



Descriptive Study on Genetic Mutations and Their Association with Cancer Development Among Patients in Tertiary Care Hospitals

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Introduction

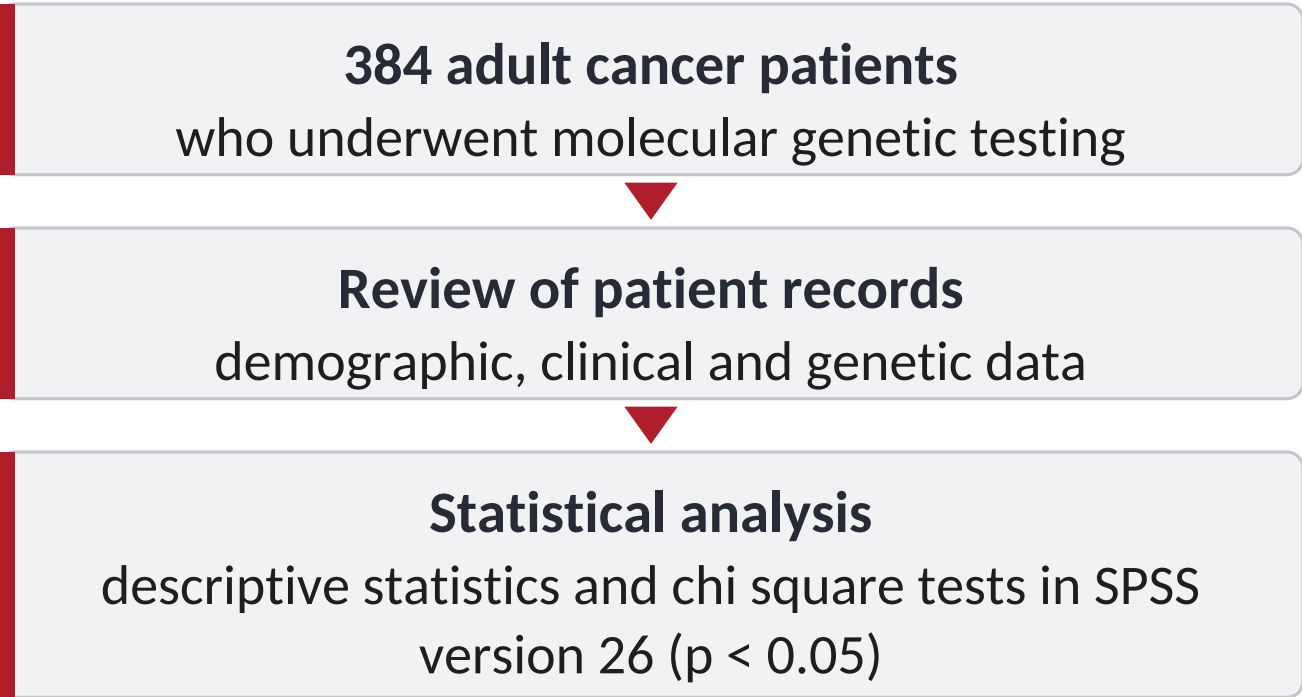
- Genetic mutations play a key role in how cancer starts and progresses. **BRCA1** and **BRCA2** are well established markers for hereditary breast and ovarian cancers. **KRAS**, **EGFR** and **TP53** are often found in colorectal, lung and other cancers.
- Genomic studies are scarce in developing regions. Without local mutation data, treatment often follows general guidelines that may not fit the patient.

Aims

- To describe the patterns of genetic mutations and to evaluate their association with different cancer types among patients in tertiary care hospitals.

Methods

- Study design:** descriptive observational study over eight months in tertiary care hospitals across South Punjab.



