

Inherent risks of the construction of high-risk individuals in diabetes treatment and prevention: An ethical challenge

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Abstract

Type 2 Diabetes is presented as a current global health challenge of epidemic proportions. In an effort to meet this challenge, identification of high-risk individuals has become an essential part of a strategy blurring the traditional divide between treatment and prevention. This strategy is framed within a risk discourse, where many health risks are defined as the outcome of individual lifestyle choices. As a consequence, individuals are offered new subject positions, attributed with personal responsibility for maintaining their own health. In this paper some ethical challenges implicit in this discourse are addressed. Among them are the arbitrary construction of diagnoses like Type 2 Diabetes and prediabetes, the potential burden of getting a lifelong diagnosis without ever experiencing a symptomatic disease and being diagnosed through ethnic stereotypes built into diabetes risk calculators. Once diagnosed, those identified as carrying a high risk of diabetes, carries a further risk of shaming and blaming due to their failure to fulfil the obligations attributed to the subject position of healthy citizens. Finally, the paper addresses how overlooking structural injustice and poverty may be a major failure of the high-risk approach to diabetes.

Keywords: Diabetes, ethics, health psychology, prevention, risk

Introduction

When you get diabetes, it changes the rest of your life. It changes who you are. Your body is no longer able to regulate your blood glucose without your conscious effort. In the worst case, that of insulin dependent diabetes (aka IDDM or Type 1 Diabetes), you need to continually monitor your blood glucose level and insert insulin in your body regularly, as well as following a strict regime for what and when you eat. If you fail to do so, the consequences are severe, with premature death looming in the background. Current knowledge about the natural history of Type 1 Diabetes (T1D) is restricted, thus making it difficult to prevent.

Whereas the above condition will give you symptoms and be perceived as a proper disease, there are other less perceivable and liminal states where you are neither healthy nor sick, but somewhere in between. Familiar examples are asymptomatic conditions like hypertension, hypercholesterolemia, osteoporosis, and Type 2 Diabetes (T2D). These conditions are framed within the modern risk discourse, contributing to “the converged experience of risk and disease” (Aronowitz, 2009), gradually eliminating the boundary between prevention and treatment. From an ethical point of view this introduces some new challenges, as public health ethics give priority to what is good for society whereas clinical ethics prioritizes what is good for the individual. The main aim of this paper is to present a critical analysis of the latter, with particular focus on potential harms of strategies aimed at those that are constructed as being at high risk of developing diabetes.

Within the risk discourse there are new subject positions available, described as the risky self (Ogden, 1995) and the empowered vulnerable woman (Dubriwny, 2013). Among lay people these positions are more easily recognised through the dichotomy of healthy and unhealthy citizens, reflecting ways of managing health risks through what is presented as individual lifestyle choices. Implied in this discourse are also strong attributions of individual responsibility, making an individual’s health a reflection of personal moral character. Given the multifactorial aetiology of conditions like T2D, it follows that interventions concentrating on only one of them carries the potential for adding burden rather than alleviating it if people are offered interventions that are counterproductive.

This paper is a continuation of previous work on online risk calculators (Skolbekken, 2019). An important finding from that study is that epidemiologists make strategic choices in order to make public health doable through constructing prediction tools focussing on individuals rather than structural and political factors. In this paper I aim to bring this analysis further, by looking at the diabetes situation.

Risk calculators are part of biomedicine's armament for the early detection of disease. Whilst the benefits of early intervention have been praised for centuries, its potential side effects have until recently received far less attention (Hofmann & Skolbekken, 2017). Part of the aim of this paper is therefore to address some ethical issues inherent in the early detection and diagnosis of T2D and prediabetes. In doing so, I will highlight some potential burdens of the current approach to diabetes, like getting a lifelong diagnosis without ever experiencing a symptomatic disease, being diagnosed through ethnic stereotypes, before looking at how the present individual focus contributes to blaming and shaming of people diagnosed with diabetes, and finally addressing how overlooking structural injustice and poverty may be a major failure of the high risk approach to diabetes.

