Critical Analysis and Discussion of The Biological, Social and Environmental Determinants of Health

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I. INTRODUCTION

The theory that "illness is just a matter of bad luck, bad judgement or bad genetics" appears to be a prejudiced statement, and this is true to an extent. However, it must also not be disregarded. Illness can, in fact, be due to bad genetics through the biological determinants of health, such as inherited genetic conditions. Similarly, illness can also be due to bad luck in the case of environmental determinants of health, such as dangerous weather conditions, or as the effect of religious beliefs, a social determinant of health. However, health cannot be easily restricted to bad luck, bad judgement or bad genetics. The factors that affect the health of individuals – the determinants of health – are highly variable. To understand what affects people's health, it is essential to first identify what the social, biological and environmental determinants of health are.

Social determinants of health are "the non-medical factors that influence health outcomes" (World Health Organisation, 2019). They are the circumstances under which people are "born, grow, work, live, and age," as well as the larger collection of forces and structures that form everyday life conditions (World Health Organisation, 2019).

Biological determinants are the biotic factors that influence health. Older people, for instance, are more biologically susceptible to sickness than younger people due to senescence. Environmental determinants of health, such as "access to clean water, hygienic sanitation services, air quality and work environment" (World Health Organisation, 2012), are natural factors that individuals live around that influence their health outcomes.

Ultimately, the determinants of health discredit the idea that "illness is just a matter of bad luck, bad judgement or bad genetics".

II. Social and Environmental Determinants of Health On "Illness is Just A Matter Of Bad Luck…" With Links To "Bad Judgement"

The claim that "illness is … a matter of bad luck" has some merit, even if it is a relatively one-sided view. This is exemplified by religion, a key social component of bad luck. Avgoulas contends that aging, and the potential illnesses associated with it, are an unavoidable part of life. The Greek community, who Avgoulas documents, are generally religious. Consequently, they view their "state of health" as an aspect of "fate and/or luck" (Avgoulas & Fanany, 2013a, 2013b p.74). This aspect of religion, one shared by many communities, is a social determinant of health and supports the view that "illness is just a matter of bad luck". Furthermore, it was found that the "variability within psychiatric syndromes" and the "difficulty to foresee individual trajectories" (Jacob, 2017 p. 334) complement societal perceptions about life's uncertainties. Cultures identify these societal perceptions, by using idioms and metaphors such as "luck, chance, karma or fate" (Jacob, 2017 p. 334), and so on.

An opposing view to this association is luck egalitarianism. This theory focuses on individual responsibility as a determinant of health rather than luck or fate. The branch of thought contends that health inequalities are beyond justification, and that it is wrong for people to have their access to health care diminished due to bad luck and circumstances out of one's control (Ekmekci & Arda, 2015). Luck egalitarianism suggests that "a person's lifestyle consists of the choices that the individual makes" and that individuals should "bear the benefits and burdens" that come from their choices (Ekmekci & Arda, 2015 p. 245). Further, "if an individual loses their health" (Ekmekci & Arda, 2015 p. 245) due to their decisions, they should be responsible for the consequences that ensue. As a result, society owes them no health care or assistance. Therefore, luck egalitarianism claims poor health is determined by bad judgement, suggesting, for example, that a chain smoker who develops lung cancer should be held responsible for its negative health outcomes. Conversely, a person's health can be jeopardised by bad luck. Luck egalitarianism thus proposes that if individuals are not truly responsible for their decisions, it is unreasonable to blame for it. Therefore, they are entitled to help from healthcare institutions.

Luck egalitarianism has been criticised for being morally irrelevant and ambiguous on the (apparent) prudent and imprudent moral distinctions (Björk, Helgesson, & Juth, 2020). According to the paper, real-world implementation of the luck egalitarian healthcare view is difficult due to the tensions within the theory affecting the view's consistent application (Björk et al., 2020). Furthermore, luck egalitarianism is partially disproven by the social determinants of health, which remove individual responsibility towards one's health (Fleck, 2012). It is impossible to substantiate the argument that people in vulnerable or deprived situations are responsible for their own poor health (Fleck, 2012). Additionally, the luck egalitarian view on healthcare distribution distracts from the critical task of rectifying social determinants on one's wellbeing, instead providing individualistic responses to collective issues (Albertsen, 2015).

Bad luck can also play a key role in the environmental determinants of health. Gibson (2018) states an estimated 15% of all deaths in the United States and 8.9% of all DALYs are attributable to the environmental determinants of health such as outdoor and indoor air pollution. Gibson (2018) focuses on smog in Pennsylvania and London, citing it as the reason for the large amount of outdoor air pollution. According to the paper, the smog contains particulate matter which "directly affects health", (Gibson, 2018 p. 454) causing heart disease and respiratory tract infections. This is purely due to bad luck as it is a factor that an individual is not in direct control over.

