

Zuzanna Drożdżak
Uniwersytet Jagielloński
Swiss Tropical and Public Health Institute
University of Basel

ADVANCES AND CHALLENGES OF SOCIAL EPIDEMIOLOGY – THE SOCIAL DETERMINANTS OF HEALTH REVISITED (LITERATURE REVIEW)

This literature review revisits the concept of “social determinants of health” in light of new scientific findings and points to key research directions in modern social epidemiology. Recent evidence suggests that not only poverty but also inequality and perceived inferiority exert a detrimental influence on one’s health. It is also now clear that socioeconomic position influences health via various pathways, such as health behaviors, access to health care, environmental exposure, and psychosocial processes. At the same time, there is no definite conclusion as to the leading mechanism that would translate social position into morbidity and mortality. The need for causal explanations has opened up an important field for sociological investigation. Given its increasing international currency and the need to broadly address social inequalities in policy actions, it is time to bring this highly meaningful topic also to our research agenda.

Key words: social determinants of health; health inequalities; literature review; SES; socioeconomic status.

Introduction

Health disparities are most often defined as significant differences between two populations in terms of morbidity, mortality, and overall burden of disease. Socioeconomic deprivation and social inferiority are their main drivers (M. Marmot and Wilkinson 2006). A normative evaluation of these disparities as unfair and unacceptable is expressed in the notion of health inequality or health inequity. Since it has become clear how huge the health loss due to health

Centrum Ewaluacji i Analiz Polityk Publicznych, e-mail: zuzanna.drozdak@uj.edu.pl

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inequalities is (Wolfson et al. 2014), a term was coined that inequality comes „under the skin” of all of people. Research and policy actions against health inequalities thus started to proliferate worldwide.

This literature review revisits the concept of “social determinants of health” and briefly summarizes what is known worldwide about socially induced health inequalities and pathways linking socio-economic status (SES) with health, in the hope of reinforcing interest among sociologists in social epidemiology—a discipline that studies the connections between social structure and disease patterns. It presents a broad picture behind the SES–health relationship and points to the most important research directions within the field.

The article is structured as follows: first, the universal character of the SES–health relationship is described; second, two major research paradigms are outlined (social causation and social selection). Subsequently, the milestones of SES–health research are presented, followed by a conceptual model (synthesized by the author based on the literature review) of how socioeconomic status affects health through access to health care, health behaviors, and environmental and psychosocial factors. Finally, some implications of current advances in social epidemiology are made for further research.

Methodology

The literature for this narrative review was chosen by using the snowball approach. In the first place, classic literature on the subject was reviewed in order to identify crucial themes. Then other relevant texts were included that were either based on references used by the authors of the classic texts or based on the results of scientific database searches. All of the papers cited in the review fulfill at least one of the following criteria: high number of citations, introducing innovation to the state of art, or contradicting general beliefs in the field. Priority was given to possibly recent publications and evidence from developed, high-income countries. The extensive literature on global health discrepancies between poor and rich countries is mostly uncovered in this article. For comprehensive reports on this subject, please consult Berkman and Kawachi (2000); M. Marmot and Wilkinson (2006) and CSDH WHO (2008).

Law of social status and health

Social conditions as a basis for health have been researched for almost two centuries now (Adler & Stewart 2010:7), showing very consistently that those who hold a higher position on the stratification ladder also tend to be healthier

and live longer (N. Adler and Ostrove 1999). This relationship's particular significance comes from recognizing how universal and persistent this phenomenon is (N. Adler and Ostrove 1999), i.e. it is stable in time regardless of the changing epidemiological or geographic context, it is present throughout the whole life course, and it is observable with regard to almost all health conditions.

New medical knowledge and practice, such as improved nutrition, sanitation, and control of infectious diseases through vaccination, have immensely improved the overall health of the global population but have not filled the gap between the rich and the poor; for example, in less developed countries, such as Sierra Leone with life expectancy at birth equal to 46 years in 2012, people were dying mostly from infectious diseases (malaria ranked no. 1, lower respiratory infections, HIV/AIDS, tuberculosis, and meningitis ranked within the 10 major causes), malnutrition (ranked no. 3), or birth/neonatal complications (ranked nos. 4 and 10, respectively). In highly developed countries, such as Japan, where life expectancy at birth was 84 years in 2012¹, the main causes of mortality were stroke (rank no. 1), lower respiratory infections and chronic obstructive pulmonary disease (ranked nos. 2 and 8, respectively), followed by heart diseases (rank no. 3) and cancers (lung rank no. 4, stomach rank no. 5, colorectal rank no. 6, and liver rank no. 7)². These examples represent the two ends of the epidemiological transition from low life expectancy and high fertility to high life expectancy and low fertility and are associated with different morbidity patterns (Omran 2005). Yet in both of these countries, social advantage is also beneficial to health, as it is consistently everywhere around the globe (Gonzalez-Gonzalez et al. 2014; M. Marmot 2005; Victora et al. 2003). Some deviations from this generally universal pattern were, however, noted only in some specific circumstances and in less developed countries; for example, in a study of more than 500 civil servants in Nigeria, a reversed socioeconomic pattern of hypertension prevalence was noted in men (but not in women). Even after the adjustment for age, those in senior positions were more likely to develop hypertension than those in junior positions, and the generally higher body mass in the senior group explained this pattern only partially (C. H. Bunker et al. 1992). These and similar findings reported from Ghana (Addo, Smeeth, and Leon 2009) reflect the growing global importance of non-communicable diseases, and particularly of cardiovascular diseases (Lozano et al. 2012). At the moment it is not clear why these rare exceptions occur.

The relationship between social status and health is prominent almost regardless of the health outcome. Whether it is morbidity, mortality, or disease

¹ Source: for both Sierra Leone and Japan life expectancy pulled from Global Health Observatory Data Repository, World Health Organization, accessed 20.05.2014.

² 2 Source: Institute of Health Metrics and Evaluation, University of Washington, <http://ihmeuw.org/1z1n>, accessed 21.05.2014

management – the socially advantaged do better. A slightly more complicated picture can be observed only with regard to certain types of cancer, which in most but not all cases are less prevalent in the lower socioeconomic layers of society. The exceptions are cancers that lack the possibility of early detection and whose occurrence is less manageable through preventive measures (Adler and Ostrove 1999; Phelan and Link 2005). Nonetheless, it is very well documented now that cancer survival in Western countries is always lower for the lower socioeconomic classes, even for those types of cancers that lack the social gradient in occurrence (Kogevinas and Porta 1997); for example, racial inequalities in cancer survival in the United States were shown to widen together with the level of the cancer's amenability (Tehranifar et al. 2009).

Finally, the social gradient in health is present from early childhood and grows steeper as people age, with a peak during middle age, i.e. between 40 and 65 years old (Adler and Stewart 2010; Galama and van Kippersluis 2013). Such an observation lends some credibility to the hypothesis of the cumulative, life-long growing advantage of high over low social layers (Ben-Shlomo and Kuh 2002; Kuh, Ben-Shlomo, and Lynch 2003). However, according to many sources, health disparities converge in old age, and this convergence is unlikely to be caused by the selective mortality of those who are most sick and are more likely to belong to the lower societal classes (Baeten, Van Ourti, and van Doorslaer 2013). Therefore, it might truly hold that old age acts as a leveler of health inequalities (Willson, Shuey, and Elder 2007). Such a convergence might be due to the smaller significance of professional prestige and to entering retirement pension plans which flatten one's income (van Kippersluis et al. 2010; Turek, Perek-Białas, and Stypińska 2015), and the general, more rapid health decline in all social strata after a certain biological barrier of a healthy life has been crossed (Asakawa and Senthilselvan 2012; van Kippersluis et al. 2009). Despite this convergence and the leveling property of older age, status-related health disparities persevere to the end of people's lives; for example, Minkler and colleagues showed that in a prospective cohort of 55- to 84-year-olds, those from the higher social ranks were still performing better than their less socially advantaged counterparts (Minkler, Fuller-Thomson, and Guralnik 2006).

Social status as a fundamental cause

In developed societies that meet all of their members' basic needs and typically provide access to at least basic medical care, people frequently die of diseases that can be relatively easily prevented, postponed or well-managed, such as cardiovascular or metabolic disorders. The biggest challenges to health in the Western world are currently posed not by unpredictable epidemics but by

unhealthy nutrition, lack of physical movement, and tobacco/alcohol consumption. This shift in the illness pattern was brilliantly summarized by an observation that modern societies are now shifting from “diseases of chance” to “diseases of choice”. This once again evokes the question as to why exactly the socially privileged consistently perform much better in preventing, managing, and curing these diseases of choice. The most widely accepted explanation indicates their relatively easy access to numerous resources, such as money, knowledge, prestige, power, and beneficial social connections. All of these provide potential to avoid health exposure or to minimize negative health impact. A useful framework for understanding this phenomenon was provided by Diderichsen and Hallqvist, who argued that there are four mechanisms which generate health inequalities (Diderichsen, Evans, and Whitehead 2001). These mechanisms are: general social context (e.g. type and stability of the social structure, cultural determinants of health risk, prevalence of infectious diseases in the society, etc.), differential exposure to factors deteriorating one’s health (e.g. overcrowding, which might facilitate infectious disease transmission), differential vulnerability when exposure occurs (e.g. whether one is immunologically strong, well nurtured and therefore less likely to contract a disease), and differential consequences once an adverse health event occurs (e.g. access to early diagnosis and treatment).