In accordance with Burr's (2015) presentation of social constructionism, my aim is to question some of the taken-for-granted knowledge about diabetes today. In doing so, I am by no means denying the biology of diabetes and its dire consequences. Just as (Hedgecoe, 2002, p, 11) "I am not claiming that diabetes is 'whatever we say it is' ", but I also acknowledge that part of the problems addressed in this paper have their roots in the apparent strive for simplicity when facing the complexity and heterogeneity of the thing that is diabetes. In this presentation we will forget about its ontology and focus on the construction of various diabetes diagnoses, which represent our present social constructions of it. In doing so, I point to the Thomas theorem:

“...if men define situations as real, they are real in their consequences.”

Thomas & Thomas (1928, p. 572)

There is no doubt that the present medical description of diabetes results in actions with real consequences in people's lives. In doing so biomedical researchers are practising what Hacking (2007) calls "making up people". People have suffered and died from diabetes since before it was named and recognised as a disease. In this sense diabetes is a natural kind. Through the development of epidemiology and the medical risk discourse medical science creates individuals with a high risk of developing diabetes, first as identifiable groups, then as risky individuals. Such individuals have always been among us, but we did not know them as such until epidemiologists pointed them out to us. By undergoing various tests and communicating with medical expertise we get to understand ourselves in ways that were not available to our ancestors. This understanding evaded them as the risk discourse was not in place centuries ago. It is now, hence new subject positions are open to us, positions that emerge through social interactions (Burr, 2015).

Traditionally these interactions have involved patients and medical doctors, but according to Hunter (2016) psychologists may now also have an important role to play in the prevention and treatment of diabetes. Whereas this is certainly true, it also becomes pertinent to examine the position taken by psychologists regarding the epistemological and ethical questions addressed in this paper. This will be done through a critical reading of some of the articles published in a recent theme issue of *American Psychologist*, an issue covering a lot of research whilst simultaneously serving as an advertisement for this profession's capabilities.

The diabetes epidemic

Diabetes is characterised as one of the biggest threats to people's health globally, giving cause for alarm. It is argued that the T2D epidemic is the biggest in history, affecting 415 million people globally (Zimmet, 2017). The majority of cases are found in India (80-90 million) and China (120 million), but no country is unaffected by this situation. Part of the reason behind the alarm is the fact that these numbers are well above earlier projections made by the International Diabetes Federation and the WHO, respectively. Another reason is the observation that the numbers have doubled over the past decades and are expected to increase by another 200 million cases in the next couple of decades (Zimmet, et al. 2016). What the exact numbers are, is hard to tell, as differences of opinion exist over what constitutes the

appropriate diagnostic criteria for diabetes, leading to discrepancies in prevalence numbers. To understand this better, we move to a description of diabetes mellitus.

Diabetes Mellitus

It is commonly accepted that diabetes is not one disease covered by one diagnosis, but a range of conditions. This was indicated almost a century ago, when Sir John Rose Bradford (some years before 1938) presented his definition:

“Diabetes is not an entity, but a clinical label attached to a number of different conditions with varied origin, different morbid anatomy, and liable to follow different courses.” (Embleton 1938, p. 1184).

More recent contributions have not proved Bradford wrong, but have offered updates like these:

“Diabetes mellitus is a syndrome currently recognized and classified as a group of diseases characterised by signs and symptoms of hyperglycaemia.” (Zimmet et al., 2016).

“Diabetes mellitus is a complex metabolic disorder whose main clinical and diagnostic feature is hyperglycaemia.” (Zaccardi, et al., 2016)

“Diabetes comprises many disorders characterized by hyperglycaemia.” (WHO, 2019).

