RESEARCH HYPOTHESIS

A research hypothesis (H_1) is the statement created by researchers when they speculate upon the outcome of a research or experiment.

Every true experimental design must have this statement at the core of its structure, as the ultimate aim of any experiment.

The hypothesis is generated via a number of means, but is usually the result of a process of inductive reasoning where observations lead to the formation of a theory. Scientists then use a large battery of deductive methods to arrive at a hypothesis that is testable, falsifiable and realistic.

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The precursor to a hypothesis is a research problem, usually framed as a question. It might ask what, or why, something is happening.

The sample was drawn from records of Army, Air Force, Marine Corps, and Navy personnel who were reported to have served in ODS/DS between August 1, 1990, and July 31, 1991. These records were subset to those personnel who served on the ground (as opposed to those located at sea in the Persian Gulf or who only flew over the area) in the Kuwaiti theater of operations (KTO). The survey sample was designed to meet the concurrent objectives of providing (1) an overall estimate of pesticide exposure across all services, (2) individual estimates by service, and (3) estimates for various situations or "pesticide scenarios." It achieved this by drawing a diverse sample from across all the services and by oversampling various subgroups. In all, 3,264 records were sampled from 536,790 eligible records, evenly divided across the Army, the Air Force, and the Marine Corps combined with the Navy. Allowing for failure to locate some respondents, nonresponse by others, and errors in the original data (such as misclassifying some personnel as present in theater when they were not), the initial sample of 3,264 records was expected to yield 2,000 complete responses. The survey actually obtained 2,005 complete responses. THE SAMPLING FRAME The sampling frame was designed to be an enumeration of military personnel located on the ground in-theater between August 1, 1990, and July 31, 1991. Information from the Personnel and Monthly databases, acquired in October 1998 from USASCURR, augmented with unit location indicators derived from the Locations database by OSAGWI, was assembled to create the sampling frame. It consists of all Army and Marine Corps personnel located in Saudi Arabia, Kuwait, and Bahrain; all Air Force personnel located in Saudi Arabia, Kuwait, Bahrain, Qatar, the United Arab Emirates, and Oman (hereafter referred to as "in theater"); Navy personnel in units that could be identified as being ashore in theater; and all Coast Guard personnel. Thus, the sampling frame consists of the U.S. Armed Services Center for Unit Records Research

Pie charts have a fairly narrow use-case that is encapsulated particularly well by its definition. In order to use a pie chart, you must have some kind of whole amount that is divided into a number of distinct parts. Your primary objective in a pie chart should be to compare each group's contribution to the whole, as opposed to comparing groups to each other. If the above points are not satisfied, the pie chart is not appropriate, and a different plot type should be used instead.

The values that comprise a whole and the categories that divide the whole generally come in two major varieties. First of all, is when the ‘whole’ represents a total count. Examples of this include votes in an election divided by candidate, or number of transactions divided by user type (e.g. guest, new user, and existing user).

A second type of ‘whole’ is when the total is a sum over an actual data variable. For example, we might be interested not in the number of transactions, but the monetary total from all transactions. Dividing this total by an attribute like user type, age bracket, or location might provide insights as to where the business is most successful.

REGION	TOTAL REVENUE
North	491 064.51
East	283 445.43
South	128 753.87
West	263 391.13

Chi-squared test

A **chi-square test**, also written as χ^2 **test**, is a statistical hypothesis test that is valid to perform when the test statistic is chi-square distributed under the null hypothesis, specifically Pearson's chi-square test and variants thereof. Pearson's chi-square test is used to determine whether there is a statistically significant difference between the expected frequencies and the observed frequencies in one or more categories of a contingency table.

In the standard applications of this test, the observations are classified into mutually exclusive classes. If the null hypothesis (that in the population there is no difference between the classes) is true, the test statistic computed from the observations follows a χ^2 frequency distribution. The purpose of the test is to evaluate how likely the observed frequencies would be assuming the null hypothesis is true.

Test statistics that follow a χ^2 distribution occur when the observations are independent and normally distributed, which assumptions are often justified under the central limit theorem. There are also χ^2 tests for testing the null hypothesis of independence of a pair of random variables based on observations of the pairs.

Chi-square tests often refers to tests for which the distribution of the test statistic approaches the χ^2 distribution asymptotically, meaning that the sampling distribution (if the null hypothesis is true) of the test statistic