Link and Phelan, departing from the observation of the persistence and stability of the association between social condition and health despite changing epidemiological contexts, boldly claim that it is “a fundamental cause” of disease (Link and Phelan 1995; Phelan, Link, and Tehranifar 2010). Such an approach highlights the critical problem of reproducing the mechanisms which translate social standing into morbidity and mortality. The theory of Phelan, Link and Tehranifar (2010) finds some empirical justification in the research. An example is provided by Kunst and colleagues from The EU Working Group on Socioeconomic Inequalities in Health, who showed that manual male workers from 11 European countries were up to 2.6 times more likely to die between the ages of 45 and 59 as compared with non-manual workers from the same countries (Kunst, Groenhof, and Mackenbach 1998). The authors noted that despite the universal pattern of smoking in Southern European countries in the 1980s, the lower social class suffered from higher mortality than the upper class. A similar pattern was also detected in Hungary by Mackenbach and colleagues (Mackenbach et al. 2008). This means that excess mortality due to lung cancer in the group of manual workers (versus non-manual workers) was *not* caused by their excessive smoking. On the contrary, these results suggest that either some other factors exacerbated the health outcome of these manual workers or some protective circumstances reduced mortality in the group of non-manual workers. This and numerous similar observations suggest, in accordance with the theory of a fundamental cause, that there is a need to explore socially-based general

susceptibility to illness (Syme and Berkman 2009) rather than the fragmentary, narrow circumstances that lead from exposure to a disease.

Social causation vs. social selection

The very persistent and strong association of social status and health is not questioned at this point, given the vast body of evidence, and the theory of fundamental cause is currently a dominant perspective on this association. However, the influence of social position on health seems – at least to some extent – as plausible as the reverse direction of the association. Researchers have so far approached associating socioeconomic status with health twofold: by either applying a model of **social causation** – in which it is assumed that a low SES increases exposures to health hazards while a high SES allows to obtain resources that will control, avoid, or neutralize those exposures; or a model of **social selection (drift)** – in which poor health is an obstacle in obtaining a high level of education, good employment, high income, and in developing beneficial social networks (García-Gómez, van Kippersluis, et al. 2013), therefore it impedes the opportunity for social promotion (Giddens 1973; Goldthorpe 1980). The existence of social selection mechanism has been confirmed in some scientific studies. Bartley and Owen (Bartley and Owen 1996) presented a differential pattern in health selection based on an example of English men in productive age, followed from the 1970s to 1990s. These data reveal that manual workers who suffered from prolonged illness were much less likely to be employed than similar non-manual workers. Hence the conclusion is that a manual job might be more health selective than other occupations (Dahl 1996), a mechanism which again works to the disadvantage of the lower working classes. The study by Chandola (Chandola et al. 2003) is one of very few to use structural equation models – considered to be the most powerful analytical technique that can be applied in observational studies due to the fact that it allows to control random measurement error as well as the direction of the relationship. The only finding of this comprehensive analysis supporting the social selection hypothesis was that mental health problems deepened financial deprivation; however, this effect was around 2.5 times smaller than the effect of social status on health. Following these findings, Warren (Warren 2009) specified three separate models that estimated the impact of health (measured in terms of overall health, musculo-skeletal health, and depression). Again, this analysis yielded a very coherent result that childhood socioeconomic status influenced educational attainment with much greater force than childhood health. All of these results suggest that the social causation effect has a larger magnitude than the social selection effect, which is particularly true when more sophisticated analytical tools are applied.

This is also consistent with the other literature (Adler and Ostrove 1999; Warren 2009; Wilkinson 1986). However, the adverse effect of the health burden on socioeconomic conditions should not be belittled; for example, it has been shown that a serious health event followed by hospitalization significantly increases one's chances of further unemployment (Cardano, Costa, and Demaria 2004), consumes savings, and reduces one's subsequent income (García-Gómez, Kippersluis, et al. 2013). It would be most accurate therefore to say that social status coexists with health in a self-perpetuating cycle (Huure et al. 2005; Lloyd, Newell, and Dietrich 2004), and we frequently lack the appropriate perspective and sufficient data to disentangle various effects, which is extremely difficult even when cutting-edge analytical techniques are applied.

From poverty to subjective inferiority – advances of social epidemiology

Poverty and health

On the sociological side, the pioneer of interest in health inequalities was Friedrich Engels, who believed that illness might be a consequence of economic deprivation. Engels was probably the first scientist to perform a geospatial analysis of mortality and affluence (Lloyd, Newell, and Dietrich 2004). This study showed that mortality is lower in better neighborhoods (Engels 1845). However, the first scientist who laid the foundations for the new discipline of medical sociology was a Prussian doctor, Rudolf Virchow (Adler and Stewart 2010; Conrad 2008). Virchow was an emissary of the Prussian government to investigate the outbreak of typhus in Upper Silesia, which was ethnically Polish but under Prussian rule in 1848. The main point of the Virchow report was that effective prevention of disease and mortality required bold political and educational reforms. He expressed this point overtly (Virchow 2006: 2103):

The logical answer to the question as to how conditions similar to those that have unfolded before our eyes in Upper Silesia can be prevented in the future is, therefore, very easy and simple: education, with its daughters, liberty and prosperity....

At that time such a statement, although fitting well with the rise of early socialist ideas in England and France, was an audacious novelty. The attention that was paid to the socioeconomic rather than medical grounds of a disease set the first milestone to understanding the relationship between socioeconomic status and health. In fact, all early works of social epidemiologists concentrated on researching how health deteriorates as an effect of poverty through the intervention of such obvious factors as overcrowded housing, unemployment,

bad working conditions, and lack of access to health care (Syme & Berkman 2009: 24). For a long period of time it was commonly assumed that raising the income above some vaguely defined threshold would eradicate health inequalities together with life hardships (Adler and Ostrove 1999). The reality turned out to be much more complex – which we only started to learn about in the 1980s.

Inequality and health

Particularly good evidence regarding the intricate and perplexing links between social status and health comes from Anglo-Saxon countries, such as the United Kingdom and the United States, where special reports have been commissioned for roughly the past 30 years in order to inform and guide policymakers³. The significance of the British Black Report (Black 1982) lies in the recognition that the introduction of universal health coverage in 1948 did not prevent increasing disparities in mortality. Nowadays we can also observe that an overall increase in life expectancy generally does not result in the shrinking of health inequalities (Graham 2004). This is at least partially due to the fact that people from the lower layers of society uptake health-promoting changes less often than those from the higher layers, despite having even higher needs (Niederdeppe and Levy 2007; Smith, Bartley, and Blane 1990). Another British study that largely contributed to a complete shift in how health inequalities are perceived today was a study of 18,000 British civil servants, known as Whitehall I, which was launched in 1967 and completed in the early 1980s. The most important finding of the first Whitehall study was that there existed a linear relationship between social status and health, both in terms of mortality and risk factors, within a relatively uniform group of working and earning men with good access to health care. The discovery of a clear gradient in health along the line of an occupational hierarchy undermined the widely held belief that health disparities stem only from poverty. Such an observation fostered another wave of interest in the relationship between social status and health, this time with more focus on social class rather than on a purely economic factor. These included works on the second edition of the Whitehall study, undertaken under the guidance of Sir Michael Marmot and intertwined with the parallel research of Richard Wilkinson. The latter is currently the most well-known proponent of the thesis that inequality in income distribution rather than insufficient income only deteriorates the health of individuals and whole societies (R. G. Wilkinson 1994). Income inequality could affect health through lower social cohesion, psychosocial stigma of those at the lower rungs of society, and underinvestment in public

³ These are: Black report 1982, Whitehead Report 1987, Acheson Report 1998, Marmot Review 2010 in England and The Report of Secretary's Task Force on Black and Minority Health, 1986 in The United States.

infrastructure (which stems from insufficient taxation of the rich) (De Maio 2010). The theory of inequality as a fundamental cause, which Richard Wilkinson drafted together with Kate Pickett (Wilkinson and Pickett 2009), was nevertheless also subjected to critique. Tomasz Szlendak and Arkadiusz Karwacki, who replicated some of the observations made by the British epidemiologists (in *Studia Socjologiczne* in 2010) (Szlendak and Karwacki 2010), found that the correlation between average self-assessed health and the inequality level was rather low. More robust studies questioned Wilkinson's thesis (Coburn 2004; Wagstaff and van Doorslaer 2000) (Beckfield 2004) as well.

Subjective perception of social position and health

Since we became aware, in the 1980s, that there is a consistent social gradient in health that can by no means be reduced to the rich–poor distinction, numerous efforts were undertaken to describe and explain this phenomenon, yet with few conclusive results. What constitutes the third milestone in the history of research on social status and health, though, is the discovery that social position influences health *per se* and that this influence cannot be fully explained by its operational components, such as income (wealth) and education. This realization appeared at the beginning of the 21st century as a consequence of researchers' interest in subjective social status (as an individual's self-perception of his or her place in society) (Adler et al. 2000). A thorough analysis of the association between subjective social status and health conducted by Demakakos and colleagues (Demakakos et al. 2008) confirmed previous, less comprehensive results. They showed that the subjective social status of an elderly population, adjusted for occupational class, education and wealth, remains predictive for all major subjective or self-reported health outcomes, such as: self-rated health, depression, and long-term illness or disability. The association of subjective social status with health after adjustments was weaker but still clearly noticeable also for some clinical or laboratory measures, such as fibrinogen in men and diabetes, waist circumference, C-reactive protein and HDL-cholesterol in women. There are, however, two weaknesses of this otherwise highly informative study: first, that it operates on cross-sectional data which are very susceptible to confounding, second, that it is prone to a "random high bias" due to multiple measurements (Fleming et al. 2011). Hence, there was also a need for a longitudinal analysis, such as a subsequent cohort study (Chen et al. 2012). In this research, elderly participants subjectively graded their own social status on a 10-point scale, which became the basis for their classification to three classes: lower, middle, and higher. It turned out that after 4 years of the base line measurement, those from the lower social class were almost 2 times more likely to develop a functional decline than those from the higher class. What is particularly striking in this study, though, is that health disparities between those who

graded themselves low versus high were persistent and statistically significant even when the impact of one's economic situation and education on that person's health was additionally controlled for. Such results illustrate that self-perception of being inferior in the social structure produces a negative outcome on its own in addition to financially, educationally, and occupationally mediated pathways.

