



Review

Socioeconomic status. The relationship with health and autoimmune diseases



Omar-Javier Calixto, Juan-Manuel Anaya*

Center for Autoimmune Diseases Research (CREA), Mederi Hospital Universitario Mayor, Universidad del Rosario, Bogota, Colombia

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ABSTRACT

Socioeconomic status (SES) is a hierarchical social classification associated with different outcomes in health and disease. The most important factors influencing SES are income, educational level, occupational class, social class, and ancestry. These factors are closely related to each other as they present certain dependent interactions. Since there is a need to improve the understanding of the concept of SES and the ways it affects health and disease, we review herein the tools currently available to evaluate SES and its relationship with health and autoimmune diseases.

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Abbreviations: ACR, American College of Rheumatology; ADs, Autoimmune Diseases; AIMS, Ancestry Informative Markers; DMARDs, Disease Modifying Anti-Rheumatic Drugs; HAQ, Health Attitude Questionnaire; HbA1C, Glycated hemoglobin; HRQOL, Health related Quality of Life; LN, Lupus Nephritis; MS, Multiple Sclerosis; NS-SEC, National Statistics Socio-Economic Classification; QOL, Quality of Life; RA, Rheumatoid Arthritis; RAI, Rheumatoid Arthritis Index; RF, Rheumatoid Factor; SES, Socioeconomic Status; SF-36, Short Form-36; SLE, Systemic Lupus Erythematosus; SS, Sjögren's syndrome; SSC, Systemic Sclerosis; T1D, Type 1 Diabetes; UK, United Kingdom.

* Corresponding author at: Center for Autoimmune Diseases Research (CREA), School of Medicine and Health Sciences, Universidad del Rosario, Carrera 24 # 63-C-69, Postal code: 111221 Bogotá, Colombia. Tel.: +57 1 349 9650; fax: +57 1 349 9340.

E-mail address: juan.anaya@urosario.edu.co (J.-M. Anaya).

1. Introduction

There has been a global interest in determining the impact of socioeconomic status (SES) on health and disease. The importance of analyzing the influence of environmental factors on complex diseases results in positive or deleterious effects on overall disease activity indexes, self-reported health, access to specialized health care and treatment, health behavior, and mortality. Since there is a need to improve the understanding of the concept of SES and the ways in which it affects health and disease, we review herein the tools currently available to evaluate SES as well as the relationship between SES and autoimmune diseases (ADs).

2. What is SES?

SES was defined by Mueller and Parcel in 1981 as “the relative position of a family or individual in a hierarchical social structure based on their access to or control over wealth, prestige and power” [1]. More recently, SES has been also defined as “a broad concept that refers to the placement of persons, families, households, and census tracts or other aggregates with respect to the capacity to create or consume goods that are valued in our society” [2]. Others defined SES as an individual or group’s position within a hierarchical social structure, which is measured by variables such as education, occupation, income, wealth and place of residence [3,4], and these resources may enable people to achieve certain goals (e.g., health) [5].

For centuries there has been a belief that poor living and working conditions are associated with shorter lives [6]. In the 19th century, the most important improvements in health were caused by changes in nutritional and environmental conditions [7], but the problem of those with fewer resources having worse health outcomes for a number of different causes persisted [3].

Geographical differences are associated with the characteristics of a place, the influence of local cultures, scarcity of resources, and lack of mobility as major determinants [8,9]. In certain areas, life expectancies increase and, in other areas, they fail to improve due to unacceptable disparities in health that are caused by global inequities in wealth [10–14].

The impact of SES on health is increasing as it has important repercussions on local and international public policies [15]. The relationship between a lower SES and higher incidence and prevalence of health problems, disease, and death is present all around the world [16].

The reason for governments to be interested in health inequity policies is to take action with respect to them and close the gap [17–20]. This is a topic that has been discussed at several World Health Organization meetings since Brock Chisholm, as first Director General, postulated the death rate in tuberculosis as a sensitive index of the state of public health and economic and social well-being in a community [21]. Growing socioeconomic disparity is a global concern as it could affect population health. Health disparities have grown geometrically over the past 20 years [22]. Policy initiatives have included rural employment, food security, universal health care, social security for informal workers, education, housing, and rights of tribal and forest dwellers [17]. Nevertheless, research on how social changes in a population are reflected in health and disease is scarce [23,24].

