in Russian hypertension patients.

Methods: The study employed data from the 2011 Russian National Health and Wellness Survey (NHWS); a survey of demographics, health-related attitudes and behaviors, and health outcomes. Non-adherent cost-cutting behaviors included taking less medication than prescribed, cutting tablets in half, buying fewer tablets, not buying prescriptions due to high cost, and buying less expensive alternatives instead, or buying prescriptions less often. Adherent behaviors included asking physician/pharmacist for cheaper alternatives, cutting fewer tablets, buying more tablets, not buying prescriptions due to low cost, and buying more expensive alternatives instead.

Results: Out of 1,712 diagnosed hypertension patients taking medication prescription for hypertension, 37.0% reported using non-adherent cost-cutting behaviors, 28.2% reported using non-adherent cost-cutting behaviors only and, 34.3% reported no cost-cutting behaviors. After controlling for covariates, employed patients using non-adherent strategies reported greater absenteeism (9.3% vs. 3.7%, p=0.002), presenteeism (29.2% vs. 21.8%, p<0.001), and work impairment (33.8% vs. 24.3%, p=0.001) compared with employed patients who do not use those strategies. Among all non-adherent respondents, non-adherent cost-cutting was associated with lower adjusted health status (MCS: 40.2 vs. 44.4, p<0.001, PCS: 40.3 vs. 41.3, p=0.001) and greater adjusted activity impairment (38.5% vs. 31.2%, p<0.001).

Introduction

A recent study found that globally over 50% of patients in the general population are not adherent to their medication prescription, and cost-cutting behavior was associated with higher economic costs, greater hospitalization and mortality.1 Non-adherent cost-cutting behaviors can increase medication adherence, which in turn impacts long-term health outcomes.2

Likewise, reducing out-of-pocket costs has been associated with fewer emergency room visits, hospitalizations, and prescription costs in hypertensive patients.3

Hypertension patients in Russia have been found to be non-adherent to their hypertension medication.4

The impact of cost-cutting strategies on outcomes in hypertension patients has not been assessed among Russian patients.

Objectives

To determine loss of health status, work productivity impairment, and activity impairment associated with non-adherent prescription cost-cutting in Russian hypertension patients.

Methods

Study Design

Data were obtained from the 2011 Russian National Health and Wellness Survey (NHWS). The NHWS is an annual cross-sectional, self-administered survey assessing demographics, health status, health related attitudes, disease status, and outcomes developed and managed by Kantar Health.

The survey sample is drawn from an Internet panel maintained by LightSpeed Research and its partners, and supplemented by offline recruitment.

A stratified random sampling framework was applied to ensure the NHWS sample is identical to the Russian urban adult population with respect to age and gender.

The sample includes 10,039 adults (18+) in Russian cities.

Sample

Respondents of the 2011 Russia NHWS who reported being diagnosed with hypertension and taking a prescription medication for hypertension were included in the analyses.

Study Measures

- Non-adherent cost-cutting behaviors were defined as:
  - Taking less medication than prescribed
  - Buying fewer tablets
  - Not buying prescriptions recommended by the physician
  - Buying a less expensive alternative instead
  - Buying prescriptions less often
- Adherent behaviors included:
  - Asking physician/pharmacist for cheaper alternatives
  - Using a discount card
- Demographics, health history, co-morbidities, and cost-cutting behaviors were assessed for all respondents.
- Health-related quality of life was assessed using the SF-12v2. Mental component summary (MCS) and physical component summary (PCS) scores were calculated as were SF-6D health state utilities.
- Absenteeism, presenteeism, overall work impairment and activity impairment were measured using the Work Productivity and Activity Impairment (WPAI) questionnaire.

Statistical Analysis

Patient demographics and health history were analyzed descriptively across the sample and also compared between those engaging in adherent, non-adherent cost-cutting and no cost-cutting behaviors using chi-square tests for categorical variables and ANOVAs for continuous variables.

Use of non-adherent cost-cutting strategies was entered into a series of multiple regression models to quantify the burden associated with non-adherent vs. all others (adherence cost cutting and non-adherent cost cutting combined) on both health outcomes and WPAI metrics, controlling for demographics (age, gender, education, household income, and health insurance) and patient and access to the Community Indicators.

Linear regression models were used to predict health-related quality of life (MCS, PCS, and health utilities) with general linear regression models with a negative binomial distribution predicted the work productivity outcomes.

Results

Out of 1,712 diagnosed hypertension patients taking prescription medication for hypertension, 34.3% reported no cost-cutting behaviors, 28.2% reported using only adherent cost-cutting behaviors, and 34.3% reported no cost-cutting behaviors. After controlling for covariates, patients suffering greater health impairments reported greater absenteeism (9.3% vs. 3.7%, p=0.002), presenteeism (29.2% vs. 21.8%, p<0.001), and work impairment (33.8% vs. 24.3%, p=0.001) compared with patients who do not use those strategies.

Similarly, generalized linear models predicting work productivity for employed patients showed that relative to employed patients who do not use those strategies, non-adherent cost-cutting was associated with:
- Higher absenteeism (9.3% vs. 3.7%, p<0.002) 
- Higher presenteeism (29.2% vs. 21.8%, p<0.001)
- Greater overall work productivity impairment (33.8% vs. 24.3%, p<0.001)

Among non-adherent respondents, non-adherent cutting was associated with greater activity impairment (38.5% vs. 31.2%, p<0.001) as seen in Figure 3.

Conclusions

- Over a third of hypertension patients cut costs using strategies that interfere with medication prescription and management.
- After adjusting for demographics and comorbidities, these patients have lower health status and report lower work activity impairment compared to those not adherent to their prescription medications.
- The prevalence of non-adherent cost-cutting behaviors was also associated with greater work productivity impairment, with those who cut on cost having the highest work productivity impairment.
- These patients practicing non-adherent cost-cutting strategies should be identified and guided to improve adherence or adherent cost-sharing to their prescription medications to facilitate better health outcomes.

Limitations

- The survey sample may not be representative of the total Russian hypertensive population.
- The cross-sectional design of the survey prevents causal inferences between cost-cutting and health outcomes.
- Assessment of cost-cutting strategies was not limited to hypertension medications, so results may be due to use of strategies with medications taken for co-morbid conditions.

All collected data were self-reported and no clinical verification of hypertension, prescription medication use, or cost-cutting behaviors were available.

References

1. Fuster V. An Alarming Threat to Secondary Prevention: Low Compliance (Lifestyle) and Poor Adherence (Drugs). Rev Esp Cardiol. 2012 Jul;65S2:10-16.
5. The cross-sectional design of the survey prevents causal inferences between cost-cutting and health outcomes.
6. Assessment of cost-cutting strategies was not limited to hypertension medications, so results may be due to use of strategies with medications taken for co-morbid conditions.
7. All collected data were self-reported and no clinical verification of hypertension, prescription medication use, or cost-cutting behaviors were available.

Figure 1: Cost-cutting Behaviors Among Diagnosed Hypertension Rx Users

Figure 2: Adjusted MCS Scores for Non-adherent and Adherent Cost Cutting Behavior

Table 1: Characteristics of Total Sample Diagnosed with Hypertension and Taking Prescription Medication