Indeed, there must be something inherent to social status itself that places the members of lower classes at worse positions in terms of health. Some clues about the biological pathways linking social inferiority with health might be found in the results of research conducted in laboratories. Many of the disorders that significantly contribute to the global burden of disease – such as obesity, diabetes, cardiovascular disease, or depression – also share a common link with social status in animal models. These demonstrate that the psychosocial components of low group status, such as experience of social defeat, lack of safety, and lack of peer support, may converge into physiological processes such as glucocorticoid signaling, immune activity, and central nervous system plasticity, resulting in chronic dysregulation of these functions. In a recent meta-study (Cavigelli and Chaudhry 2012), the authors compared results from multiple animal experiments that had been carried out on different species and in different experimental paradigms. The prevailing picture uncovered by these data was that manipulating the social status of the animals an experimental, highly controlled setting had a direct and robust effect on many biomarkers associated with health and resilience to immune challenge. Given all of the differences between human experience and animal models, such experimental data provide some level of insight into how the subjective component of low social standing, regardless of objective education, occupation, and wealth, might exert a detrimental health effect on its own. More about these psychosocial pathways will be elaborated on below.

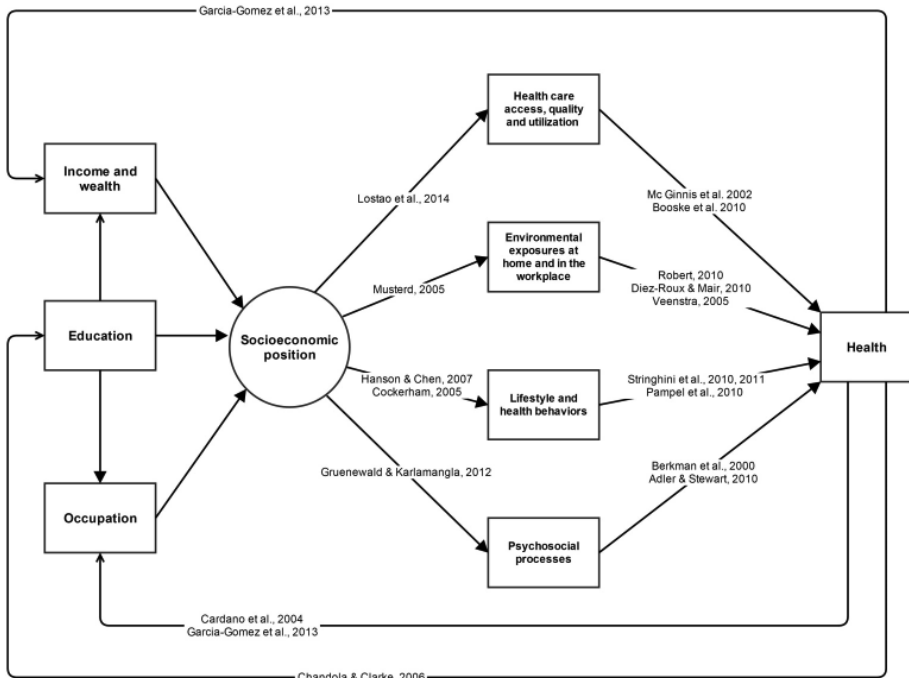
Social determinants of health

The Commission on Social Determinants of Health, formed by the World Health Organization, defines social determinants of health as “the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness.” (WHO 2008) Chaired by Sir Michael Marmot, the Commission underlines the economic, social, and political forces that shape life circumstances and calls for social rather than medical action. It advocates that taxation, pensions, benefits, and education, among other measures, will alleviate the devastating effect of poverty, social inferiority, and exclusion (understood as being marginalized as an effect of external factors, such as unemployment, racism, or discrimination). The importance of non-medical factors for health was

also emphasized by the Institute of Medicine (IOM), an independent, prestigious research institution in the United States. The IOM called the identification of social and behavioral pathways leading to health and disease “the greatest advances in understanding the factors that shape population health over the last two decades” (IOM 2003). Unfortunately, despite a general consensus on the crucial role of the social determinants of health, science is still lacking conclusive answers to dire questions such as: What are the exact pathways linking social standing and health? What is the relevant importance of each of these pathways? What is the causal explanation of these observed associations? and Are there any latent, underlying factors that further explain these observed associations?

Some tentative answers to these questions are examined below, based on the conceptual model presented in Figure 1. This model is based on a synthesis of the literature and highly simplified for the sake of clarity. It is important to remember, though, that all of the listed pathways and factors intertwine, as SES impacts health both directly and indirectly strongly.

Figure 1. The conceptual framework of social determinants of health and the main references



Source: self-elaboration

Health care

High spending on health care does not necessarily correlate with a better health outcome at an aggregate level. A classic and very frequently cited example is the United States, where health care expenses are the highest in the world (nearly 2.8 trillion dollars [10¹²], with nearly 9 thousand dollars per capita in 2012, which is over 10 times more than in Poland), while life expectancy in this country is relatively low (life expectancy at birth in 2012 for both sexes was 78.74 years)⁴. Also, at the individual level the association between health care and health is weaker than expected, and this might be attributed to the fact that prevention, rather than treatment, plays a decisive role in health (McGinnis, Williams-Russo, and Knickman 2002). Some attempts to assess the relative contribution of health care to health outcome have typically yielded results ranging from 10 to 30%, according to a recent review (Booske et al. 2010). Most sources indicate that medical care contributes only to about 10% of the health outcome, yet this is a cliché rather than a well-established scientific fact. The primary source of this information was an expert assessment (*Ten Leading Causes of Death in the United States* 1980), followed by popular press and some scientific sources (McGinnis, Williams-Russo, and Knickman 2002), yet without good justification. While it is important to recognize the critical role of the non-medical factors of health, it would be inaccurate to deny medicine its share; for example, the 3 out of 7 years of overall life expectancy that increased in the USA in the second half of the 20th century can be attributed to medical advancements, which constitutes a very substantial contribution (Bunker, Frazier, and Mosteller 1994; Bunker 2001). All quantitative estimation of medical contribution to health can only be considered tentative, given the imperfection in research methodology, the differences in the choice of indicators and endpoints as well as the very limited capacities of measuring interaction between the estimated factors.

The utilization of health care among lower and higher social classes has been estimated as relatively balanced. A recent review (Lostao et al. 2014) concluded that people from lower socioeconomic groups visited a general practitioner and used in-patient care slightly more often than those from higher socioeconomic groups (typically with control for age and health needs). Wealthier people, in turn, prevailed in the number of visits to specialists (Or, Jusot, and Yilmaz 2008). The socioeconomic gradient seems to be higher, though, in countries which use a social insurance funding scheme for health care (e.g. France) rather than a tax-based national system (e.g. England or, to some extent, Poland), as the direct out-of-pocket payment and subsequent reimbursement procedure might discourage less affluent and educated individuals from seeking medical advice (Or, Jusot,

⁴ Source: own calculation based on The World DataBank data, World Development Indicators, accessed 10.06.2014.

and Yilmaz 2008). On the other hand, some studies claim that the social gradient in health care utilization might be partially inflated by other factors, such as the geographical proximity of a specialist clinic (Sørensen, Olsen, and Vedsted 2009). Studies generally suggest that the financial resources associated with a high socioeconomic position do indeed play a role in access to health care, but they generally also play a role in nearly every other aspect of human life, such as the quality of housing and the job environment, leisure activities, quality of food, possibilities to take sick or maternal leave, and so on. And these seem to be of much greater importance.

Health behaviors

A recent review of the major causes of death in the United States (Mokdad et al. 2014) revealed that 18% of all deaths in the year 2000 were caused by tobacco consumption, and a further 16.5% by poor diet and lack of physical activity. The other identified causes of death did not exceed 3.5%. These statistics indicate how important healthy habits are to health and longevity.

Eating healthy and exercising is affordable to most people, while smoking, in turn, constitutes a significant expense. Yet a socioeconomic gradient in health behaviors exists here (Droomers, Schrijvers, and Van de Mheen 1998). Statistically speaking, people from lower socioeconomic strata do worse in health promotion and prevention. The social gradient in health behaviors is relatively small in adolescence but grows steeper as people age (Hanson and Chen 2007). It has been speculated that the sources of these patterns are stress and anxiety, which call for immediate relief, and the poor and deprived members of society have more exposure to these (Krueger and Chang 2008; Lantz et al. 2005; Layte and Whelan 2008). This inclination toward unhealthy treats is further exacerbated by a more fatalistic view of the future and a lower sense of agency amongst the disadvantaged group (Lynch, Kaplan, and Salonen 1997; Niederdeppe and Levy 2007). Other explanations underline the structural sources of social gradients in health behaviors, such as lifestyle. That class position is very strongly connected with patterns of consumption is a relatively novel concept in the health sciences (Cockerham 2005), but it has been known to sociologists for a long time (Bourdieu 1984).

Many studies have examined to what extent socioeconomic disparities in health can be attributed to engagement in unhealthy behaviors by disadvantaged groups. A recently published comparative analysis of two extensive longitudinal studies is contradictory. The British Whitehall study (n=9,590, followed in the years 1985-2009) suggested that health behaviors explain as much as 75% of the disparity in mortality between members of the highest and lowest occupational groups. At the same time, the French longitudinal study GAZEL (n=17,760, followed in the years 1990-2004) estimated it to be at a level of

19% only (Stringhini et al. 2011). The authors suggested that the cultural differences between these two countries might have played a significant role in producing these two distinct findings. What is generally clear and scientifically well established, though, is that while health behaviors do explain some of the variation in health among different socioeconomic groups, they do not explain the association between SES and health fully (Pampel, Krueger, and Denney 2010; Stringhini et al. 2010).

Environmental factors

Residential segregation based on socioeconomic status is, with a few exceptions, relatively low in Europe, while in the USA social class defines the quality of neighborhoods to a great extent (Musterd 2005). This pattern partly explains the proliferation of American studies on how environmental factors influence health. The connection between environment and health takes place through at least two mechanisms: first, through the physical qualities of the living conditions, and, second, by their social characteristics (e.g. level of unemployment, poverty and crime).