III. Environmental Determinants and Biological Determinants of Health disproving "Bad Judgement"

While the quote "illness is just a matter of… bad judgement" implies that incorrect judgement is to blame for disease, the reverse is observed. Illness may cause bad judgement, or rather a total deficit of it, as seen with multiple sclerosis. Additionally, bad judgement may arise from a medical professional rather than individual choices.

The chronic inflammatory and neurodegenerative disease, Multiple Sclerosis (MS), is associated with behavioural dysfunction, with approximately 65% of patients affected by cognitive and behavioural performance issues (Ayache & Chalah, 2018). While an illness itself is not defined as a determinant of health, the nature of Multiple Sclerosis and its accompanying health outcomes have the potential to affect an individual's ability to access healthcare. Moreover, many facets of life and activity are clearly affected by MS, as illustrated by the "relationships between illness intrusiveness" (Shawaryn, Schiaffino, Larocca, & Johnston, 2002 p. 310). Thus, a chronic progressive disease, to a certain extent, can be described as a biological determinant of health. Moral judgements are a "complex cognitive sphere" that include a person's ability to evaluate the behaviour of others and are based on

"numerous affective and cognitive processes." (Ayache & Chalah, 2018 p. 1). The paper continues to explicate the importance of moral cognition, essential for “healthy and adequate interpersonal relationships” (Ayache & Chalah, 2018 p. 1). A lack of moral cognition may lead to a reduced quality of life in patients suffering from MS. Furthermore, patients with Multiple Sclerosis endorsed harsher punishments for misdemeanours, and were also more likely to say that others' reactions would be similar to theirs (Patil, Young, Sinay, & Gleichgerrcht, 2017). Thus, bad judgement does not cause illness, but instead, suggests the article, illness causes bad judgment, particularly regarding morals.

Illness may also arise from the bad judgement of a medical professional rather than poor individual decision making. An article on a “conceptual framework of severity of illness and clinical judgement” recognises the intricacy of patient assessment and “diagnostic judgement” in illness (Coulter Smith, Smith, & Crow, 2014 p. 1). Perfect intellectual reasoning, meticulous error-checking, and perfect environmental protection would necessitate superhuman abilities in a medical professional (Redelmeier, Ferris, Tu, Hux, & Schull, 2001). However, these standards are unattainable, and thus clinical judgement errors are bound to occur. Moreover, approximately one out of every twenty patients who report to an emergency department with an acute myocardial infarction is sent home by mistake (Redelmeier et al., 2001). Conversely, illness can occur due to individual bad judgement. Gibson (2018) posits that indoor pollution was primarily caused by insufficient ventilation and “environmental tobacco smoke”, with the paper finding that children who had parents who smoked were at “twice the risk of hospitalisation” for respiratory illnesses (p. 454). Indoor air pollution can thus be considered an example of bad judgement.

Bad judgement can also come in the form of taking medications when unnecessary or inappropriate. Fever is the most frequent signal of childhood illnesses and is often treated by paracetamol (Lagerlov, 2003). Given that it is an over-the-counter drug, it is easily accessible

to parents. Consequently, their attitudes towards its use will most likely be influenced by their knowledge about and views surrounding fever. According to studies, parents' knowledge of fever may be inaccurate, and their fears of it may be rooted in history and passed down through generations (Lagerlov, 2003). This incorrect knowledge may affect the treatment of the child's fever as the parents become more prone to making a bad judgement about what their child should have, rather than what they need. For instance, Lagerlov's (2003) paper highlights that a minority of parents were concerned with the side-effects associated with paracetamol use. From the results gathered in the study, parents aimed to help alleviate discomfort and help their children to sleep when they were ill (Lagerlov, 2003). Being able to help the child was reported to comfort parents, providing a "feeling of coping" (Lagerlov, 2003 p. 722).

IV. Biological Determinants of Health and Links to "Bad Genetics"

The statement, "illness is just a matter of … bad genetics", is the most credible part of the quote as it is supported by the biological determinants of health. As defined previously, these are the biotic factors that affect health, including genetics. As such, this argument will consist of explanations of a few genetic illnesses and their causes that support and reject the quote. The human genome (the totality of all genes in humans) contains many variations, with some of these changes firmly linked to specific disease phenotypes (Zehnbauer, 2005). There are a multitude of genes causing illness such as cystic fibrosis, Alzheimer's Disease and obesity.

