Impact of Coexisting Behavioral Health Conditions and Chronic Conditions on Healthcare Utilization and Cost at Blue Cross and Blue Shield of Louisiana

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Background

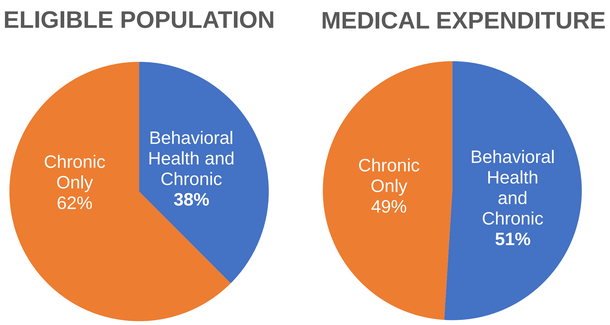
- About 40 percent of adult members enrolled in Blue Cross and Blue Shield of Louisiana (BCBSLA) plans had at least one behavioral health condition along with chronic condition(s).
- This purpose of this study is to investigate whether the coexistence of behavioral health conditions with chronic conditions increases non-behavioral healthcare cost and utilization.

Study Design

- The study period is year 2022, with participants having at least nine months of continuous medical coverage.
- **Eligible population**
  - Members between the ages of 18 and 64
  - Members with any of 12 common chronic conditions with/without behavioral health conditions
    - **Common chronic conditions**: Asthma, diabetes, congestive heart failure (CHF), chronic kidney disease (CKD), chronic obstructive pulmonary disease (COPD), hypertension (HTN), coronary artery disease (CAD), hypothyroidism, osteoarthritis, cancer, stroke, chronic back pain
    - **Behavioral health conditions:** Anxiety, substance abuse disorder, depression, and other mental health disorder
  - Primary members who reside in Louisiana
- **Exclusions**
  - Members who had any of the following claims during the study period: Rare conditions, maternity, ESRD, transplant, dialysis, nursing home, hospice
  - Members who died during the study period

Cohort Population and Cost Distribution

Figure 1: Population and Healthcare Expenditure Distribution by Cohorts in Year 2022



Of the eligible population with behavioral health and chronic condition(s), 38% counted for 51% of medical expenditure.

Statistical Methodology

- Generalized linear mixed model (GLMM) quantified the impact of a behavioral health condition with chronic conditions on healthcare cost and utilization while controlling other factors.
- Utilization measures were generalized with Poisson/zero-inflated Poisson distribution, and gamma distribution was used for cost-related measures.
- The rate ratio was computed to examine the difference in utilization and cost between the cohorts.
- The relative risk ratio was converted in cost or visits, which provided the monetary/quantified context.

$$\text{Dependent Variable} = \beta_0 + (\beta_1 * \text{Cohort}) + (\beta_2 * X_2) + \ldots + (\beta_n * X_n) + \varepsilon$$

- Healthcare cost and utilization
- **Interested coefficient:** Indicates the impact of different cohorts
- **Other explanatory covariates:** Gender, age, location of residence, other program participation, chronic comorbidities, race, socioeconomic factors

Results

Table 1. Cost Ratios from Generalized Linear Mixed Models

Non-Behavioral Healthcare-Related Medical Expenditure	Cost Ratio (95% CI)	%Δ (RR-1)*100
Acute Inpatient	2.08 (1.92, 2.24)	108
Ambulatory ER	1.67 (1.62, 1.72)	67
PCP Visits	1.32 (1.31, 1.34)	32
Specialty Visits	1.17 (1.15, 1.19)	17
Urgent Care	1.20 (1.18, 1.22)	20

Table 2. Rate Ratios from Generalized Linear Mixed Models

Non-Behavioral Healthcare-Related Medical Utilization	Rate Ratio (95% CI)	%Δ (RR-1)*100
Acute Inpatient	1.98 (1.89, 2.07)	98
Ambulatory ER	1.55 (1.52, 1.59)	55
PCP Visits	1.31 (1.30, 1.32)	31
Specialty Visits	1.13 (1.12, 1.15)	13
Urgent Care	1.19 (1.18, 1.21)	19

