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## Original Research: Descriptive or Analytical, Either-Or or Both-And?

### descriptive (adj.)

“serving or aiming to describe,” 1751, from Late Latin *descriptivus*, from *descript-*, past-participle stem of *describere* “to write down, copy; sketch, represent,” from *de* “down” (see *de-*) + *scribere* “to write” (from PIE root \**skribh-* “to cut”). Related: *Descriptively*; *descriptiveness*.

<sup>1</sup>Online Etymology Dictionary

<https://www.etymonline.com/word/descriptive>

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### analytical (adj.)

“employing analytic methods,” 1520s, with *-al* (1) + Medieval Latin *analyticus*, from *analyticus*, from Greek *analytikos* “analytical,” from *analytos* “dissolved,” from *analyein* “unloose, release, set free,” from *ana* “up, back, throughout” (see *ana*) + *lysis* “a loosening,” from *lyein* “to unfasten” (from PIE root \**leu-* “to loosen, divide, cut apart”).

<sup>2</sup>Online Etymology Dictionary

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**The Philippine Society of Otolaryngology** – Head and Neck Surgery traditionally hosts separate Descriptive and Analytical research contests annually, while the Philippine Journal of Otolaryngology publishes selected papers from both contests under the single section Original Articles. There has been confusion among authors and audiences (as well as judges) regarding the distinction between the categories; with some positing the use of descriptive or inferential statistics as the main factor: *i.e.*, “any sophisticated use of statistics makes a study analytical (and descriptive studies must confine themselves to using descriptive statistics alone).”<sup>3</sup> We believe that such a distinction is intrinsically flawed, and therefore classify both types of research under Original Articles.

The Original Article is the most important type of paper published in academic journals.<sup>4</sup> Original articles provide “new information based on original research, communicating knowledge arrived at or discovered by the authors.”<sup>3</sup> Both descriptive and analytical studies can



provide such new information and communicate knowledge originally arrived at or discovered by the authors. The difference between the two is that analytical or experimental studies introduce or add (or isolate or subtract) an intervention or treatment into a situation in order to determine whether an association, correlation, or causation exists between variables, while descriptive or observational studies primarily observe and record phenomena without manipulating any variables at all.<sup>3</sup> In general, “variables that are manipulated (introduced or isolated) are called independent variables,” while those “affected by the manipulation are called dependent variables,” and “other variables that may influence outcomes are called intervening or confounding variables.”<sup>3</sup> Here is an example from our book:<sup>3</sup>

the correlation of sun exposure, Fitzpatrick skin type and development of basal cell carcinoma may be a purely observational study (descriptive) and may involve a case series (of patients with skin lesions consulting in an outpatient dermatology unit), or a cohort (of fisherfolk, or farmers with outdoor occupational sun exposure). It may be a cross-sectional survey (of a population in a certain geographic area with known ozone layer depletion). However, if you as researcher choose to introduce the use of sunscreens among patients in the series, or to the cohort, the study becomes experimental (or analytical). For results to be less uncertain, your study design would be better if a comparator or control group (given placebo instead of sunscreen) were part of the study. In these examples, the development of basal cell carcinoma (or similarly, the development of actinic keratoses, or even of sunburn or tanning) would be examples of dependent variables, while sunscreen (or placebo) use would be the independent variable. Sun exposure, Fitzpatrick skin type, even the wearing of hats and protective clothing, could either be intervening or confounding variables (in an experimental study where sunscreen or placebo are introduced), or independent variables (in an observational study with no intervention).

Similarly, a descriptive (observational) study of the association between air quality index, allergic rhinitis and the development of asthma may involve a case series (of patients with symptoms of asthma seen in an outpatient pediatric service), or a cohort (of pedestrian or commuter school children with outdoor air exposure), or a cross-sectional survey (of out of school youth in a community with a poor air quality index). However, if you as a researcher introduce the use of face masks among the patients in the series, or to the cohort, your study becomes experimental (or analytical). Your results will be less uncertain if you added a comparator or control group (e.g., with cloth barrier

face coverings) to the study. In such a study, the development of signs and symptoms of asthma (or exacerbation of allergic rhinitis) could be examples of dependent variables, while face masks (or cloth barrier face coverings) would be the independent variables.

Study variables include populations or phenomena of interest (P), interventions (I), comparators or controls (C), and outcomes or observations (O).

In a descriptive or observational study, the **population** or **phenomenon** of interest (P) and **outcome** or **observation** (O), are present, while in an experimental or analytical study, an **intervention** (I), with or without a **comparator** or **control** (C), are present. The classification of an observational study (P-O) and an experimental study (P-I-O or P-I-C-O) into descriptive or analytical is dependent on these, and not on whether more or less rigorous statistical analysis was performed.<sup>3</sup> In fact, “the appropriate use of both descriptive and inferential statistics is applicable to both descriptive and analytical studies!”<sup>3</sup> A good descriptive study can certainly utilize inferential statistics to identify associations between observed variables to generate a hypothesis without introducing any interventions. An experimental study can then test the hypothesis by manipulating interventions compared to controls.

Indeed, the etymological definitions of “descriptive” and “analytical” illustrate their differences: the former paints a picture of reality by writing down, copying; sketching, or representing it,<sup>1</sup> while the latter unlooses, releases, or sets reality free (unfastens it), by loosening, dividing, or cutting it apart.<sup>2</sup> But both similarly attempt to understand and interpret reality. In the language of the qualitative researcher, the difference between analytical and descriptive research is like that between participation and observation, with participant-observation being an important continuum of inquiry and discovery. It is not a matter of participation versus observation, nor is it one of description versus analysis. Not either-or, but both-and. Descriptive **and** analytical, both comprise Original Research.

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