

Topic 5: Biological and behavioural determinants of health

Biological determinants

In Topic 1 this week, we introduced you to the biological determinants of health. These include a wide range of factors which can lead to diseases pathways (Wheeler et al. 2013). These include the 'inner physiological aspect of health and disease. Genes play a crucial role in underlying biological differences between individuals' (Liampouttong 2019, p. 9).

NSW Health (2010) has classified biological determinants as genetic, body structure and body function. We are going to work through these categories, though not in great detail. For the purpose of this subject, you just need to understand that while there are boundaries between biological risk/ protective factors and health conditions, these are not well defined.

Click on the below headings to reveal further information.

> **Genetic**

> **Body structure**

> **Body function**

Biological determinants affect characteristics of body functioning that may be protective or risk factor determinants of health. They may be causally related or strongly associated with the propensity for health or for disease, disability or injury.

Broadly, we know that increasing age is the biggest risk factor for decreasing health status, males and females have some different genetic risks, some people 'carry' specific genes that cause significant illness, and the human genome 'project' is constantly making new discoveries about genes and gene patterns. We also know that almost all diseases have a genetic component. However, the importance of that component varies because multiple determinants interact with the genes that are associated with diseases. Biological factors frequently have contributing environmental and, to some extent, social factors which combine to influence health status and health outcomes.



Recommended reflection

Reflect on how your genetics, body structure and body function might influence your health and wellbeing outcomes.

Record your reflections on the following padlet.

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2023 PHE5PUH T2 Week 4, Topic 5: Genetics and health

Reflect on how your genetics, body structure and body function might influence your health and wellbeing outcomes.



My Biological
Determinants of
Health

Eliza Bell-White 7d
My Biological Determinants
of Health

Genetic:





Recommended reading

To learn more about sex disparities in coronary heart disease read this article from Lee et al. (2019).

- Lee, CMY, Mnatzaganian, G, Woodward, M, Chow, CK, Sitas, F, Robinson, S & Huxley, RR 2019, 'Sex disparities in the management of coronary heart disease in general practices in Australia', [Heart](#), vol. 105, no. 24, pp. 1898–1904

To further expand your understanding of sex as a biological determinant, read this article from The Conversation about changes in the way women are now being prescribed medication to account for their biological differences.

- Colville, D 2017, 'Medicine's gender revolution: how women and stopped being treated as "small men"', [The Conversation](#).

Influencing the biological determinants

Some risks from biological determinants are modifiable, but others are non-modifiable. However, people's experience of those conditions can be ameliorated by access to good care and social support, and particularly those who have economic resources (i.e. more wealth) and better education will generally do better over time.

Click on the below headings to reveal further information.

> Non-modifiable

> Modifiable

Undoubtedly, the broad social and environmental conditions in which we live, work and play (such as the social gradient and education) play a big role in how people experience similar conditions differently.

The effects of determinants at this level can also be modified by lifestyle factors, which are frequently the target of health promotion. Further, genetic interventions are becoming increasingly available (and generating ethical dilemmas concerning both the process of development and the accessibility of treatments).

Burden of genetic diseases

Chronic diseases such as asthma, diabetes and Alzheimer's disease impose the highest genetic 'burden of disease', mainly because of their high prevalence in the population. But people with genetic predisposition to these conditions and who live in poverty, have low education/literacy skills, poor housing and poor social support will experience a higher burden of illness. The concept of 'burden of disease' can be defined as 'an assessment of the amount of ill health in a population measured in disability adjusted life years (DALYs) arising from diseases and injuries' (Keleher & MacDougall 2015).

Case study: Ethnicity, genetics and body functioning



Some genes are more common in people with common geographic ancestry. For example, sickle-cell anaemia is more common in families from Africa, India, Mediterranean countries, Saudi Arabia, the Caribbean islands, and South and Central America. We also know that body functioning differs between race. We also see that South Asian people (people who have originated from India, Sri Lanka, Pakistan, Nepal and Bangladesh) have a higher risk of both type 2 diabetes (Cappuccio et al. 1997; Cappuccio et al. 2002; Mohanty et al. 2005) and cardiovascular disease (Bhopal et al. 1999). This pattern exists both in their countries of origin as well as in countries they have migrated to (Bhopal 2014). Australian research by Gupta and colleagues (2015) found that South Asian people have a much higher risk of cardiovascular disease and type 2 diabetes than Anglo-Australians. South Asian people, of which Indians are a large number, are one of the largest sources of current migrants to Australia and thus their high biological risk must be considered in clinical practice, and in public health and health promotion work.