Some of the purely environmental factors that affect health are natural and industry toxins (e.g. mold, lead paint, and pesticides), water and air pollution, noise, traffic, and congestion of buildings and inhabitants. These hazards are present not only at and around the home, but also in the workplace, where typically the lower classes of manual workers are more exposed. Neighborhoods can influence the health perspectives of an individual by providing (or not) opportunities to see a doctor (Sørensen, Olsen, and Vedsted 2009) or to find decent employment. Diez Roux and Mair (2010) also reported examples of studies which confirmed that the quality of neighborhoods can boost or inhibit the propensity of inhabitants to walk for transportation and recreation, or to perform other forms of physical activity. Additionally, it has been well established that in the USA the greater density of supermarkets offering fresh and healthy products has a positive influence on the diet of the population (Larson, Story, and Nelson 2009)⁵. Therefore, it comes as no surprise that the chances of developing hypertension, obesity, and diabetes among those who live in poor and underserved areas are high (Auchincloss et al. 2008; Chaix et al. 2008; Papas et al. 2007). A relatively new observation is that environmental traits, particularly disorder and violence, might also induce depressive symptoms (Mair, Diez Roux, and Galea 2008).

Another group of studies looks directly at the socioeconomic characteristics of neighborhoods, often conceptualized as a composite of socioeconomic

⁵ This effect is not likely to be strong in Europe, where the access to high quality foods is generally easier and the distances between residential areas and services much smaller.

positions of the participants and measured, for example, by a median income or a percentage of inhabitants with a particular level of education (Robert 1999). Research shows, for example, that worse socioeconomic characteristics of the neighborhood are related systematically to higher morbidity and mortality (Marmot et al., 2010: 38). There is now a considerable amount of evidence that the quality of the neighborhood, when controlling for the socioeconomic status of its inhabitants, still moderately affects health (Robert 1999). This means there is an added effect of the environment on one's health (Diez Roux and Mair 2010), which some attempt to explain by pointing to social capital as a vital community characteristic (Veenstra et al. 2005). Social capital is linked with beneficial social relationships, good social organization of life, respecting norms of reciprocity, and civic participation. All of these factors have a profound impact on health, as first noted by Émile Durkheim in his study of suicide, and which has been regularly observed by epidemiologists ever since (Berkman et al. 2000).

Next to these two major themes in research on the environmental dimension of health is a group of studies that look into income inequality in communities. These studies test Richard Wilkinson's aforementioned theory of income inequality as a major cause of disease and social problems. Empirical evidence exists both to support and reject this theory; for example, Hou and Myles ran a sophisticated analysis to show that the less affluent had better health outcomes when living in higher income neighborhoods (2005). Such findings once again challenge the credibility of Wilkinson's above-mentioned hypothesis on the crucial importance of income inequality rather than absolute income.

Psychosocial processes

General susceptibility to disease, which a lower socioeconomic status induces, must have biological justification. Some propositions have been presented so far and their common denominator is stress. Allegedly those at the lower rungs of the social ladder are particularly likely to suffer from stress as they are exposed to more life hardships than those at the top (Sapolsky 2005).

Stress, which can generally serve as a stimulator to perform better, can have a very damaging effect when it exceeds individual capacities to handle it (Adler and Stewart 2010). This adverse effect is believed to be particularly strong when stress is chronic, which elevates damage done to the neuroendocrine, nervous, immune, metabolic and cardiovascular system (Gruenewald and Karlamangla 2012). Medical studies have confirmed the credibility of the link by finding an elevated level of hormonal biomarkers of stress (such as cortisol) (Cohen, Doyle, and Baum 2006; Rosmond and Björntorp 2000) and inflammation (e.g.

C-reactive protein, fibrinogen) (Brunner et al. 1996; Koster et al. 2006) in those of lower social status. There is also evidence that the aging process, as measured by the white blood cells' telomere length (a DNA feature), proceeds faster in low-SES individuals (Cherkas et al. 2006). Surprisingly, when looking at subjective, self-reported loads of stress the gradient seems to be reversed – the more advantaged report being more under pressure (Krueger and Chang 2008; Schieman, Whitestone, and Van Gundy 2006)⁶. A simple, medical explanation is that personal perception of stress might not necessarily correspond to its physiological measures (Kirschbaum et al. 1999). The other, non-medical explanation is that differences might occur between a reporting pattern the rich and poor.

Specialists agree that those at low socioeconomic positions have comparatively smaller capacities to deal with stress due to smaller capital – whether financial or social. It is believed that it is easier for the socially advantaged to develop a high level of self-esteem, personal agency and internal locus of control (Pampel, Krueger, and Denney 2010; Wagstaff and van Doorslaer 2000). Such a drive for making a change in one's life, and the belief in personal capacities to control the course of life events, build resilience against stress and therefore alleviate its negative consequences (Thoits 2006). Another type of resource that acts protectively against the adverse consequences of stress (and probably other health-damaging factors) is social support. Instrumental social support is a particular kind of help or service, e.g. financial support, help with performing a particular task, advice, etc. Even more important to health, though, is emotional support from significant others (Smith and Christakis 2008). It has been, for example, well established that married people are generally healthier than unmarried or widowed people (Smith and Christakis 2008). Little is known, however, about whether this effect can be attributed to the marriage itself or if marriage is just one of many forms of a dyad (with a friend, sibling or neighbor) that can reinforce health. Other important pathways linking a social network (of which a dyad is the simplest form) and health are: social normative influence (e.g. whether smoking is socially accepted in a group or not, what the patterns of leisure activity are) and social participation or engagement (which enhances both mental and physical health, particularly in the older population) (Berkman and Glass 2000).

Recently, the concept of “allostatic load (AL)” was proposed as a replacement for stress in explaining the adverse health consequences of low social standing. AL is supposed to encompass the psycho-physiological pathway

⁶ In fact, the American nationwide longitudinal study by Krueger and Chang brings about more surprises, showing that lower self-assessment at baseline stress was predictive of death, which actually poses even more questions to the whole assumption that high stress level is detrimental to health.

between the impact of other factors, such as genes and health behaviors. Operationally, AL is a complex scoring system, i.e. an index that is supposed to cover a wide spectrum of health biomarkers in various bodily systems and, therefore, to illustrate the burden placed on a human organism in a more comprehensive way (McEwen and Seeman 1999). A social gradient in allostatic load was found across all age categories of life (Gruenewald and Karlamangla 2012).

Genes and upbringing - indirect selection

Nowadays, managing health and disease requires the constant performing of an array of complex intellectual operations, e.g. finding information, predicting, prioritizing, or negotiating. Some researchers link the tendency of lower socioeconomic groups to fall sick more often and recover with more difficulty to their alleged smaller cognitive capacities, which are necessary to perform these tasks, as well as to self-discipline (frequently operationalized as the ability to delay gratification). There is some empirical evidence to support this point; for example, Goldman and Smith (Goldman and Smith 2002) demonstrated that the best educated patients were performing much better in the self-management of HIV and diabetes, both of which are serious chronic diseases that involve a strict therapeutic regimen. In a cross-sectional study of 2500 Dutch men and women, Droomers and colleagues showed that some psychosocial characteristics, such as the external locus of control, parochialism (being closed, irrational, seeing only the small picture), and neuroticism (nervousness, instability) increased the odds of physical inactivity and were much more common amongst the lower educational groups (Droomers, Schrijvers, and Van de Mheen 1998). That educational attainment has such a strong connection with personal traits might have two explanations that take us back to the perennial dilemma of nature versus nurture.

The first proposition is that education itself promotes self-confidence and self-discipline and enhances cognitive capacities that are beneficial for future health and longevity. The other explanation is that there is one underlying cause that influences both educational attainment and health (through high cognitive and psychological capacities); therefore, the correlation between the level of education and health is, at least to some extent, spurious (Hemmingson, Lundberg, and Diderichsen 1999). This proposition is also known as the “indirect selection” hypothesis (Warren 2009: 2127). Such an underlying cause could be, for example, genetic; however, such a hypothesis is not supported in the health sciences given the current state of evidence (Link 2008). Circumstantial evidence for genetic factors *not* being the primary cause of socioeconomic health inequalities was provided by twin studies, e.g. studies on more than 300

American twin sisters revealed that genetically identical women who belonged to different occupational classes also diverged in terms of health (Krieger et al. 2005), which would suggest that socioeconomic life circumstances differentiated the health perspectives of monozygotic, therefore genetically identical, siblings. A downfall of the proposition that genes determine both socioeconomic status and health is the fact, that there exists no such a thing as universally “good genes” and genes do not have the explanatory meaning on its own. As an alternative, the concept of intelligence is of ten introduced. The concept of intelligence as a hereditary and biologically (e.g. genetically) based trait was however entirely rebutted by Steven J. Gould (1996). It was also demonstrated that the association between intelligence and health is attenuated when education and income are controlled for, and no reverse pattern was noted (Link et al. 2008). This means that education and income, at least to some extent, explain why intelligence predicts health; but intelligence does not explain why education and income predict health. If the cognitive capacities, conscientiousness, orientation for the future, and internal locus of control do play an important role in health – and there are clues that they might – then they might be very strongly connected with patterns of socialization in the family and the normative values that it cherishes, and these in turn will be affected by the family’s socioeconomic status.

Discussion: toward new research on health inequalities in Poland

In this article briefly presented what is generally known about the influence of socioeconomic factors on health. Looked at the evolution of scientific discourse on socioeconomic inequalities in health, with attention initially paid to poverty, through a subsequent focus on economic inequality, to current interest in social inferiority. Further on described the two major paradigms in social epidemiology research: social causation and social selection. Finally, explored some pathways linking socioeconomic position with health. The general picture revealed by this review is that the relationship between socioeconomic position and health has been very well established, yet the scientific community remains puzzled with regard to the complexity of this issue. Social epidemiology contains multiple unresolved threads and research topics that should be undertaken, also in Poland.

Interest in socioeconomic health inequalities, elevated by the Black Report in the 1980s, was echoed in the works of prominent Polish sociologists (Duch and Sokołowska 1990; Wnuk-Lipiński 1990). Many other scholars acknowledged the importance of the socioeconomic characteristics for health and continuously included socioeconomic variables in their analyses of health determinants, or

health in general (Indulski and Matulewicz 1986; Krzyżanowski and Wojtyniak 1982; Ostrowska 1983, 2001; Titkow 1983). These and other works that often tackle socioeconomic health disparities somewhat implicitly remain to be the major sources of knowledge regarding health disparities in Poland before the transformation. It was, however, not until the turn of the century that a specific scientific discourse was established, mostly thanks to the works of Antonina Ostrowska (Ostrowska 1998), and then also applied in the works of other Polish scholars. Several literature reviews have focused on the topic and have turned their attention to the moral or legal aspects of the social determinants of health (Kaczmarek et al. 2007; Włodarczyk 2011; Golinowska 2007), the medicalization of health promotion (Słowska and Koziarek 2011), or the most popular explanatory models (Ostrowska 2010). There have also been several high-quality works elaborating on the spatial distribution of health (Golinowska 2011), or access to health care and health policy (Golinowska et al. 2007; Sowa 2010, 2011). Finally, there exists extensive documentation of different health behavior profiles amongst people belonging to different socioeconomic groups (Ostrowska 2000; Korzeniowska and Puchalski 2010).