Figure 2: Incremental Non-Behavioral Healthcare-Related Medical Cost, Per Member Per Month (PMPM)

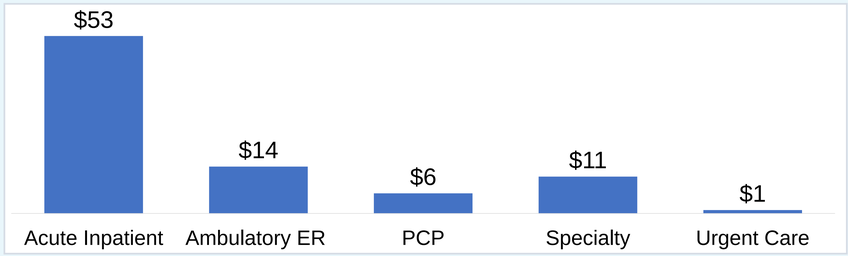
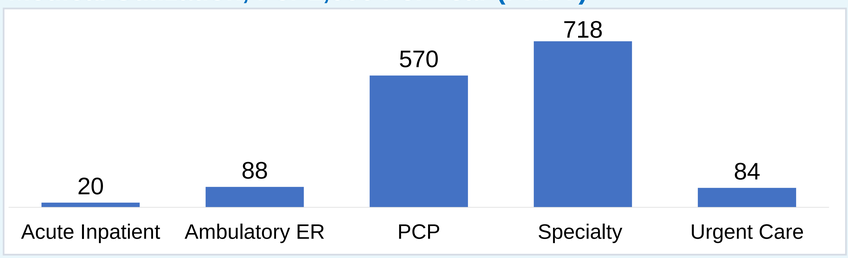


Figure 3: Incremental Non-Behavioral Healthcare-Related Medical Utilization, Per 1,000 Per Year (PKPY)



Compared to those with only chronic conditions, the "Behavioral Health and Chronic" group had:

- **108% ($53 PMPM) higher** non-behavioral healthcare-related acute inpatient cost; **98% (20 PKPY) higher** acute inpatient visits.
- **67% ($14 PMPM) higher** non-behavioral healthcare-related ambulatory ER allowed; **55% ($88 PKPY) higher** ambulatory ER visits.
- In general, a higher percentage for non-behavioral healthcare-related expenditure and utilization of PCP, specialty and urgent care visits.

Conclusion

- This study suggests there's a significant association between behavioral health concerns and chronic conditions. And that appears to contribute to an increase in non-behavioral healthcare costs and utilization of acute inpatient, ambulatory ER, PCP, specialty and urgent care visits.
- The findings indicate that members experiencing both chronic conditions and behavioral health challenges see 108% higher non-behavioral acute inpatient costs and 67% higher non-behavioral ambulatory ED visit costs.
- The "Behavioral Health and Chronic" members had incremental non-behavioral healthcare-related medical costs of $86 PMPM, which accounted 41% of overall medical costs.

Reference

- Campbell PJ, Axon DR, Taylor AM, Smith K, Pickering M, Black H, Warholak T, Chinthammit C. Hypertension, cholesterol and diabetes medication adherence, health care utilization and expenditure in a Medicare Supplemental sample. Medicine (Baltimore). 2021 Sep 3;100(35):e27143. doi: 10.1097/MD. 0000000000027143. PMID: 34477169; PMCID: PMC8416010.
- Sporinova B, Manns B, Tonelli M, et al. Association of Mental Health Disorders With Health Care Utilization and Costs Among Adults With Chronic Disease. JAMA Network Open. 2019; 2(8): e199910. doi:10.1001/jamanetworkopen.2019.9910

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