

IIHMR UNIVERSITY
SYNOPSIS FOR DISSERTATION (2022-24)
DR. KANIKA MATHUR
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ROLLNO 1522

1. Title:

Epidemiological Trends (2010-2021) and Advanced Drug Therapies for HER2-Positive Breast Cancer in the Current US Market

2. Introduction:

HER2-positive breast cancer represents a subtype of breast cancer characterized by the overexpression of the HER2 protein, driving aggressive tumor growth. Accounting for 15-20% of all breast cancer cases, HER2-positive breast cancer is linked to higher disease progression and poorer outcomes if untreated. In the US, where breast cancer is highly prevalent, addressing HER2-positive breast cancer is crucial for improving patient outcomes, reducing mortality rates, and enhancing quality of life. Recent advancements in targeted therapies, such as trastuzumab and pertuzumab, have significantly improved treatment efficacy and patient prognosis, highlighting the importance of continuous research and innovation in oncology.

3. Research question:

How have the epidemiological trends of HER2-positive breast cancer incidence in the US evolved from 2010 to 2021, and what are the current advanced drug therapies and market dynamics for HER2-positive breast cancer in the US?

4. Objectives:

- I. To analyze the epidemiological trends in age-adjusted incidence rates of HER2-positive breast cancer from 2010 to 2021 in the US.
- II. To examine the variations in incidence rates among different racial/ethnic groups.
- III. To evaluate the market dynamics of advanced HER2-targeted therapies, including monoclonal antibodies, tyrosine kinase inhibitors, and antibody-drug conjugates.

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5. Hypothesis:

The incidence rates of HER2-positive breast cancer have shown considerable trends over the past decade, influenced by demographic factors, and advanced HER2-targeted therapies have substantially affected market dynamics in the US.

6. Materials and methods:

- **Study Design:**

Secondary research.

- **Study Setting:**

Organizational (PharmaAce Innovation LLP)

- **Data Collection Procedure:**

Data will be collected from the SEER database for incidence rates and demographic information. Market data will be sourced from industry reports, financial statements, and market research databases.

- **Operational Definitions:**

- HER2-positive breast cancer: A subtype of breast cancer with overexpression of the HER2 protein.
- Age-adjusted incidence rates: Incidence rates standardized to eliminate the effect of age differences in population.
- Advanced drug therapies: Targeted therapies including monoclonal antibodies, tyrosine kinase inhibitors, and antibody-drug conjugates.

7. DATA ANALYSIS PLAN:

- **Comparative Analysis:** To evaluate differences in incidence rates among racial/ethnic groups.
- **Market Analysis:** To analyze market segmentation, growth rates, and the economic impact of advanced therapies.

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8. ETHICAL CONSIDERATIONS:

Ethical considerations will ensure that secondary research on HER2-positive breast cancer, is conducted responsibly and with respect for the privacy and rights of the individuals whose data is being analyzed.

9. IMPLICATIONS OF RESEARCH:

The research provides insights into the advanced HER2-targeted therapies, guiding oncologists in optimizing treatment plans and improving patient outcomes for HER2-positive breast cancer.

By identifying epidemiological trends and disparities in treatment access among different racial/ethnic groups, the findings can help public health officials develop targeted interventions to reduce disparities and improve healthcare equity.

10. REFERENCES:

- SEER Database Documentation and Reports.
- Market Research Reports on HER2-positive Breast Cancer Therapies.
- Relevant Academic Journals and Articles on Breast Cancer Epidemiology and Treatment.