However, despite this interest in socioeconomic disparities in health and the growing number of descriptive analyses, there have been very few attempts to causally explain this phenomenon at an individual level. And there are many questions to be asked. What is the relative contribution of the pathways mediating between social position and health? In what way are the components of socioeconomic position – education, income/wealth, or occupation – of importance to health? How are health-relevant life styles shaped and adopted? What is the role of health selection and intergenerational transmission of social position? How do people build health literacy, agency, and resilience against socioeconomic disadvantages? What is the basis of their choice of health-promoting or health-impeding actions? The ultimate goal of future research on health inequalities is to understand the social mechanism which generates and sustains them. But this requires that the factors contributing to health inequalities are identified, isolated from one another, and described not only in terms of the strength of the relationship but, foremost, in terms of their causal contribution to the observed patterns. This is not only basic research. Only such a deep understanding (Drożdżak 2013) of the social mechanisms and awareness of the broader societal context will allow to design effective action against health inequalities.

The input of sociologists is indispensable for two reasons in order to such understood research on socioeconomic health inequalities. The first reason is conceptual depth and soundness. Most epidemiological research is detailed and sophisticated in health measurement, but it is seriously reductionist when it comes to measuring socioeconomic position. We need multiple indicators of

socioeconomic status and social class, measured at the level of an individual, his or her family, and community, and measured in the generation of parents, children, and grandparents in order to gain deeper insight into the mechanisms that causally generate health inequalities. Epidemiologists typically treat education, occupation, and income as given, stable, and exogenous. We, sociologists, know that this is not necessarily true. The other issue is methodological. A deep understanding would be best promoted by mixed methods methodologies, where the quantitative and qualitative components coexist and provide different yet complementary insights. Within this mixed methods framework the preferred quantitative type of study is a longitudinal panel with a long-term follow-up. We now need to move beyond purely descriptive analytical techniques and start using an advanced statistical apparatus. Currently, many studies use very basic statistical techniques to measure health inequalities, e.g. quintile analysis. Such techniques are purely descriptive and should be followed by some robust multivariate techniques, such as, e.g. path analysis and structural equation models or decomposition of the concentration index (O'Donnell, van Doorslaer, and Wagstaff 2006; Wagstaff, van Doorslaer, and Watanabe 2003). The other group of particularly promising techniques would be multilevel analysis of health inequalities, e.g. studies on how individual characteristics are associated with health inequalities when traits of the social/geographical neighborhood in which the individual dwells are taken into account. In all of these cases it is important to look not only at the main effects but also at the interaction effects of some factors that are already known to contribute to health inequalities; for example, both a sedentary lifestyle and unemployment can be considered to be risk factors for premature death. Yet the joint multiplicative effect of being both unemployed and sedentary at the same time might also be significant. Qualitative research on the social determinants of health could provide invaluable insights, but ethnographic techniques are almost never used by epidemiologists or economists. Sociologists and anthropologists could fill this gap and investigate health inequalities by using a life-long perspective, which acknowledges the versatile nature of socioeconomic position and the importance of agency and resilience to acquiring high social position and health (Fuller-Iglesias, Smith, and Antonucci 2009; Obrist, Pfeiffer, and Henley 2010). The qualitative apparatus can be used within a mixed methods framework in order to identify factors contributing to inequality or, conversely, as a validating step to quantitative findings. A vast majority of quantitative epidemiologic studies are faulty of encouraging multiplicity – scientists run numerous tests and cherry pick relationships which are statistically significant (Bender and Lange 2001). Yet, at the level of $\alpha=0.05$, 1 in each 20 tests is false positive. Qualitative studies in the mixed methods design could help to assess the validity and credibility of such findings, which are always threatened by multiple measurements. In such a way the metaphorical “looking

with two eyes” (Thompson 2004) might simply mean higher chances of seeing things correctly.

Ostrowska already pointed to the fact that health statistics are collected without contextual socioeconomic information, which makes monitoring of socioeconomic health inequalities difficult (Ostrowska 1998). At the same time there exists no national health study which would allow for complex sociological analyses of health inequalities, ideally over an extended period of time. Currently, such research needs to choose between detailed information on health status and detailed information on socioeconomic circumstances. An example of the first such kind is the WOBASZ (Wieloośrodkowe Ogólnopolskie Badanie Stanu Zdrowia Ludności), which collects an abundance of information relevant to cardiovascular health, including biomarkers and anthropomorphic measurements, but only few socioeconomic variables. The second type can be represented by a majority of high quality social studies in which the question of self-assessed health is present, such as the ESS (European Social Survey), PGSS (Polish General Social Survey), EU-SILC (European Survey of Income and Living Conditions), or Social Diagnosis. The problem is that even these sources, which are very familiar to most sociologists, are under-researched when it comes to social determinants of health.

Recently, the Polish Ministry of Health, in collaboration with the World Health Organization, initiated a policy program aiming at reducing health inequalities in Poland. The otherwise informative policy report published for this occasion remains silent about the problem of class-related differences in lifestyles, the structural constraints of healthy choices, and social solidarity, expressed also in taxation (Marek et al. 2012). The discourse on health disparities does not have to be reductionist, technocratic, and bio-medically centered. We advocate for stronger involvement of sociologists in the research, discussion, and practice of unequal and unfair distribution of health in our society. Sociologists are in the position to deliver substantial knowledge and to inform policy making aimed at reducing health inequalities. In order to truly challenge socially-induced health inequalities, a broader perspective is needed that will postulate deployment of not only health-policy but also social-policy tools mitigating the risk of being socially excluded. The health policy in this respect is by far not only health promotion but also – or even most of all – leveling economic inequalities, securing safe neighborhoods, and promoting education. This broad perspective, we believe, originates from the social rather than the health sciences. It is therefore time to bring this highly meaningful topic to our research agenda.

Works cited

- Addo, J, L Smeeth, and D a Leon. 2009. "Socioeconomic Position and Hypertension: A Study of Urban Civil Servants in Ghana." *Journal of epidemiology and community health* 63(8): 646–50. <http://www.ncbi.nlm.nih.gov/pubmed/19406743> (May 23, 2014).
- Adler, Nancy E., Elissa S. Epel, Grace Castellazzo, and Jeannette R. Ickovics. 2000. "Relationship of Subjective and Objective Social Status With Psychological and Physiological Functioning : Preliminary Data in Healthy White Women." *Health Psychology* 19(6): 586–92.
- Adler, Nancy E. and Judith Stewart. 2010. "Health Disparities across the Lifespan: Meaning, Methods, and Mechanisms." *Annals of the New York Academy of Sciences* 1186: 5–23. <http://www.ncbi.nlm.nih.gov/pubmed/20201865> (March 13, 2013).
- Adler, NE, and JM Ostrove. 1999. "Socioeconomic Status and Health: What We Know and What We Don't." *Annals of the New York Academy of Sciences* 7759: 3–15.
- Asakawa, Keiko, and Ambikaipakan Senthilselvan. 2012. "Trajectories of Health-Related Quality of Life Differ by Age among Adults: Results from an Eight-Year Longitudinal Study." *Journal of Health Economics* 31(1): 207–18.
- Auchincloss, Amy H et al. 2008. "Neighborhood Resources for Physical Activity and Healthy Foods and Their Association with Insulin Resistance." *Epidemiology* 19(1): 146–57. <http://www.ncbi.nlm.nih.gov/pubmed/18091002> (May 28, 2014).
- Baeten, Steef, Tom Van Ourti, and Eddy van Doorslaer. 2013. "The Socioeconomic Health Gradient across the Life Cycle: What Role for Selective Mortality and Institutionalization?" *Social Science & Medicine* 97: 66–74. <http://www.ncbi.nlm.nih.gov/pubmed/24161090> (September 30, 2014).
- Bartley, Mel, and Charlie Owen. 1996. "Relation Between Socioeconomic Status, Employment, And Health During Economic Change." *British Medical Journal* 313(7055): 445–49.
- Beckfield, Jason. 2004. "Does Income Inequality Harm Health? New Cross-National Evidence." *Journal of Health and Social Behavior* 45(3): 231–48.
- Bender, Ralf, and Stefan Lange. 2001. "Adjusting for Multiple Testing—when and How?" *Journal of Clinical Epidemiology* 54(4): 343–49. <http://linkinghub.elsevier.com/retrieve/pii/S0895435600003140>.
- Ben-Shlomo, Yoav, and Diana Kuh. 2002. "A Life Course Approach to Chronic Disease Epidemiology: Conceptual Models, Empirical Challenges and Interdisciplinary Perspectives." *International Journal of Epidemiology* 31: 285–93.
- Berkman, Lisa F, and Thomas Glass. 2000. "Social Integration, Social Network, Social Support, and Health." In *Social Epidemiology*, eds. Lisa F Berkman and Ichiro Kawachi. New York: Oxford University Press, 1–391.
- Berkman, Lisa F., Thomas Glass, Ian Brissette, and Teresa E. Seeman. 2000. "From Social Integration to Health: Durkheim in the New Millennium." *Social Science & Medicine* 51: 843–57.
- Berkman, Lisa F, and Ichiro Kawachi, eds. 2000. *Social Epidemiology*. New York: Oxford University Press.