In the paediatric population, cystic fibrosis is associated with a high rate of morbidity (Raman, Clary, Siegrist, Zehnbauer, & Chatila, 2002). An autosomal recessive disorder, it is promoted by impaired chloride transport across the apical membrane of cells (Woods, 2013) because of changes in the cystic fibrosis transmembrane conductance regulator

gene (CFTR) causing the disease (Zehnbauer, 2005). The symptoms of cystic fibrosis are chronic lung disease, elevated sweat sodium and chloride concentrations, nasal polyps, meconium ileus, pancreatic insufficiency, and sinusitis (Woods, 2013). According to Zehnbauer (2005), population genetics studies indicated 70% of European and 50% of Ashkenazi Jewish patients suffered from the condition.

Alzheimer's Disease is another inherited illness deemed a "genetically heterogeneous condition" (Ringman et al., 2014). Alzheimer's Disease is often thought of as a single clinicopathological entity marked by gradual memory loss and other cognitive and behavioural changes that impair self-care. After a certain age, genetic factors become more significant in the progression of the disease (Ringman et al., 2014). These genetic factors can be considered as bad genetics. The heritability of Alzheimer's Disease is estimated to range from 58-79%. According to a statistical model, males exhibited a 44% chance of developing Alzheimer's Disease in their remaining lifetime while females displayed a 61% chance of developing the disease in their life expectancy (Ringman et al., 2014). Therefore, the hereditary nature of Alzheimer's suggests that illness is, in fact a matter of bad genetics.

Furthermore, numerous classical genetics investigations have demonstrated that genes play an important role in obesity. Key symptoms of the disorder include early-onset and hyperphagia (Kleinendorst, van Haelst, & van den Akker, 2019). In some cases, hyperphagia presents itself as the main characteristic, often caused by disruptions of the leptin-melanocortin hormone pathway, the central pathway that regulates the body's satiety and energy balance (Kleinendorst et al., 2019). Additionally, obesity-related illnesses such as Bardet–Biedl and Prader–Willi syndromes are also caused by genetics (Srivastava, Srivastava, & Mittal, 2016). Obesity is now well cited as a complicated non-Mendelian trait that may be caused by a number of susceptibility loci. While several genes based on familial cases have been identified, the majority of individuals suffering from obesity occur randomly in the population (Srivastava et al., 2016). For

instance, evidence suggests that obesity is influenced by genes regulated by other genes. Such genes may be adjacent to, or distanced from, each other (Srivastava et al., 2016).

While this section of the quote holds some truth, "illness is just a matter of … bad genetics" cannot be restricted to "just" bad genetics. Relating back to genetic obesity, it is argued that there are many other variables that contribute to the development of obesity in addition to those discussed previously (Mathes, Kelly, & Pomp, 2011). These variables include genetics and diet, the most common associations with obesity development, but also include "behaviour, environment and social structures" (Mathes et al., 2011 p. 1) essentially the environmental and social determinants of health. Individual differences in the development of obesity, as well as its treatment, are influenced by the "complex interactions" (Mathes et al., 2011 p. 1) among these variables.

V. CONCLUSION

The statement, "illness is just a matter of bad luck, bad judgement and bad genetics" is somewhat factual, however, the determinants of health refute it. Religion states that illness can be a product of fate or "bad luck", a social determinant of health, supporting the statement. Luck egalitarianism partially disproves the quote, stating that individuals are responsible for their own ill health and should endure the hardships or benefits of their own decisions. Luck egalitarianism further states that some ill health is not derived from poor decisions but is instead due to extrinsic factors deemed as bad luck and that healthcare is therefore justified. The social determinants of health partially disprove the luck egalitarian view on healthcare by removing individual responsibility. Since they are unable to be held accountable, it is impossible to prove that people in insecure or deprived circumstances (i.e., people with bad luck) are responsible for their own poor health. In the environmental determinants of health, bad luck and bad judgement can also play a role.

Examples of bad luck and bad judgement causing environmental determinants of health was found in outdoor and indoor air pollution. While the quotation suggests that poor judgement is to blame for disease, the opposite is true. Illness can lead to poor judgement, or even a complete lack of judgement as observed with patients suffering from Multiple Sclerosis who lack moral judgement. Illness may also result from a medical professional's bad judgement, such as being prescribed drugs that are inappropriate. Since it is backed by biological determinants of health, the argument "illness is just a matter of... bad genetics" is the most acceptable aspect of the quote. Cystic fibrosis, Alzheimer's Disease and obesity are all caused, to varying extents, by genetics. Although this part of the quote is truthful, "illness is just a matter of... bad genetics" cannot be limited to "just" bad genetics. The most common associations to genetic obesity link to the environmental and social determinants of health (Mathes et al., 2011). While the quote holds some truth, the social, environmental and biological determinants of health reject the quote and its limited focus on ‘just’ “bad luck, bad judgement and bad genetics”.

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