Results

Table 1. Participant characteristics (N = 384)

| Variable    | Category  | n (%)       |
|-------------|-----------|-------------|
| Age (years) | Mean ± SD | 52.3 ± 11.8 |
| Sex         | Male      | 208 (54.2%) |
|             | Female    | 176 (45.8%) |

Figure 1. Distribution of cancer types among patients

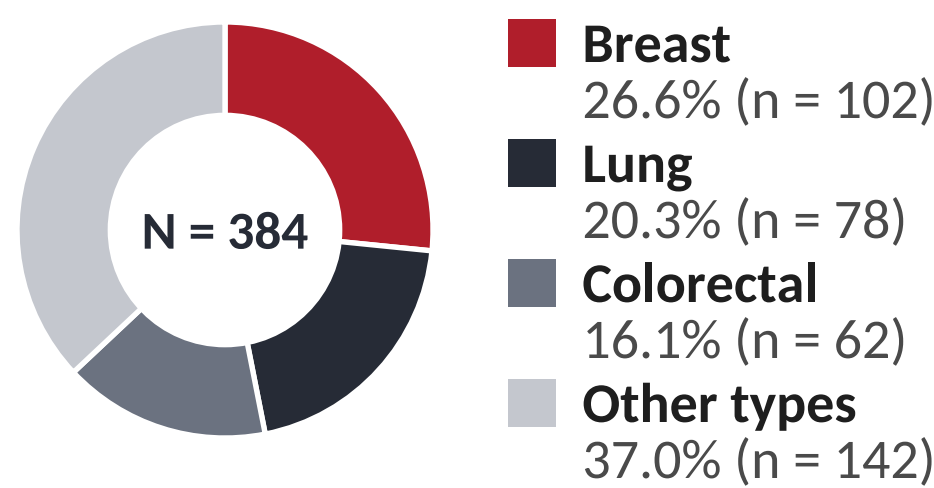


Figure 2. Most frequent gene mutations (% of patients)

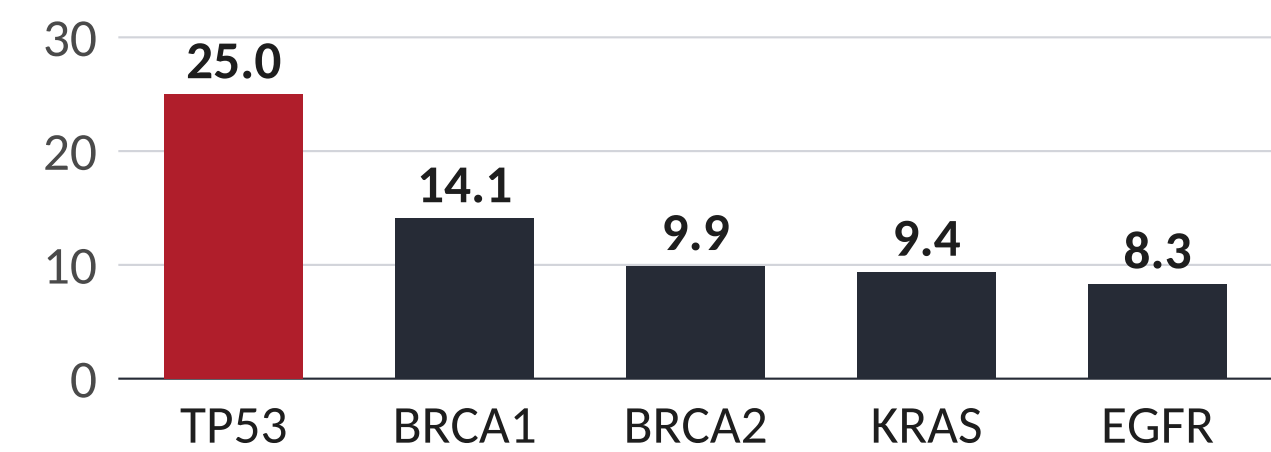


Table 2. Mutations and the cancer types linked with them

| Mutation | n  | Linked cancer types* |
|----------|----|----------------------|
| TP53     | 96 | Breast               |
| BRCA1    | 54 | Breast and Ovarian   |
| BRCA2    | 38 | Breast and Ovarian   |
| KRAS     | 36 | Lung and Colorectal  |
| EGFR     | 32 | Lung and Colorectal  |

\*Chi square test, p < 0.05

Conclusion

- Cancer patients in South Punjab show distinct genetic mutation profiles.
- Molecular testing has clear value in regional oncology practice.
- Genomic insights can help personalize cancer care.



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