- Black, Douglas. 1982. *Inequalities in Health: The Black Report 1980*. eds. Peter Townsend and Nick Davidson. Harmondsworth: Penguin.
- Booske, Bridget C., Jessica K. Athens, David A. Kindig, Hyojun Park and Patrick L. Remington. 2010. *Different Perspectives for Assigning Weights to Determinants of Health*. University of Wisconsin.
- Bourdieu, Pierre. 1984. *Distinction: A Social Critique of the Judgement of Taste*. London: Routledge & Kegan Paul.
- Brunner, E. et al. 1996. "Childhood Social Circumstances and Psychosocial and Behavioural Factors as Determinants of Plasma Fibrinogen." *Lancet* 347(9007): 1008–13.
- Bunker, Clareann H. et al. 1992. "Factors Associated with Hypertension in Nigerian Civil Servants." *Preventive Medicine* 21: 710–22. <http://www.sciencedirect.com/science/article/pii/009174359290078V> (May 23, 2014).
- Bunker, J.P. 2001. "The Role of Medical Care in Contributing to Health Improvements within Societies." *International Journal of Epidemiology* 30(6): 1260–63. <http://www.ije.oupjournals.org/cgi/doi/10.1093/ije/30.6.1260>.
- Bunker, J.P., H.S. Frazier, and F. Mosteller. 1994. "Improving Health: Measuring Effects of Medical Care." *Milbank Quarterly* 72: 225–58.
- Cardano, Mario, Giuseppe Costa, and Moreno Demaria. 2004. "Social Mobility and Health in the Turin Longitudinal Study." *Social Science & Medicine* 58(8): 1563–74. <http://www.ncbi.nlm.nih.gov/pubmed/14759699> (June 2, 2013).
- Cavigelli, Sonia, and Hashim S. Chaudhry. 2012. "Social Status, Glucocorticoids, Immune Function, and Health: Can Animal Studies Help Us Understand Human Socioeconomic-Status-Related Health Disparities?" *Hormones and behavior* 62(3): 295–313. <http://www.ncbi.nlm.nih.gov/pubmed/22841799> (May 29, 2013).
- Chaix, Basile et al. 2008. "Residential Environment and Blood Pressure in the PRIME Study: Is the Association Mediated by Body Mass Index and Waist Circumference?" *Journal of Hypertension* 26(6): 1078–84. <http://www.ncbi.nlm.nih.gov/pubmed/18475144>.
- Chandola, Tarani et al. 2003. "Health Selection in the Whitehall II Study, UK." *Social Science & Medicine* 56: 2059–72.
- Chen, Bonnie et al. 2012. "Subjective Social Status and Functional Decline in Older Adults." *Journal of General Internal Medicine* 27(6): 693–99.
- Cherkas, L F et al. 2006. "The Effects of Social Status on Biological Aging as Measured by White-Blood-Cell Telomere Length." *Aging Cell* 5(5): 361–65. <http://www.ncbi.nlm.nih.gov/pubmed/16856882> (May 29, 2014).
- Coburn, David. 2004. "Beyond the Income Inequality Hypothesis: Class, Neo-Liberalism, and Health Inequalities." *Social Science & Medicine* 58(1): 41–56. <http://linkinghub.elsevier.com/retrieve/pii/S027795360300159X> (July 20, 2014).
- Cockerham, William C. 2005. "Health Lifestyle Theory and the Convergence of Agency and Structure." *Journal of Health and Social Behavior* 46(1): 51–67. <http://www.ncbi.nlm.nih.gov/pubmed/15869120>.
- Cohen, Sheldon, William J. Doyle, and Andrew Baum. 2006. "Socioeconomic Status Is Associated With Stress Hormones." *Psychomatic Medicine* 68: 414–20.

- Conrad, Peter. 2008. "Who Gets Sick? The Unequal Social Distribution of Disease." In *The Sociology of Health and Illness. Critical Perspectives.*, ed. Peter Conrad. New York: Worth Publishers, 20–23.
- CSDH WHO. 2008. *Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health. Final Report of the Commission on Social Determinants of Health.* Geneva.
- Dahl, Espen. 1996. "Social Mobility and Health: Cause or Effect?" *British Medical Journal* 313: 8–11.
- Demakakos, Panayotes, James Nazroo, Elizabeth Breeze, and Michael Marmot. 2008. "Socioeconomic Status and Health: The Role of Subjective Social Status." *Social Science & Medicine* 67: 330–40.
- Diderichsen, Finn, Timothy Evans, and Margaret Whitehead. 2001. "The Social Basis of Disparities in Health." In *Challenging Inequities in Health. From Ethics to Action.*, eds. Timothy Evans et al. New York: Oxford University Press, 1–348.
- Diez Roux, Ana V, and Christina Mair. 2010. "Neighborhoods and Health." *Annals of the New York Academy of Sciences* 1186: 125–45. <http://www.ncbi.nlm.nih.gov/pubmed/20201871> (May 25, 2014).
- Droomers, M, C T M Schrijvers, and H Van de Mheen. 1998. "Educational Differences in Leisure-Time Physical Inactivity: A Descriptive and Explanatory Study." *Social Science & Medicine* 47(11): 1665–76.
- Drożdżak, Zuzanna. 2013. "Socjologia analityczna jako uniwersalny program badawczy umożliwiający głębokie wyjaśnienie zjawisk społecznych i skuteczne projektowanie polityk pub. (Analytical Sociology as a Universal Research Programme Explaining Social Phenomena and Effective Polic." *Zarządzanie Publiczne* 24-25(2-3): 168–76.
- Duch, Danuta, and Magdalena Sokołowska. 1990. "Health Inequalities in Poland." *Social Science & Medicine* 31(3): 343–50.
- Engels, Friedrich. 1845. *The Condition of the Working Class in England.* London: Granada.
- Fleming, Thomas R, Katherine Odem-Davis, Mark D Rothmann, and Yuan Li Shen. 2011. "Some Essential Considerations in the Design and Conduct of Non-Inferiority Trials." *Clinical trials (London, England)* 8(4): 432–39. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3312046&tool=pmcentrez&rendertype=abstract> (March 5, 2014).
- Fuller-Iglesias, Heather, Jacqui Smith, and Toni C Antonucci. 2009. "Theories of Aging from a Life-Course and Life-Span Perspective." *Annual Review of Gerontology and Geriatrics* 29: 3–25.
- Galama, Titus J, and Hans van Kippersluis. 2013. "Health Inequalities through the Lens of Health-Capital Theory: Issues, Solutions, and Future Directions." *Research on Economic Inequality* 21: 263–84. <http://www.emeraldinsight.com/books.htm?chapterid=17103212> (November 13, 2014).
- García-Gómez, Pilar, Hans Van Kippersluis, Owen O Donnell, and Eddy Van Doorslaer. 2013. "Long-Term and Spillover Effects of Health Shocks on Employment and

- Income.” *Journal of Human Resources* 48(4): 873–909. http://muse.jhu.edu/content/crossref/journals/journal_of_human_resources/v048/48.4.garcia-gomez.html (November 19, 2014).
- García-Gómez, Pilar, Hans van Kippersluis, Owen O’Donnell, and Eddy van Doorslaer. 2013. “Long-Term and Spillover Effects of Health Shocks on Employment and Income.” *Journal of Human Resources* 48(4): 873–909.
- Giddens, Antony. 1973. *The Class Structure of the Advanced Societies*. London: Hutchinson.
- Goldman, D.P., and J.P. Smith. 2002. “Can Patient Self-Management Help Explain the SES Health Gradient?” *Proceedings of the National Academy of Sciences* 99(16): 10929–34.
- Goldthorpe, John. 1980. *Social Mobility and Class Structure in Modern Britain*. Oxford: Clarendon Press.
- Golinowska, Stanisława, ed. 2007. *Polityka zdrowotna wobec dostępności opieki zdrowotnej, wykluczenia oraz nierówności w zdrowiu*. Warszawa: Instytut Pracy i Spraw Socjalnych.
- . 2007. *Polityka zdrowotna wobec dostępności opieki zdrowotnej, wykluczenia oraz nierówności w zdrowiu*. Warszawa.
- . 2011. “Przestrzenny wymiar nierówności zdrowia i polityka spójności.” *Zdrowie Publiczne i Zarządzanie* IX(2): 38–54.
- Gonzalez-Gonzalez, Cesar, Rafael Samper-Ternent, Rebeca Wong, and Alberto Palloni. 2014. “Mortality Inequality among Older Adults in Mexico: The Combined Role of Infectious and Chronic Diseases.” *Revista Panamericana de Salud Publica* 35(2): 89–95.
- Gould, Stephen Jay. 1996. *The Mismeasure of Man*. 2nd ed. New York: W. W. Norton & Company, Inc.
- Graham, Hilary. 2004. “Social Determinants and Their Unequal Distribution: Clarifying Policy Understandings.” *Milbank Quarterly* 82(1): 101–24. <http://onlinelibrary.wiley.com/doi/10.1111/j.0887-378X.2004.00303.x/full> (November 13, 2014).
- Gruenewald, T.L. and A.S. Karlamangla. 2012. “History of Socioeconomic Disadvantage and Allostatic Load in Later Life.” *Social Science & Medicine* 74: 75–83. <http://dx.doi.org/10.1016/j.socscimed.2011.09.037> (May 23, 2014).
- Hanson, Margaret D. and Edith Chen. 2007. “Socioeconomic Status and Health Behaviors in Adolescence: A Review of the Literature.” *Journal of behavioral medicine* 30(3): 263–85. <http://www.ncbi.nlm.nih.gov/pubmed/17514418> (May 23, 2014).
- Hemmingsson, Tomas, Ingvar Lundberg, and Finn Diderichsen. 1999. “The Roles of Social Class of Origin, Achieved Social Class and Intergenerational Social Mobility in Explaining Social-Class Inequalities in Alcoholism among Young Men.” *Social science & Medicine* 49: 1051–59.
- Hou, Feng, and John Myles. 2005. “Neighbourhood Inequality, Neighbourhood Affluence and Population Health.” *Social Science & Medicine* 60(7): 1557–69. <http://www.ncbi.nlm.nih.gov/pubmed/15652687> (May 23, 2014).
- Huure, Taina, Ossi Rahkonen, Erkki Komulainen, and Hillevi Aro. 2005. “Socioeconomic Status as a Cause and Consequence of Psychosomatic Symptoms from