In a normal and disease-free body, the level of blood glucose is regulated by release of insulin from the pancreas into the bloodstream. T1D occurs when this metabolic process fails due to autoimmune destruction of insulin producing pancreatic beta-cells, leading to an absolute insulin deficiency and the need for insulin treatment. T2D is characterised by insulin resistance and/or a relative insulin deficit, leading to elevated blood sugar. Whereas T1D will be detected through symptoms, symptoms of T2D may be absent or vague early in the course of the disease. Therefore, T2D can go undetected for many years. It is this condition that is by far the most common form of diabetes, and the one that is contributing the most to the epidemic mentioned above.

Technology allowing, the detection of T2D thus became vital to enable medical intervention before the manifestation of disease. This is where the definition of Hyperglycaemia is paramount. According to the WHO (2019) there are three types of testing – fasting plasma glucose, post load plasma glucose, and measurement of HbA1c. The outcomes of these tests are problematic in the sense that their outcomes will differ, leading to different people fulfilling the diagnostic criteria. Furthermore, the quality of these measurements is debatable, and there is a weighing of accuracy vs. resources needed to perform the diagnostic test. The WHO thus acknowledges that their criteria is a compromise, giving priority “to clinical care over aetio-pathology and epidemiology” (2019, p. 3).

To further understand what is at play in the detection of T2D we also need to take a step back to the middle of the 20th century when developments in pharmacology contributed to the definition of the disease (Greene, 2007). This happened with the introduction of the drug Orinase, originally introduced as an oral alternative to insulin injections. It did not have the qualities to regulate diabetes as well as insulin in young patients but did the job for older ones. To ensure that Orinase was recognized for this accomplishment, it became pertinent to its producers to gain recognition for its effect on patients with a different type of diabetes than the one previously known. This diabetes was a more hidden form than T1D. To make it identifiable pharmaceutical companies provided doctors with screening devices for sugar in the urine. Having enabled the identification of this hidden diabetes, they acknowledged facing a “very complex psychological problem” (p. 103) – how to convince people who do not feel sick that they may be in need of a medical intervention? In the medical enterprise of making up people, this was one of the first successes in constructing an at-risk identity based on statistical numbers to create a new diagnosis.

This was also an early example of what is described as the pathologization of normality (Skolbekken, 2008). This is related to the practice of identifying normal bodily processes involving blood pressure, blood cholesterol, bone mass and blood glucose as pathological through making risk-based cut-offs on normal distributions. The definition of hyperglycaemia is thus the outcome of a process which has been repeated numerous times since its original version, constantly widening the inclusion criteria, defining larger and larger proportions of

what has hitherto been defined as healthy populations as being in need of medical assistance. The wisdom of this is under debate, including its contribution to the diabetes epidemic.

Prediabetes and the risk of overdiagnosis

The ethical challenges emerging through the arbitrary definition of T2D are no less when an even earlier diagnosis is constructed through the concept of prediabetes:

“If the symptomless or pre-diabetic state could be recognized, it would constitute the best material on which to test the effect of treatment directed towards improving the diabetic syndrome” (Embleton 1938, p. 1185).

It is reasonable to assume that this notion of prediabetes included the condition we now know as T2D. Presently, however, prediabetes is “defined as blood glucose concentrations higher than normal, but lower than diabetes thresholds, [it] is a high-risk state for diabetes development” (Tabak, et al., 2012, p. 2279). As for T2D these thresholds are not naturally given, but are the outcome of negotiations among experts, who decide yet another cut-off on the bell curve. Reflecting their arbitrariness, these cut-offs vary around the world, with the American Diabetes Association leading the way of including the most extensive part of the population into this diagnostic category.