Health and wellbeing at a biological level is shaped by the broader conditions in which we live, work and play.



Recommended reading

This literature review explores the role of race, ethnicity and social determinants of health on diabetes outcomes, including factors such as social support, food security and social cohesion. The article advocates the need for health professionals to take into account biological factors and social determinants in their provision of clinical care.

- Walker, R, Williams JS & Egede, L 2016, 'Influence of race, ethnicity and social determinants of health on diabetes outcomes', [American Journal of the Medical Sciences](#), vol. 351, no. 4, pp. 366–373.

Behavioural determinants

At the start of this week in Topic 1 we noted the influence of behaviours at an individual lifestyle level and how these can influence health and wellbeing. In this section, we are now going to explore behavioural determinants in more depth. The field of health psychology has examined psychological determinants of health behaviours for decades (Conner & Norman 2017) and this has resulted in the development of several influential models.

For example:

- The Health Belief Model (Becker 1974)
- Protection motivation theory (Maddux & Rogers 1983)
- Self-determination theory (Ryan and Deci 2002)
- Theory of reasoned action/theory of planned behaviour (Ajzen 1991)
- Social cognitive theory (Bandura 1982)

These models contain a number of common determinants. Bandura summarises these below:

Click on the below headings to reveal further information.



- > **Knowledge of health risks and benefits of different health practices**
- > **Self-efficacy or perceived self-efficacy over one's health habits**
- > **Outcome expectancies**
- > **Positive and/or negative self-evaluations**
- > **The health goals people set for themselves and the concrete plans and strategies for realising them**
- > **Perceived facilitators and impediments**

The regulation of behaviour is not solely a personal matter. Our personal behaviours are shaped and constrained by where we reside and our health systems.

Behavioral theory – nature vs nurture personality? [8:53 mins]

Watch this video on behavioural theory and nature vs nurture. At the end of this video you are asked to reflect on your daily habits.

Behavioral Theory - Nature vs Nurture Personality?



Recommended reflection

In the following padlet, answer the following questions in relation to your daily habits in a world with COVID-19.

1. What are your daily habits?
2. Why do you do these?
3. Are there rewards or punishments for your habits?
4. Do your habits reflect who you are as a person? Or do they reflect the values and patterns of thought you have established over the years?
5. What motivates you to continue with these daily habits?
6. What are your thoughts on the role of governments in dictating some of these daily habits?



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2023 PHE5PUH T2 Week 4, Topic 5: Daily habits and health

Reflect on how your daily habits may indicate things about you and your health.



COVID-19
behavioural
reflections

 Christopher Fagg 15d
COVID-19 behavioural
reflections

In regards to COVID-19, my habits have definitely changed since the height of the pandemic in 2020/21 to my habits in 2023. I will use the example of walking my dog as it was one of the few things I was allowed to do during the pandemic and was one of the simple pleasures I realised I took for granted.

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Recommended reading

Please read the following paper which highlights the importance of understanding how individual lifestyle factors are constrained or supported by broader social networks, living and working conditions, and our socioeconomic, cultural and environmental conditions in which we live, work and play.

- Baum, F & Fisher, M 2014, 'Why behavioural health promotion endures despite its failure to reduce health inequities', [Sociology of Health & Illness](#), vol. 36, no. 2, pp. 213–225.

Recommended videos

Determinants of health: A framework for reaching healthy people 2020 goals [5:12 mins]

This video explores individual behaviours and biological determinants in the context of broader social determinants.



Determinants of Health A Framework for Reaching Healthy People 2020 Goals



Three myths of behavior change – What you think you know that you don't, Jeni Cross at TEDxCSU [18.31 mins]

In this video, Professor Jeni Cross discusses her work around changing behaviours.

Three Myths of Behavior Change - What You Think You Know That You Don't:...



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