- Adolescence to Adulthood.” *Social Psychiatry and Psychiatric Epidemiology* 40: 580–87.
- Indulski, Janusz, and Marian Matulewicz. 1986. “Pieniężne i niepieniężne bariery równości społecznej w ochronie zdrowia. Cz.1. Kilka obserwacji empirycznych.” *Zdrowie Publiczne* 97(4): 157–65.
- IOM. 2003. *The Future of the Public's Health in the 21st Century*. The national academic press.
- Kaczmarek, Tadeusz et al. 2007. “Nierówności Społeczne w dostępie do zdrowia.” *Problemy Higieny i Epidemiologii* 88(3): 256–66.
- Van Kippersluis, Hans, Owen O'Donnell, Eddy van Doorslaer, and Tom van Ourti. 2010. “Socioeconomic Differences in Health over the Life Cycle in an Egalitarian Country.” *Social Science & Medicine* 70(3): 428–38.
- Van Kippersluis, Hans, Tom van Ourti, Owen O'Donnell, and Eddy van Doorslaer. 2009. “Health and Income across the Life Cycle and Generations in Europe.” *Journal of Health Economics* 28: 818–30.
- Kirschbaum, Clemens et al. 1999. “Impact of Gender, Menstrual Cycle Phase, and Oral Contraceptives on the Activity of the Hypothalamus-Pituitary-Adrenal Axis.” *Psychomatic Medicine* 61: 154–62.
- Kogevinas, M. and M. Porta. 1997. “Socioeconomic Differences in Cancer Survival: A Review of the Evidence.” *IARC Scientific Publications* (138): 177–206. http://www.researchgate.net/publication/13875194_Socioeconomic_differences_in_cancer_survival_a_review_of_the_evidence/file/50463515881871d2b6.pdf (May 23, 2014).
- Korzeniowska, Elżbieta, and Krzysztof Puchalski. 2010. *Nisko wykształceni pracownicy a zdrowie – wyzwania dla edukacji zdrowotnej*. Riga.
- Koster, Annemarie et al. 2006. “Association of Inflammatory Markers with Socioeconomic Status.” *Journal of Gerontology* 61(3): 284–90.
- Krieger, Nancy, Jarvis T Chen, Brent a Coull, and Joe V Selby. 2005. “Lifetime Socioeconomic Position and Twins' Health: An Analysis of 308 Pairs of United States Women Twins.” *PLoS medicine* 2(7): e162. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1181870&tool=pmcentrez&rendertype=abstract> (November 13, 2014).
- Krueger, Patrick M. and Virginia W. Chang. 2008. “Being Poor and Coping With Stress: Health Behaviors and the Risk of Death.” *American Journal of Public Health* 98(5): 889–96.
- Krzyżanowski, Michał, and Bogdan Wojtyniak. 1982. “Ten-Year Mortality in a Sample of an Adult Population in Relation to Air Pollution.” *Journal of Epidemiology and Community Health* 36: 262–68.
- Kuh, D., Y. Ben-Shlomo and J. Lynch. 2003. “Life Course Epidemiology.” *Journal of Epidemiology and Community Health* 57: 778–83.
- Kunst, Anton E., Feikje Groenhouf and Johan P. Mackenbach. 1998. “Occupational Class and Cause Specific Mortality in Middle Aged Men in 11 European Countries: Comparison of Population Based Studies.” *British Medical Journal* 316(7145): 1636–41.

- Lantz, Paula M., James S. House, Richard P. Mero and David R. Williams. 2005. "Stress, Life Events, and Socioeconomic Disparities in Health: Results from the Americans' Changing Lives Study." *Journal of Health and Social Behavior* 46(3): 274–88.
- Larson, Nicole I., Mary T. Story and Melissa C. Nelson. 2009. "Neighborhood Environments: Disparities in Access to Healthy Foods in the U.S." *American Journal of Preventive Medicine* 36(1): 74–81. <http://www.ncbi.nlm.nih.gov/pubmed/18977112> (May 27, 2014).
- Layte, Richard, and Christopher T. Whelan. 2008. "Explaining Social Class Inequalities in Smoking: The Role of Education, Self-Efficacy, and Deprivation." *European Sociological Review* 25(4): 399–410. <http://esr.oxfordjournals.org/cgi/doi/10.1093/esr/jcn022> (May 28, 2014).
- Link, Bruce G. 2008. "Epidemiological Sociology and Social Shaping of the Population Health." *Journal of Health and Social Behavior* 49(December): 367–84.
- Link, Bruce G. and Jo C. Phelan. 1995. "Social Conditions as Fundamental Causes of Disease." *Journal of Health and Social Behavior* 35: 80–94.
- Link, Bruce G., Jo C. Phelan, Richard Miech, and Emily Leckman Westin. 2008. "The Resources That Matter: Fundamental Social Causes of Health Disparities and the Challenge of Intelligence." *Journal of Health and Social Behavior* 49(1): 72–91.
- Lloyd, Donna, Sallie Newell, and Uta C Dietrich. 2004. *Health Inequity: A Review of the Literature*. Lismore.
- Lostao, Lourdes et al. 2014. "Socioeconomic Patterns in Use of Private and Public Health Services in Spain and Britain: Implications for Equity in Health Care." *Health & Place* 25: 19–25. <http://www.ncbi.nlm.nih.gov/pubmed/24220645> (May 23, 2014).
- Lozano, Rafael et al. 2012. "Global and Regional Mortality from 235 Causes of Death for 20 Age Groups in 1990 and 2010: A Systematic Analysis for the Global Burden of Disease Study 2010." *Lancet* 380(9859): 2095–2128. <http://www.ncbi.nlm.nih.gov/pubmed/23245604> (July 10, 2014).
- Lynch, J. W., G.A. Kaplan and J.T. Salonen. 1997. "Why Do Poor People Behave Poorly? Variation in Adult Health Behaviours and Psychosocial Characteristics by Stages of the Socioeconomic Lifecourse." *Social Science & Medicine* 44(6): 809–19.
- Mackenbach, Johan P. et al. 2008. "Socioeconomic Inequalities in Health in 22 European Countries." *New England Journal of Medicine* 23(358): 2468–81.
- De Maio, Fernando. 2010. "Health Inequalities." In *Health and Social Theory*, New York: Palgrave Macmillan, 56–91.
- Mair, C. a V. Diez Roux and. S Galea. 2008. "Are Neighbourhood Characteristics Associated with Depressive Symptoms? A Review of Evidence." *Journal of Epidemiology and Community Health* 62(11): 940–46. <http://www.ncbi.nlm.nih.gov/pubmed/18775943> (May 28, 2014).
- Marek, Michał, Dorota Chłoń-Domińczak, Agnieszka Kaleta, Joanna Mazur, Tomasz Miśkiewicz, Paulina Poznańska, Dorota Stokwiszewski, Jakub Wojtyniak and Bogdan Zdrojewski. 2012. *Spoleczne nierówności w zdrowiu w Polsce*. Copenhagen.

- Marmot, Michael. 2005. "Social Determinants of Health Inequalities." *The Lancet* 365: 1099–1104.
- Marmot, Michael G. et al. 2010. *Fair Society, Healthy Lives. Strategic Review of Health Inequalities in England Post-2010*. Public Health England.
- Marmot, Michael, and Richard Wilkinson, eds. 2006. *Social Determinants of Health*. II. New York: Oxford University Press.
- McEwen, Bruce S, and Teresa Seeman. 1999. "Protective and Damaging Effects of Mediators of Stress. Elaborating and Testing the Concepts of Allostasis and Allostatic Load." *Annals of the New York Academy of Sciences* 896: 30–47.
- McGinnis, J. Michael, Pamela Williams-Russo, and James R. Knickman. 2002. "The Case For More Active Policy Attention To Health Promotion." *Health Affairs* 21(2): 78–93. <http://content.healthaffairs.org/cgi/doi/10.1377/hlthaff.21.2.78> (May 27, 2014).
- Minkler, Meredith, Esme Fuller-Thomson, and Jack M. Guralnik. 2006. "Gradient of Disability across the Socioeconomic Spectrum in the United States." *The New England Journal of Medicine* 355: 695–703. <http://www.ncbi.nlm.nih.gov/pubmed/16914705>.
- Mokdad, Ali H., James S. Marks, Donna F. Stroup, and Julie L. Gerberding. 2014. "Actual Causes of Death in the United States, 2000." *Journal of American Medical Association* 291(10): 1238–45.
- Musterd, Sako. 2005. "Social and Ethnic Segregation in Europe: Levels, Causes, and Effects." *Journal of Urban Affairs* 27(3): 331–48.
- Niederdeppe, Jeff, and Andrea Gurmankin Levy. 2007. "Fatalistic Beliefs about Cancer Prevention and Three Prevention Behaviors." *Cancer Epidemiology, Biomarkers & Prevention* 16(5): 998–1003. <http://www.ncbi.nlm.nih.gov/pubmed/17507628> (May 28, 2014).
- O'Donnell, Owen, Eddy van Doorslaer, and Adam Wagstaff. 2006. "Decomposition of Inequalities in Health and Health Care." In *The Elgar Companion to Health Economics*, ed. AM Jones. Cheltenham: Edward Elgar.
- Obrist, B., C. Pfeiffer, and R. Henley. 2010. "Multi-Layered Social Resilience: A New Approach in Mitigation Research." *Progress in Development Studies* 10(4): 283–93.
- Omran, Abdel R. 2005. "The Epidemiological Transition: A Theory of the Epidemiology of Population Change." *The Milbank Quarterly* 83(4): 731–57 (reprint).
- Or, Zeynep, Florence Jusot, and Engin Yilmaz. 2008. *Impact of Health Care System on Socioeconomic Inequalities in Doctor Use*. Paris.
- Ostrowska, Antonina. 1983. "Elements of the Health Culture of Polish Society." *Social Science & Medicine* 17: 631–36.
- . 1998. "Nierówności w sferze zdrowia." *Kultura i Społeczeństwo* XLII(2): 149–63.
- . 2000. "Społeczne czynniki warunkujące zachowania prozdrowotne – bilans dekady." *Promocja Zdrowia. Nauki Społeczne i Medycyna* VII(19): 46–65.
- . 2001. "In and out of Communism: The Macrosocial Context of Health in Poland." In *The Blackwell Companion to Medical Sociology*, ed. William C. Cockerham. Oxford: Blackwell Publishers, 334–47.