As communicating risk-scores is proven to be a demanding task for both general practitioners (GPs) and their patients, defining them as diseases in their own right is found to make their jobs easier. In a Danish interview study, the diagnosis of prediabetes was described metaphorically as a weapon, making the threat to patients’ health more real (Hindhede, 2014; Hindhede & Aagaard-Hansen, 2015). This is similar to what has been found with respect to patients’ acceptance of taking medicines to lower their cholesterol, based on the transformation of a future health risk into a current health problem by means of providing a diagnosis (Polak, 2016). The prediabetes diagnosis contributed to the patients’ acceptance of the overall narrative of their own responsibility for their pathologized situation, as both the cause and the solution to the health problem. It increased their willingness to change lifestyle, albeit not all the patients lowered their glucose level as a consequence of the changes. This points to part of the problem arising when a condition with a multifactorial aetiology is

approached in a reductionistic fashion through the lens of the lifestyle as individual choice discourse.

Another problem with the prediabetes diagnosis is that it indicates a stage in a process that will unavoidably lead to diabetes if left unattended. As demonstrated in a meta-analysis by Morris, et al. (2013), just as many people diagnosed as having prediabetes return to levels of normal blood glucose as do develop diabetes. In other words, the identification of people with high risk of developing diabetes is uncertain as knowledge at the individual level.

This implies that prediabetes carries a potential for overdiagnosis, meaning “the diagnosis of a condition that, if unrecognized, would not cause symptoms or harm a patient during his or her lifetime...” (Kale & Korenstein, 2018). Overdiagnosis reflects a lack of knowledge about the development of a disease at the individual level, which is hidden in the statistics of evidence-based medicine. It is not a problem just with diabetes, as the heated debate over cancer screening bears witness of.

The early intervention strategy is thus not without its critics, like the one presented by Yudkin & Montori (2014). Their major concern is that the number of people with pre-diabetes have risen dramatically with recent definitions, putting half the population of China into the intervention group if the American diagnostic criteria were to be applied. A further challenge is related to the previously mentioned lack of consensus as to how to actually measure prediabetes. Different blood glucose measurement techniques lead to a discrepancy as to whom actually gets the diagnosis, making the diagnostic process something of a lottery.

Despite such criticism, the idea of early interventions still stands strong in preventive medicine. This is demonstrated by what is described as the surge in publications on early detection (Hofmann & Skolbekken, 2017). The number of these publications is increasing dramatically in many medical specialities. A notable feature of this literature is its strong focus on the benefits of early intervention compared to the harms and burdens involved. The appeal of early interventions makes good sense from a clinical point of view, based on a

notion of a point of no return in a detrimental disease process. If this notion is inaccurate, as indicated by the overdiagnosis literature, the outcome may be a number of individuals carrying the burden of adapting to the subject position of being the carrier of a chronic disease without actually having one.

In psychology, criticism has been raised at the limitations of the biomedical model, portrayed as increased testing and biomedical interventions as well as lack of attention to behaviour and social context (Johnson & Marrero, 2016). Simultaneously, however, the prevalence of prediabetes among Americans is presented as a major argument for psychological interventions, without any mention of its inherent potential for overdiagnosis and subsequent overtreatment. This indicates that psychologists may also do well to reflect closer on both sides of the coin that is prediabetes.

High risk individuals – the construction of standardised humans

As noticed, extensive testing of asymptomatic individuals is a central element of the biomedical approach to prediabetes and T2D (Johnson & Marrero, 2016). The issues mentioned above have hitherto had little effect in terms of sobering the enthusiasm for early identification of diabetes. If anything, the enthusiasts have taken this one step further in an attempt to identify high risk individuals without involving blood glucose testing. Such testing is time consuming and costly, a fact which in particular influences the ability of low-income countries to identify diabetes early. The hope attached to this testing is the belief in the health care systems' ability to help the identified individuals in successfully changing their lifestyle, something which has been proven to be effective in interventions based on randomized controlled trials (RCTs) (West, et al., 2016).

For the sake of putting things in perspective, it is important to note that such interventions have not been the only ones tried out. In the high day of eugenics sterilization of people with diabetes was among the preventive strategies being discussed (Tuchman, 2020). Among the candidate groups for this intervention were Jews, who late in the 19th century and for most of the first half of the 20th century were seen as being at high risk of getting diabetes, so much so that diabetes at the time was described as “Judenkrankheit” (Ibid).

