

RESEARCH METHODOLOGY

Bias

Systematic error in the design, conduct or analysis of an epidemiological study that result in an incorrect estimate of association between exposure and risk of disease.

Types

1. **Selection bias**: that occur in the process of identifying the study population. this occur in case control study and retrospective cohort study where both exposure and outcome have occurred at the time individuals are selected into the study.

When the selection bias occur the result is an observed relation between exposure and disease that is different among those who are entered into the study than those who not participate.

Other selection bias is refusal and non-response bias e.g. studying thromboembolism and its relation to oral contraceptive use. Patient with thromboembolism recall use of OC better than non-cases ,also doctor choose thromboembolism patient with OC.

2. **Observational Bias or information bias**:

This happens when we measure exposure or outcome

- a. **Recall bias**: disease patient recall causes better than non-cases.
- b. **Interviewer bias**: occur during the process of recording or interpreting.
- c. Bias due to **loss to follow up**.
- d. **Misclassification bias** regarding disease or exposure.

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Avoid Bias:

1. **Increase the comparability between group** studied by selecting eligibility and willing people to participate.
2. Decrease the information of or observation bias:
 - a. In data collection: by construction more specific instrument like questionnaires, Physical examinations, interviews. Close ended questions are preferred than open ended question which leaves the data collector with wide range of possibilities and thus bias.
 - b. For instruments and examination blinding is recommended. Standardization of the instruments and training data collector.
 - c. Administering those instruments by well-trained study personnel.