Health disparities frequently refer to disparities in health care including different access to screening and treatment options, or unequal availability of culturally or linguistically knowledgeable and sensitive health personnel [22,25]. The most common study design involved a comparison of health status or mortality for individuals whose individual or household income fell below the US federal poverty line compared to those who were above this line [22,26]. Developments in health measurement instruments including everything from gathering data by census to national health surveys have improved the way this research is handled [27,28].

The effects of severe poverty on health could be directly associated with the effects of poor nutrition or unsanitary living conditions, but there is little information on the effects of SES at other levels of the social hierarchy [29]. A great variety of factors may account for the health effects of a low SES including exposure to environmental toxins, air and water pollution, ambient noise, employment in jobs that have a high risk of injury or disability, lack of health insurance or access to high quality and preventative health care, poor nutrition as well as adverse health behaviors such as smoking, excessive alcohol intake, sleeping patterns, and physical inactivity [16,30–33]. This highlights the inverse relationship between income and overall mortality [34], and between income and population health [35].

It has been widely reported that in countries where there is a lack of universal coverage, the population with lower incomes does not have

any insurance [22], and those who do not have health insurance are not receiving the care they may require [31].

A report from two different cohorts, one from France and one from the United Kingdom (UK) [36,37], found that psychosocial work characteristics were a determinant of health when they were compared to the type of employment and self-reported health. However, this was greater in the UK cohort than in the French one, a finding that may reflect cultural differences in the subjective perception of health [36,37]. Data from a cohort in the US showed similar results [5].

Marmot has established 10 major social determinants of health with respect to cardiovascular disease, a common chronic condition: social gradient, unemployment, stress, social support, early life, addiction, social exclusion, food, work, and transportation [18]. An analysis of disparities in health is difficult to assess even in developed countries. In the US, there are millions of individuals who do not have health insurance, and in places such as the UK or Sweden, it is difficult to evaluate the impact of lack of medical care [38].

A report from Singapore showed that a prevalence of health-damaging behaviors (i.e., no physical activity, daily smoking, and regular alcohol consumption) was consistently highest among men and women who had elementary or no education [39]. High SES could be associated with better health, but it could only influence men because women practice healthier behaviors [40]. Other studies have shown that each year of education is associated with a lower probability of smoking [41,42]. Results from a UK cohort found that educational achievement had a major impact in early adulthood. This effect was not marked among women after they finished formal schooling, got older, [43] and started smoking [44]. Thus, education acts as a predictor for attitudes and values shaping health-related behavior [45,46]. In the US, smoking rates among the better educated were one-third the rate for the less educated, and obesity rates were reduced among the better educated for each additional schooling year [41]. In the Netherlands, the lower educated [47,48] and manual workers [47] were associated with a higher presentation of myocardial infarction.

The most important factors reported to influence SES are income, educational level, occupational class, social class, and ancestry. These factors are closely related to each other as they present certain interdependent interactions (Fig. 1).

3. Measurement tools for SES

Although there have been extensive research revealing socioeconomic health inequalities across different societies, analysis and measurement of SES are not an easy endeavor. Most health studies that consider SES usually include only a single socioeconomic variable measured during a single period and level [49]. There is less evidence about multiple risk exposure across different levels of SES. Measurement tools for SES vary greatly and their use also varies from country to country. They include everything from single measurement tools to complex questionnaires, which are used to extract variables in an attempt to classify a population. A deeper understanding of the SES health gradient can be achieved by studying individual-level variables such as education, income, and occupational status. Others are influenced by social level. These are depression, hostility, sense of control and health behaviors, and these depend on one’s residential neighborhood, community, and work environment [28,29,33,50]. Although socioeconomic data are not usually used in vital national statistics, they can provide outstanding information on attributable morbidity or death rate among people sharing certain characteristics [6]. Table 1 discloses tools that are the most widely used to measure SES and its relationship with health.

4. SES and health

The aspects related to SES that are curtailed over the course of life can be divided into two groups. The first is the physical environment,

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