Among the supporters of early identification of high-risk populations and individuals, prediction tools are presented as reliable aids available to those that want to get an estimate of the incidence of diabetes in a population as a basis for prevention and control (Rosella, et al., 2012). The appeal of this idea has contributed to the construction of a vast number of risk calculators in recent decades. An important feature of these tools is the sorting of humans into two or three standardised categories according to their calculated risk status.

Many of these instruments were thoroughly reviewed a decade ago by Noble, et al. (2011). Despite stating that they “provide good but not perfect estimate of the chance of an adult developing diabetes in the medium term future” (Noble et al., 2011, p. 5), the evaluation also listed a number of limitations making the outcome of a large scale implementation uncertain. A point worth noting is that these instruments fail to meet some of the criteria for population screening established by the WHO half a century ago (Wilson & Jungner, 1968). Among these are the accuracy of diagnosis generated (false positives), knowledge of the natural history of the disease (from latent to declared disease), and the balancing of costs and benefits of case finding which is often seen as a problem with an opportunistic screening compared to an organised population screening.

In more recent versions of screening criteria, making sure that people are offered screening as an informed choice are among the criteria added (Andermann, et al., 2008). This implies that individuals offered to have their diabetes risk calculated should be informed of both the benefits and harms involved, thus protecting their autonomy. Judging by the information presented on websites where risk calculators are freely available online, balanced information is not offered (Skolbekken, 2019). Rather, the providers protect themselves through disclaimers, typically refraining any responsibility for the information generated.

Constructing high risk individuals through ethnical stereotypes

Many of the diabetes risk calculators are constructed for use in one particular population, typically a nation. A noticeable variation among the calculators is between those requiring

that the person identify as belonging to an ethnic group and those that do not. This mirrors how the notion of ethnicity have become a significant background variable in the epidemiology of some nations.

Throughout history there has been shifting observations in who the populations at high risk of diabetes are and what their characteristics were (Tuchmann, 2020). The Jews have already been mentioned. In the past, people in biomedicine also believed that there were groups of humans that were immune to diabetes. For a long time both Afro Americans and Native Americans were believed to be immune, explained by reference to what was then described as the primitive nature of their nervous systems. This changed over time, as these groups are now seen as among those with the highest risk of getting diabetes.

Pointing out these groups for attention thus comes with a lot of baggage. Ethnicity (and race) are still highly debatable variables in medicine (and elsewhere). Just recently the New England Journal of Medicine published an article warning that race-adjusted algorithms as a tool for perpetuating or amplifying health inequities (Vyas, Eisenstein, & Jones, 2020). It is not just by accident that calculators including ethnicity as a variable are to be found in countries like Australia, Canada, the UK and the USA.

Addressing the issue, Bhopal (2006) made an appeal to responsible use of the concepts of race and ethnicity in both epidemiology and public health. Acknowledging inherent problems, he also saw it as problematic to remove them altogether. This has later been resounded by Liz (2019), arguing that ignoring the diversities imbedded in these categorisations would be even more problematic than not including them, thus reflecting an ethical dilemma.

If the countries including race and ethnicity in their epidemiology, and Bhopal and Liz are right, then maybe the majority of European countries are wrong? A review on the research on the prevalence of T2D among ethnic minorities in Europe demonstrated that this is limited to Nederland (4), the Scandinavian countries (Denmark 1 Norway 2, Sweden 4) and the UK (9)

(Meeks et al., 2016). Classification in the non-British studies is based on geographical origin of immigrants, which is slightly different from other notions of ethnicity.

