Cardiovascular diseases (CVDs) are the leading cause of death worldwide, resulting in almost 18 million deaths every year. These include disorders of the heart and blood vessels, around 85% of people who die from CVD do so as a result of heart attacks or strokes. Although CVD is prevalent in every part of the world, 75% of deaths occur in low-and middle-income countries. India is no exception. With a population in excess of 1.3 billion, nearly one in three deaths are due to CVD. In addition, when compared to people in high-income countries, Indians are more likely to be diagnosed with CVD at a younger age, i.e. before 65 years old. This means that many people in India experience CVD when they are still of working age, placing a greater burden on families who may suffer from a loss of income.

**Fighting heart disease begins at home**

Dr Panniyammakal Jeemon and colleagues at the Sree Chitra Tirunal Institute for Medical Sciences and Technology, Kerala, India, investigated the impact of family-based interventions in reducing the risk of CVD. His work demonstrates the key importance of the family unit in promoting cardiovascular health to prevent future catastrophic events.

Dr Jeemon played a key role in a large-scale trial, called the Programme of Lifestyle Intervention in Families for Cardiovascular Risk Reduction (PROLIFIC), that aimed to deliver targeted preventive care to families at high risk of CVD in Kerala, India. Kerala has the highest rate of ischaemic heart disease (also known as coronary heart disease; caused by narrowed arteries) of any Indian state. Adults living in Kerala have a 10-year risk of experiencing a CVD event of 20%; that is, they have a 1 in 5 chance of suffering CVD within the next ten years. In addition, around 20% of families in Kerala have a family history of premature ischaemic heart disease. Dr Jeemon’s research also shows that individuals who have a family history of premature ischaemic heart disease are at 9-times higher risk of developing a future cardiovascular event than individuals without such family history. This means that Kerala is ripe for interventions like PROLIFIC, seeking to drive down the risks of CVD in those families most likely to be affected.

The PROLIFIC trial was based on the fundamental idea of the family as a unit. In terms of making decisions and following through with changes in behaviour, the family can be seen as a system. For example, if one member of a family experiences a life-threatening medical emergency, such as a heart attack, other family members may change their own behaviour as a result. These changes could involve alterations to diet, attempts to cut down on smoking or drinking, or a commitment to exercise, amongst other things. If the family, as a whole system, supports these changes, there is a better chance that they will lead to a lifestyle with a reduced risk of CVD.

Whether or not lifestyle interventions are successful depends on a number of factors. For example, research has shown that people’s dietary habits can be greatly influenced by family and friends. Active support from family can therefore significantly improve an individual’s likelihood of maintaining changes to their lifestyle. However, a lack of understanding of CVD risk factors, along with a failure to adapt lifestyle recommendations to a specific culture, can lead to failure of public health interventions.

**Family support offers a route to better health**

In recent work, published in the Open Research Journal, Dr Jeemon looked at the reasons why people at risk of CVD might fail to engage with lifestyle interventions. Specifically, Dr Jeemon and his colleagues sought the views of people participating in the PROLIFIC trial, as well as those of their family members and community health workers. The team also investigated why people might be more, or less, likely to participate in and engage with programmes that aim to improve health through lifestyle modifications.

It quickly became clear that many of those interviewed were aware of the risk of a family history of CVD. This was often the driving force behind enrolment in the PROLIFIC trial. Several of the younger participants explained that they had witnessed older relatives suffering from CVD and were keen to avoid the same conditions themselves. As part of the PROLIFIC trial, participants had their blood pressure and blood sugar levels regularly checked by community healthcare workers, a strategy commonly referred to as ‘task-sharing’.

The work of Dr Panniyammakal Jeemon demonstrates the key importance of the family unit in promoting cardiovascular health to prevent future catastrophic events.
Behind the Research

Dr Jeemon Panniyammakal

Research Objectives

Dr Jeemon Panniyammakal’s research is focused on chronic disease epidemiology.

Detail

Jeemon Panniyammakal

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Bio

Dr Jeemon obtained his PhD in medical cardiology from the Institute of Cardiovascular and Medical Sciences, University of Glasgow. He is currently a Wellcome Trust-DBT India Alliance fellow, Fellow of the European Society of Cardiology, Senior Research Fellow at University of Birmingham, UK and Affiliate Research Fellow at the University of Glasgow, UK. He is also part of the World Heart Federation’s Emerging Leader’s Cohort of 2019.

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Collaborators

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References


Personal Response

How will your research findings help lifestyle intervention programmes like PROLIFIC be adapted for different cultures, or for different parts of society?

Despite variations in family structure, there are a lot of similarities in the major domains of family functions across different cultures. Unequivocally it is also established that family history of premature ischaemic heart disease is a strong risk factor for future cardiovascular events. The PROLIFIC study exploits the interconnected nature of the individual, the family and their environment, and recommends family based strategies for early adoption of healthy lifestyle and maintenance of optimal cardiovascular health. The PROLIFIC interventions are tailored to the needs of the family members and can be easily adapted across different cultural settings.