Evaluating the Role of Social Determinants of Health and Patient Demographics on CDK 4/6 Inhibitor Adherence for Breast Cancer

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BACKGROUND

The impact of social determinants of health (SDOH) and lifestyle risk factors on breast cancer treatment adherence is not well understood. Investigating how socioeconomic status, education, and access to healthcare intersect with specific risk factors can provide crucial insights. This research aims to identify these intersections to enhance targeted interventions and ultimately improve patient outcomes.

A 2023 paper from NCCN[4] showed the significant role of socioeconomic factors in influencing treatment adherence among breast cancer patients. The study highlighted that there should be high impact interventions for patients with higher socioeconomic needs. The NCCN has developed recommendations for the integration of the highest impact measures into policy and practice. This investigation into the MaxorPlus commercial patient population is aimed to further understand the correlation among SDOH, lifestyle risk factors, and treatment adherence, contributing to the development of more effective, targeted interventions.

OBJECTIVES

The primary objective is to describe the association of SDOH on breast cancer CDK 4/6 inhibitor treatment adherence in the MaxorPlus commercial patient population.

METHODS

A retrospective cohort study was conducted on a commercial patient population utilizing CDK 4/6 inhibitors through MaxorPlus. The study period spans from January 2022 to December 2023 focusing on patients who were new to therapy after January 1, 2022.

Medication criteria:
At least two specialty pharmacy claims for one of the following during the period:

- Palbociclib (Ibrance®)
- Ribociclib (Kisqali®)
- Ademaciclib (Verzenio®)

Medication adherence assessment:
Medication adherence was assessed using the Proportion of Days Covered (PDC) metric.

- Index start date was the first fill of their medication in the study period or 180 days prior to the last fill exhaust date
- Index end date was defined as the last fill of the medication plus 28 days (days supplied)
- PDC is calculated by the ratio of the days patient is covered by medication to the number of days patient days covered
- PQA provides clinical evidence for a PDC threshold of 80%[3]
- PDC measurement timeframe was 29 months from January 1, 2022 to May 31, 2024
- Discontinuation gap was defined as 6 months

SDOH data:
Definitions of SDOH data:

- Access to care: Remote area, low population ratio
- Digital and health literacy: limited heath awareness, low education
- Social isolation: not married, small household size
- Sedentary lifestyle: limited outdoor or exercise
- Economic stability: less net worth or low income
- Transportation: no access to personal vehicle

Data source

- Claims data from MaxorPlus book of business
- SDOH data was accessed using publicly available consumer data

RESULTS

SDOH data was obtained by compiling public information from databases that are collating factors such as zip code, phone numbers, marriage records, and public data to identify risk factors.

Average age of patient population was 56 years old, average total adherence of total population was 86.8%. Median ages for patients taking each medication Ibrance® (60 years), Verzenio® (52 years), and Kisqali® (58 years).

Table 1. Baseline characteristics

Age range:	
<55	63
55-65	54
>65	26
# of Patients by Medication type:	
Kisqali®	26
Ibrance®	40
Verzenio®	77
Gender:	
Female	141
Male	2
SDOH risk factors groups:	
0	19
1	28
2	45
3	51
Median medication adherence:	
Kisqali®	89%
Ibrance®	89%
Verzenio®	93%

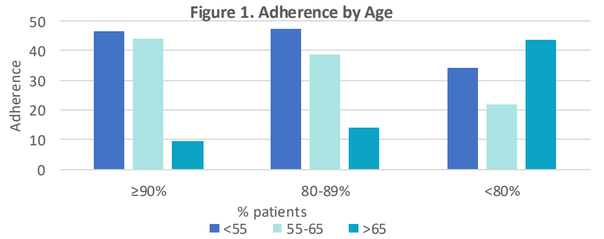
Breast cancer population identification, Table 1:
143 patients met inclusion criteria and were on CDK 4/6 inhibitors. Majority of members were 56 years old and had pharmacy claims.

*No one triggered for transportation as a risk factor

Table 2. SDOH by adherence

Adherence level	Patient count	Access to care	Digital and health literacy	Social isolation	Sedentary lifestyle	Economic stability
≥90%	75	11 (14.67%)	12 (16%)	27 (36.00%)	28 (37.33%)	34 (45.33%)
80-89%	36	5 (13.89%)	7 (19.44%)	14 (38.89%)	11 (30.56%)	18 (47.22%)
<80%	32	4 (12.50%)	13 (40.63%)	12 (37.50%)	12 (37.50%)	8 (25.00%)

SDOH and adherence distribution, Table 2:
Digital and health literacy showed the greatest increase in the <80% patient population for attributing to poor adherence.



Age distribution by adherence level Figure 1:
Majority of patients <65 years old, shown in figure 1, have an adherence level of less than 80%. As the patient demographic is older, the adherence levels decrease.

Table 3. % Patients by number of SDOH factors

Adherence level	Number of SDOH factors			
	0	1	2	3
≥90%	13.33%	22.67%	29.33%	34.67%
80-89%	11.11%	13.89%	41.67%	33.33%
<80%	15.63%	18.75%	25.00%	40.63%

% Patients by number of SDOH factors, Table 3:
Patients with a greater amount of SDOH factors were consistently less adherent.

CONCLUSIONS

Forty percent of the members in the <80% cohort were at risk for having a digital or health literacy-related SDOH factor, indicating this may contribute to poor adherence.

Developing educational resources and targeted outreach may increase patients' adherence levels.

MaxorPlus Specialty Pharmacy Clinical Programs can be developed to provide further outreach to ensure patients receive proper education on CDK 4/6 treatment.

These findings can help generate future studies to innovate targeted strategies to improve adherence in breast cancer patients.

Further investigations are necessary to assess the significance of these results and understand their impact.

Pharmacy benefit managers or specialty pharmacies can incorporate these findings by implementing comprehensive patient education programs that ensure personalized support and follow-up to improve adherence rates.

LIMITATIONS

- This study does not include medical claims data, limiting its comprehensiveness
- The PDC metric cannot account for missed medications due to neutropenia or side effects
- Patients may have additional insurance coverage, such as Medicare
- The small patient population size overtakes robust statistical analysis

ACKNOWLEDGEMENTS

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