Latin America is another part of the world with a diverse and mixed population, where what is regarded as properly validated calculators are limited to a few countries (Carillo-Larco et al., 2019). Believing that more calculators are needed, these researchers see the solution for Latin America as one calculator for the whole continent or country specific calculators. The idea of ethnic specific calculators for the southern part of America is thus not on the table. This is quite different from how people from the south are constructed in the US, where they are labelled as Hispanics (Liz, 2019), a category that emerged in the 1980 US census (Tuchman, 2020).

A more fruitful approach may well be to acknowledge that how these studies are situated in their respective contexts are more important than if ethnicity is an included variable or not. In this sense, much depends on whether the use of results in identifying high-risk populations and individuals as those in need of help or as those posing a threat to society. Whatever the outcome, it is important to acknowledge that inclusion of such variables may create, reify, perpetuate and amplify stereotypes rather than serve to improve people's health.

Bhopal (2006) also offered definitions of ethnicity and race, but in vain. His definition of ethnicity clearly places it within a cultural frame, much like how anthropologists use the term (Banks, 1996). In the risk calculators, however, ethnicity is listed among the variables that cannot be influenced by health behaviour, thus indicating a more stable biological entity, likely in the form of genes. Although a genetic influence on the development of diabetes long has been anticipated, little substantial evidence has surfaced so far. The existence of a "thrifty gene" has been a source of much debate since its conceptual introduction in 1962 but has not proved very productive in explaining differences in prevalence of diabetes among populations (Tuchman, 2020).

Looking at more recent history, a look at the changes that have been made in ethnic categories may be enlightening. In a review of ethnic inequalities in health among people living in the UK, various categorisations of groups of immigrants were used (Smith, et al. 2000). As can be seen in the left column of Table 4.1, country of birth was used for mortality, albeit some categories were parts of a continent rather than countries.

Table 4.1 - Ethnicity in the UK 1991 - 2020¹

Mortality according to country of birth	Type 2 Diabetes	Diabetes UK calculator Input	Diabetes UK calculator Output
Caribbean	European	South Asian	White
West/South Africa	South Asian	Black	Others
East Africa	African-Caribbean	Chinese	
India	Chinese	Mixed ethnicity	
Pakistan		White	
Bangladesh		None of these	
Scotland			
Ireland			

For T2D the options were limited to four categories, as demonstrated in the next column. Decades later, as can be seen in the third column, the categorizations of the Diabetes UK demonstrate a further change. The most remarkable thing here is how these categories are further reduced to encompass only whites and others when the diabetes risk is communicated. In the context of diabetes, the construction of the category of South Asian is the most interesting one, meshing the many people of Bangladesh, India and Pakistan into one large ethnic group. This is quite contrary to the vast ethnic diversity in India that has been pointed out by Indian researchers (Unnikrishnan et al., 2016).

On a more personal level Keval (2016, p. 65) shares his experience:

“When I present myself to my GP surgery, I appear as a mid-40s male, British South Asian in origin. The advice I am automatically given, regardless of any personal, socio-economic, material, biographical, or sociocultural context, is that I am at a

¹ Column 1 and 2 are based on (Smith, et al. 2000), column 3 and 4 are based on <https://riskscore.diabetes.org.uk/start>

higher risk of acquiring diabetes than another mid-40s male with an identical profile, who happens to be classified as ‘White’.”

This experience may on the one hand be seen as founded in epidemiological research, where the evidence base for categorising South Asians as having elevated risk for diabetes is strong. At the same time his experience demonstrates how this evidence is reframed into a stereotype in the individual clinical encounter. This is similar to what can be found in other ethnic groups identified as high-risk individuals. It is also the experience of people categorised as obese, a point that we shall return to below.

The arbitrariness of the epidemiological construction of statistical persons is clearest in the following statement from the development of the AusDrisk calculator (Chen, et al., 2010, p. 199):

“Therefore, people of southern European, Asian, Aboriginal and Torres Strait Islander and Pacific Islander background were combined into a single, high risk ethnic group.”

