What's *what* FSKM

MORTALITY STUDIES:
LITTLE DID WE KNOW?

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Why do we study mortality? Mortality registration is mandatory in almost all countries and hence mortality studies offer a valuable measure for assessing our community health status. Improving mortality in population will lead to improvements in public health, medical advances, lifestyle changes, and government regulation. No doubt, mortality studies play a very significant role in numerous areas such as the pension systems, insurance sectors, actuarial, demographics and epidemiological research.

As an example, actuaries applied mortality forecasts for cash flow projections and assessment of premium and reserves in life insurance and pension. Mortality studies contain modeling mortality plus mortality forecasts.

When studying mortality, a useful framework is the difference in mortality rates between clusters. A differential between two groups is simply measured if the groups vary by a fixed characteristic such as sex or age. According to Tuljapurkar & Shripad (1998), there have five characteristics to consider in the mortality studies, which are marital status, sex, racial and ethnic, education and social-economic variables and also genetic variation.
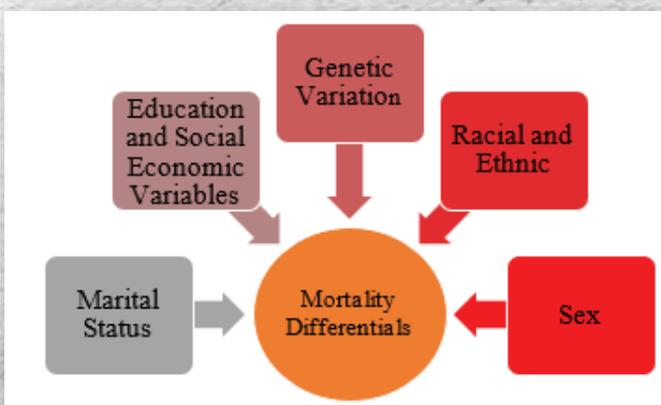
Expectation	Explanation	Extrapolation
Based on expert opinion incorporation of demographic, epidemiological and other relevant knowledge subjective potential for bias.	Restricted to certain causes of death feedback mechanisms and limiting factors can be taken into account. Difficult to obtain the data.	Use of statistical methods assume that future trends will be a continuation of the pass implausible age patterns.

Many models have been proposed since Gompertz published his law of mortality in 1825. There have been three methods in demographic forecasting such as extrapolation, explanation, and expectation (Booth & Tickle, 2008). Time-series methods are frequently used in extrapolative predicting. The Lee-Carter (LC) model is one of the most popular extrapolation models amongst researchers. The model was proposed by Lee and Carter since 1992 and was fitted to the United States population (Lee & Carter, 1992).

However, the model does not give sufficiently good prediction for every country (Baran et.al, 2007). Besides that, the LC approach also can produce the violation of the homoscedasticity in the error term (Zhao, 2012). For these reasons, many models have been suggested in forecasting mortality such as Lee-Miller (LM) model, Booth-Maindonald-Smith (BMS) model and Hyndman-Ullah (HU) model.

Did you know, not one mortality model performs better than the other in every aspect. Therefore, Cairns et al. (2006) defined standards against which a model can be evaluated. The key standard that can be highlighted is that the model must be selected carefully based on available data and is applicable to a full age range in order to achieve a good future demographic forecast for each country (Plat, 2009).

In conclusion, mortality studies are very important as it is a single indicator which can show the general health problems of a population and beyond that for the social system.

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