- . 2010. “Zróżnicowania społeczne i nierówności w zdrowiu.” In *Socjologia z medycyną. W kręgu myśli naukowej Magdaleny Sokolowskiej*, ed. Włodzimierz Piątkowski. Warszawa: IFiS Publishers, 25–47.
- Pampel, Fred C., Patrick M. Krueger, and Justin T. Denney. 2010. “Socioeconomic Disparities in Health Behaviors.” *Annual Review of Sociology* 36: 349–70. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3169799&tool=pmcentrez&rendertype=abstract> (May 23, 2014).
- Papas, Mia a et al. 2007. “The Built Environment and Obesity.” *Epidemiologic Reviews* 29(27): 129–43. <http://www.ncbi.nlm.nih.gov/pubmed/17533172> (May 28, 2014).
- Phelan, J.C., and B.G. Link. 2005. “Controlling Disease and Creating Disparities: A Fundamental Cause Perspective.” *Journals of Gerontology: Series B* 60(Special Issue II): 27–33.
- Phelan, Jo C., Bruce G Link, and Parisa Tehranifar. 2010. “Social Conditions as Fundamental Causes of Health Inequalities: Theory, Evidence, and Policy Implications.” *Journal of health and social behavior* 51 (S): S28–40. <http://www.ncbi.nlm.nih.gov/pubmed/20943581> (February 27, 2013).
- Robert, Stephanie A. 1999. “Socioeconomic Position and Health: The Independent Contribution of Community Socioeconomic Context.” *Annual Review of Sociology* 25: 489–516.
- Rosmond, R, and P Björntorp. 2000. “Occupational Status, Cortisol Secretory Pattern, and Visceral Obesity in Middle-Aged Men.” *Obesity research* 8(6): 445–50. <http://www.ncbi.nlm.nih.gov/pubmed/11011911>.
- Sapolsky, Robert. 2005. “Sick of Poverty.” *Scientific American* 293(6): 92–99.
- Schieman, Scott, Yuko K Whitestone, and Karen Van Gundy. 2006. “The Nature of Work and the Stress of Higher Status.” *Journal of Health and Social Behavior* 47(September): 242–57.
- Słońska, Zofia, and Jacek Koziarek. 2011. “Społecznie nierówności w zdrowiu – efekt medykalizacji promocji zdrowia?” *Zdrowie Publiczne i Zarządzanie* IX(2): 64–75.
- Smith, George Davey, Mel Bartley, and David Blane. 1990. “The Black Report Socioeconomic Inequalities in Health 10 Years on.” *British Medical Journal* 301: 373–77.
- Smith, Kirsten P., and Nicholas A. Christakis. 2008. “Social Networks and Health.” *Annual Review of Sociology* 34: 405–18.
- Sørensen, Torben Højmark, Kim Rose Olsen, and Peter Vedsted. 2009. “Association between General Practice Referral Rates and Patients’ Socioeconomic Status and Access to Specialised Health Care a Population-Based Nationwide Study.” *Health policy* 92(2-3): 180–86. <http://www.ncbi.nlm.nih.gov/pubmed/19394106> (May 23, 2014).
- Sowa, Agnieszka. 2010. “O nierównościach w korzystaniu z usług ochrony zdrowia ze względu na wykształcenie.” *Polityka Społeczna* (9): 33–36.
- . 2011. “Społeczne uwarunkowania stanu zdrowia w Polsce”. *Zdrowie Publiczne i Zarządzanie* (2): 28037. <http://www.ceeol.com/aspx/getdocument.aspx?logid=5&id=f45bcb2f2e8a4a478b83b292d57ff8f0> (February 14, 2014).

- Stringhini, Silvia et al. 2010. "Association of Socioeconomic Position with Health Behaviors and Mortality." *JAMA: The Journal of the American Medical Association* 303(12): 1159–66. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2918905&tool=pmcentrez&rendertype=abstract>.
- . 2011. "Health Behaviours, Socioeconomic Status, and Mortality: Further Analyses of the British Whitehall II and the French GAZEL Prospective Cohorts." *PLoS medicine* 8(2): e1000419. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3043001&tool=pmcentrez&rendertype=abstract> (March 16, 2012).
- Syme, Leonard S., and Lisa F. Berkman. 2009. "Social Class, Susceptibility, and Sickness." In *The Sociology of Health and Illness. Critical Perspectives.*, ed. Peter Conrad. New York: Worth Publishers, 24–30.
- Szlendak, Tomasz, and Arkadiusz Karwacki. 2010. "Koncepcja poziomicy – cudowne lekarstwo czy utopijna terapia?" *Studia Socjologiczne* 1(196): 35–67.
- Tehraniifar, Parisa et al. 2009. "Medical Advances and Racial/ethnic Disparities in Cancer Survival." *Cancer Epidemiology, Biomarkers & Prevention* 18(10): 2701–8. <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3665008&tool=pmcentrez&rendertype=abstract> (October 29, 2014).
- Ten Leading Causes of Death in the United States*. 1980. Atlanta.
- Thoits, Peggy A. 2006. "Personal Agency in the Stress Process." *Journal of Health and Social Behaviour* 47(December): 309–23.
- Thompson, Paul. 2004. "Researching Family and Social Mobility with Two Eyes: Some Experiences of the Interaction between Qualitative and Quantitative Data." *International Journal of Social Research Methodology* 7(3): 237–57. <http://www.tandfonline.com/doi/abs/10.1080/1364557021000024785> (October 21, 2014).
- Titkow, Anna. 1983. *Zachowania i postawy wobec zdrowia i choroby*. Warszawa: Państwowe Wydawnictwo Naukowe.
- Turek, Konrad, Jolanta Perek-Białas, and Justyna Stypińska. 2015. "Socio-Economic Status in Ageing Poland: A Question of Cumulative Advantages and Disadvantages." In *Lifecourse Perspective on Ageing Populations: A Critical and International Approach*, eds. K Komp and S Johansson. Bristol: The Policy Press.
- Veenstra, Gerry et al. 2005. "Who You Know, Where You Live: Social Capital, Neighbourhood and Health." *Social Science & Medicine* (1982) 60(12): 2799–2818. <http://www.ncbi.nlm.nih.gov/pubmed/15820588> (May 23, 2014).
- Victora, Cesar G et al. 2003. "Applying an Equity Lens to Child Health and Mortality: More of the Same Is Not Enough." *The Lancet* 362: 233–41.
- Virchow, Rudolf Carl. 2006. "Report on the Typhus Epidemic in Upper Silesia." *American Journal of Public Health* 96(12): 2102–5.
- Wagstaff, Adam, and Eddy van Doorslaer. 2000. "Income Inequality and Health: What Does the Literature Tell Us?" *Annual Review of Public Health* 21: 543–67. <http://www.ncbi.nlm.nih.gov/pubmed/10884964>.
- Wagstaff, Adam, Eddy van Doorslaer, and Naoko Watanabe. 2003. "On Decomposing the Causes of Health Sector Inequalities with an Application to Malnutrition Inequalities in Vietnam." *Journal of Econometrics* 112: 207–23.

- Warren, John R. 2009. "Status and Health Across the Life Course: A Socioeconomic and Health Selection Test of the Social Causation Hypotheses." *Social Forces* 87(4): 2125–53.
- WHO. 2008. "What Are Social Determinants of Health?" *World Health Organisation*. http://www.who.int/social_determinants/sdh_definition/en/.
- Wilkinson, Richard G. 1986. *Class and Health: Research and Longitudinal Data*. London: Tavistock.
- . 1994. "The Epidemiological Transition: From Material Scarcity to Social Disadvantage?" *Daedalus* 123(4): 61–77.
- Wilkinson, Richard, and Kate Pickett. 2009. *The Spirit Level: Why More Equal Societies Almost Always Do Better*. London: Allen Lane.
- Willson, Andrea E, Kim M. Shuey, and Glen H. Jr. Elder. 2007. "Cumulative Advantage Processes as Mechanisms of Inequality in Life Course health1." *American Journal of Sociology* 112(6): 1886–1924.
- Włodarczyk, Cezary. 2011. "Problemy nierówności w zdrowiu. Perspektywa Unii Europejskiej." *Zdrowie Publiczne i Zarządzanie* IX(2): 5–21.
- Wnuk-Lipiński, E. 1990. "The Polish Country Profile: Economic Crisis and Inequalities in Health." *Social Science & Medicine* 31(8): 859–66. <http://www.ncbi.nlm.nih.gov/pubmed/2259960>.
- Wolfson, Michael et al. 2014. "Relation between Income Inequality and Mortality: Empirical Demonstration." *British Medical Journal* 319(7215): 953–55.

Postępy i wyzwania epidemiologii społecznej – raz jeszcze o społecznych uwarunkowaniach zdrowia (przegląd literatury)

Streszczenie

Celem tego przeglądu literatury jest przedstawienie najnowszego stanu wiedzy na temat „społecznych uwarunkowań zdrowia”, a przez to zwrócenie uwagi szerokiego grona polskich socjologów na społecznie generowane nierówności w zdrowiu. Według najnowszych doniesień naukowych nie tylko ekonomiczna deprivacja, ale również subiektywne poczucie niższości wywierają szkodliwy wpływ na zdrowie. Wiadomo też, że pozycja socjoekonomiczna oddziałuje na zdrowie za pośrednictwem zachowań zdrowotnych, dostępu do opieki zdrowotnej, ryzyk środowiskowych i czynników psychospołecznych. Jednocześnie brakuje konsensu co do istoty tego mechanizmu. Potrzeba przyczynowego wyjaśnienia tego zjawiska otwiera nowe, interesujące wątki badawcze dla socjologów. Z uwagi na wielką międzynarodową popularność tej tematyki, jak również jej ogromne znaczenie społeczne, warto zintensyfikować badania socjologiczne w tej dziedzinie.

Główne pojęcia: społeczne uwarunkowania zdrowia; nierówności w zdrowiu; przegląd literatury; SES; status socjoekonomiczny.

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