In the present version of the calculator (checked online 13.11.2020) ethnicity is scored on two sub-questions, reflecting a reshuffling of the groups compared to the original version. This difference does not, however, change the importance attributed to ethnicity in the calculator.

The burden of making the development of diabetes an individual responsibility

As noted at the beginning of this text, the present risk discourse is based on the notion of health risks as the outcome of individually chosen lifestyle, making attributions of individual responsibility tempting. Not surprisingly, the outcome of such attributions may be the shaming and blaming of people with diabetes. Recently it has been reported that character flaw/failure of personal responsibility and burdening of the health care system are among the most frequently reported stigma among predominantly white Americans with T1D and T2D (Liu et al., 2017).

Such experiences are not exclusive to Americans, however, as demonstrated by a review of the international literature (Schabert, et al., 2013). The types of stigma differ across cultures, but the resulting stereotypes contribute to negative psychological well-being and concealment efforts affecting self-care, and eventually clinical outcomes. Matters are not helped by the fact that various groups of health professionals contribute to the stigmatization of people who are defined as overweight and obese (Puhl, et al., 2016). In recent decades, obesity and overweight have been singled out for special attention among the risk factors for T2D, bordering on monocausality, hence the introduction of the term ‘diabesity’ (McNaughton, 2013). As a consequence, professionals’ attitudes towards people with obesity also influence diabetes interventions.

The strong belief in individual responsibility for diabetes and strong focus on obesity is also reflected in the framing of RCTs for lifestyle interventions against T2D (Bombak, et al. 2020), which is the backbone of the legitimation for psychological lifestyle interventions, as those presented by West et al., (2016). Beyond optimistic claims of evidence-based interventions, it is hard to find reflections on the resources needed to live a life according to the most intense of these interventions. Not resources in the form of cognitive ability, but more in the terms of time and money. This example of planned behaviour from a 5-step program may serve as an illustration – “Each Monday I will bring sensible, ready to eat snacks to the office and keep in my desk drawer and plan to walk with my coworker during break” (Ibid, p. 622). Whereas there is little reason to doubt that this is good strategy for some, there are certainly individuals who are not in a position to make the choices taken for granted in this plan.

Seen from a slightly different perspective in psychology, Roberto (2020) explains how structural factors influence our daily lives in what she calls “modern food environments”, exploiting our tendency for present-biased preferences and planning fallacy, contributing to unhealthy food choices. Her conclusion is that lasting changes can only be achieved through changing these environments, that are part of the larger construct of “obesogenic” environments. In this sense, the dominant individual approach to diabetes may also be seen as the outcome of a discourse mirroring the fundamental attribution error.

Overlooking structural injustice and poverty

The appeal of the individual approach should come as no surprise, given its foundation in the ideals of individual liberty and the apparent backing it has in scientific evidence. It is, however, worth remembering that this evidence is stripped of context through the overlooking of the many factors outside individual control that are crucial to people's health. The influence of social determinants on health and diabetes has very recently been reviewed by Hill-Briggs, et al. (2021), demonstrating that in the US, factors such as socioeconomic status, neighbourhood and physical environment, food environment, and social context have considerable impact on the risk of getting T2D.

This situation is just one example of what has been described as the health gap, reflecting that we are living in a world where the resources are unequally distributed (Marmot, 2015). Addressing the issue of personal responsibility for one's own health, Marmot stresses that people's responsibility is limited by the factors that they cannot control, making an appeal for greater interest in the causes of the causes. Among these may also be the coproduction of genes and environment in an epigenetic intergenerational model, according to which diabetes may develop over generations related to the individuals' history in utero (Chaufan, 2008; Zimmet 2017).

Appreciating the potentially negative outcomes of ignoring social forces when approaching individual patients, an appeal has been made for raised attention to them not only in public health but also in physicians' clinical practice (Holmes et al., 2020). There is good reason to believe that this is an appeal that may be extended to any health care profession.

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