Non-Communicable Diseases (NCDs), Physical Activity and Oral Disease

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Introduction

Non-Communicable Diseases (NCDs) are a rapidly growing pandemic in the global setting that requires urgent and innovative action [1]. Cardiovascular diseases, diabetes, cancers and chronic respiratory diseases are the primary NCDs, and are responsible for over 80% of all NCD deaths globally. They and other NCDs, particularly mental illness, and chronic musculoskeletal conditions also contribute significantly to morbidity and disability.

The primary NCDs present clinically on a continuum ranging from normal (no risk factors or disease), to presence of NCD risk factors, pre-clinical disease, manifested disease, and disease with complications [2]. There are four main metabolic and physiological changes that are associated with the increased risk of NCDs: raised blood pressure, overweight/obesity, hyperglycaemia and hyperlipidaemia. These, in turn, are all associated with modifiable lifestyle behaviours, namely smoking, diet, physical inactivity and alcohol misuse.

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Tobacco Use</th>
<th>Unhealthy Diet</th>
<th>Physical Inactivity</th>
<th>Harmful Use of Alcohol</th>
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<td>Diabetes</td>
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<td>Cancer</td>
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<td>Chronic Respiratory</td>
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<td>Oral Diseases</td>
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Fig 1: Non Communicable Diseases. 4 modifiable shared risk Factors. 5 Diseases [9]

NCDs In South Africa (SA) – prevalence of NCD risk factors, NCDs, other chronic illness and “colliding” pandemics

In a recent study in 3 840 individuals over 50 years of age in South Africa, the prevalence of chronic NCDs was 51.8%. The prevalence of multimorbidity (>2 chronic conditions) was 22.5%. In an analysis of the data from the WHO Study of Global Ageing and Adult Health that examined the prevalence of chronic NCDs was 51.8%. The prevalence of multi-morbidity is also associated with increased risk of NCDs, and can be a significant barrier to increasing physical activity.

Physical inactivity as a specific target intervention to reduce NCDs in South Africa

Increased physical activity has been shown to reduce or prevent part of the treatment of all the main causes of NCDs (cardiovascular diseases, diabetes, cancers and chronic respiratory diseases). It has mental, physiological and metabolic benefits: NCD risk factors including hypertension, obesity, altered glucose metabolism, and diabetes, and hyperlipidaemia. Increasing physical activity also impacts positively on modifiable behaviours especially smoking, and has health benefits in patients with mental illness (chronic anxiety and depression associated with chronic disease) [6], and HIV disease patients [7]. Physical activity is also a key component in the treatment of many chronic musculoskeletal conditions, including osteoarthritis, low back pain, and rheumatoid arthritis. Therefore, targeting physical inactivity, as a risk factor for NCDs and other chronic illness and injury, should be a priority of all intervention programs for NCDs.

The link between oral health and NCDs

Oral diseases, such as tooth decay, affect 80% of the world’s population and share common risk factors with the four main NCDs (Fig 1). Furthermore, there is scientific evidence of an association between oral health and major NCDs [8].

- Diabetes mellitus is a risk factor for the development of periodontal disease and, conversely, the treatment of periodontal disease improves blood glucose control.
- There is a proven link between periodontal and cardiovascular diseases. There are significantly higher incidences of atherosclerotic cardiovascular disease in subjects with periodontal disease compared to subject with no, or less severe, oral disease. It has been postulated that following oral-haematogenous spread, the pathogen P. gingivalis through a series of physiological processes, causes atheroma progression [9].
- Tobacco use and excessive intake of alcohol are the two major risk factors for oral cancer, one of the most common cancers.
- Respiratory diseases may be influenced by oral microflora.

Opportunities for Collaboration between Dental and Medical Professionals

In 2012 the FDI World Dental Federation published a guide to advocacy entitled “Oral Health and the United Nations Political Declaration on NCDs”. Figure 2 is a graphic illustration of key messages listed as a way for national dental associations to contribute to the fight against NCDs [8].

The NCD risk in Sub Saharan Africa and SA is compounded by an existing infectious chronic disease (ICD) pandemic of HIV, tuberculosis and malaria. Besides comorbid non communicable and ICDs, significant morbidity is also associated with two other “silent” chronic epidemics – mental illness and musculoskeletal injury and disease. The burden of chronic musculoskeletal disorders in developing countries is 2.5 times greater than in the developed world [5], but there is a lack of data from these countries, including South Africa. Chronic musculoskeletal conditions are also associated with increased risk of NCDs, and can be a significant barrier to increasing physical activity.

References