

Genetic endowment sometimes plays a significant role in the production of health. The link between genes and susceptibility to a number of diseases (including breast and ovarian cancer, early-onset Alzheimer's disease¹) is well established (Osann, 1991; Schwartz et al., 1995; Tabarrok, 1994; Macdonald, 2003). Therefore, an individual's ability to produce a certain particular health outcome can be significantly influenced by the genes she inherited. Several dozen studies have documented the immediate and lifetime costs associated with morbidity due to these diseases (e.g., Manning et al., 1991; Chodick et al., 2005; Payne et al., 2002, Ory et al., 2005; Lee et al., 2004).

However, as Macdonald (2003) points out, at the current state of knowledge there are relatively few "simple" genetic disorders, that is, disorders that can be traced to a single gene or to several genes, each of which can still cause the disorder. To date, no single gene or set of genes has been assigned a causal role in the majority of cases of chronic diseases, such as heart disease and stroke. However, it is generally accepted that these tend to aggregate within families, suggesting possible genetic links (Macdonald et al., 2005). According to Macdonald et al. (2005) various gene locations have been linked to increased risk of developing hypertension, hypercholesterolemia and diabetes, all of which are associated risk factors for heart disease and stroke.

The risk of developing many common diseases, including heart disease, diabetes and stroke, can be modified by participation in certain healthy behaviours (for example, maintaining a certain diet and regular physical activity) or by avoiding certain unhealthy behaviours (for example, smoking), even if these diseases exhibit a tendency to occur within a family (Macdonald et al., 2005). For example, a comprehensive study by Nicholl et al. (1994) show a

¹ The link between the APOE gene and increased risk of late-onset Alzheimer' disease is generally accepted, but serious controversy still surrounds whether there are benefits to be derived from clinical APOE testing (Hedgecoe, 2004).

significant reduction in the risk of developing coronary heart disease by physically active men in the order of 40%, reduction in the risk of stroke by up to 41%, and lower risk of diabetes by 29%. Meanwhile, the marketing (e.g., television commercials) of healthy behaviours (avoidance of unhealthy behaviours) has already begun to emphasize the importance of genetic aspects of some diseases.

It is not clear how individuals use the information on their family health history, if at all. On the one hand, poor genetic endowment might lead to behaviours that reduce the risk of developing a chronic disease. That is, the individual might substitute healthy behaviours for inherited health risks (see, for example Dickie and Gerking, 1997). On the other hand, some individuals may choose unhealthy behaviours because, given their family health background, the number of (and amount of each) healthy behaviours required to modify health risks is more than the individual wishes to implement or because the individual finds healthy behaviours distasteful.

It is also not clear whether the presence of a disease within the family leads to an appraisal of familial susceptibility. First, individuals may not believe health conditions are hereditary. Second, individuals may believe behavioral or environmental factors are more important determinants of health outcome than their genetic endowment. It is also possible that discussions of genetics are beyond what most members of the general public can comprehend and internalize.

As such, this paper evaluates the relationship between family history of chronic illness, the individual's appraisal of their own risk of developing a chronic disease, and the individual's participation in health-related behaviours in a framework that relies on protection motivation theory and economic theory of health behavior. The specific questions of interest are:

- i. Are individuals whose family has a history of chronic diseases more likely to believe the disease “run” in their family?
- ii. Does it matter which family member has been diagnosed or has died from a disease?
- iii. Does it matter how much time has elapsed since the diagnosis or death?
- iv. Does the severity of the threat appraisal depend on (ii) and (iii)?
- v. Is participation in healthy behaviors influenced by whether the individual has a family history of chronic disease?

This paper uses a small but very detailed set of data collected in rural Georgia. Participants in a workplace wellness program were asked to complete a detailed questionnaire which included questions on the occurrence of chronic diseases within their family, which family member was diagnosed or died from a chronic disease, how long has it been since the last diagnosis or death, the participant’s appraisal of his/her risk of developing the disease and the timeframe in which he/she believes the disease will occur. We also collected detailed socioeconomic data, as well as data on participation in physical activity, alcohol consumption and cigarette smoking.