

Mathematic Tools for Epidemiologic Researches

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Abstract

Background: Epidemiologic researches are full important to describe the people health condition. The intensive and extensive use of mathematic analysis as the differential calculus for example, may makes a better description.

Objective: To describe the useful of mathematic analysis in descriptive epidemiologic researches.

Materials and Methods: It made a descriptive research from the useful of the mathematic analysis in epidemiologic descriptive researches. Were utilized as theoretic methods the comparative and the inductive - deductive. As empiric method was utilized bibliographic research.

Results: Since the description of the epidemiologic variable researched is possible to measure the variation from a context respect to the analytic described by the mathematic equation. This variation may be utilized as measure of the additional impact from a single variable as an interventionist policy for example.

Conclusion: The differential and integral calculus, the descriptive statistic and the inferential statistic are powerful tools for epidemiologic researches and population descriptive health condition.

Keywords: *Mathematic Tools; Epidemiologic Researches*

Background

The descriptive epidemiologic researches are much important to characterize the population health condition [1]. At same time this characterization is base to apply agreed public policies according to the social develop [2].

The intensive and extensive use of mathematic tools as the differential calculus, for example, is determining the quality of the researching process and the results [3]. That's why the full understanding of benefits from the mathematic analysis may it useful in big epidemiologic and social researches [4].

Objective of the Study

To describe the useful of mathematic analysis in descriptive epidemiologic researches.

Materials and Methods

It made a descriptive research from the useful of the mathematic analysis in epidemiologic descriptive researches. Were utilized as theoretic methods the comparative and the inductive - deductive. As empiric method was utilized bibliographic research.

Results

The incidence rate is an epidemiologic rate to measure the relative number of added cases by morbidity or mortality in a certain time [5]. In longitudinal researches is often meet an mathematic equation to describe the relation between the researched variable and other one as the time, for example. In case like this the complex use of the econometric tools will be according to the objective complexions [6]. In this researches cases the historic value for the incidence rate should be equal to the first derived from the mathematic equation for the analyzed point.

Since the epidemiologic point of view is important to research the acceleration of the researched variable. Thus should be possible meet the points where the variable should get extremes values and the consecutives points where the incidence rate should be equals [7].

In context where the researched variable get extremes values, the use of first and second derived should may determine the point of minimum or maxima. This is a basic principle applied in epidemiologic prognostics. Also is utilized as reference for health strategic controlling the researched variable [8].

By other side, the prevalence rate measure the relative number of accumulated cases from the researched variable in certain time [5]. Once time get the mathematic equation to describe the epidemiologic variable behavior, the prevalence may be calculated like the defined integral from the equation get in the period of time previously defined.

The mathematic analysis described before for the incidence rate is applicable to prevalence rate too. In all cases the epidemiologic description since the mathematic analysis make easier the compression and understanding from the researched variable. Also, may more trustable the prognostic process [9].

Since the analytic description from the epidemiologic variable researched is possible measure the variation from the real context respect to the one described analytically [10]. This variation may be utilized as measure from the additional impact from an specific condition as an interventionist policy to control the researched variable, for example. That's why the descriptive statistic and the inferential statistic close to the econometry are useful tools for the epidemiologic research.

Conclusion

The differential and integral calculus, the descriptive statistic and the inferential statistic are powerful tools for epidemiologic researches and population descriptive health condition.

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