Cumulative life damage in dermatology

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Abstract

Cumulative life damage is an old concept of considerable face validity, which has attracted more scientific interest in the fields of sociology and psychology than in medicine over the years. The research examines the interconnectivity of the many factors which shape the development of individuals or institutions over time. By focussing on time, context and process, life course research highlights the different effects seemingly similar events may have at different points in time and in different contexts.

Introduction

Cumulative life damage is an old concept of considerable face validity, which has attracted more scientific interest in the fields of sociology and psychology than in medicine over the years. In a philosophical context the concept of determinism has been the subject of much discussion. In sociology the analysis of factors which convey either advantages or disadvantages to the development of an individual over the entire course of their life have been traditional area of interest. In an empirical rather than a theoretical context it is of obvious interest how general conditions, resources and single events in the course of a lifetime add up to shape the entire life course. Life course can be defined as a *sequence of socially defined events and roles that the individual enacts over time*[1] and the research examines the interconnectivity of the many factors which shape the development of individuals or institutions over time. By focussing on time, context and process, life course research highlights the different effects seemingly similar events may have at different points in time and in different contexts. In a health context, this may be particularly appropriate in chronic diseases where the morbidity is influenced by several factors over long periods of time. Here life course research is looking at how related negative health events, assembled into a specific diagnosis but spread over a lifetime, summate under the influence of the persons abilities and resources to produce an overall impact of the disease. Life course research has therefore been applied in studies of degenerative disease, but the perspective offered may also provide important insights into e.g. adolescent disease where major life events shape the responsiveness of the patients to patophysiological changes.

Cumulative life course impairment in dermatology

In medicine it may be directly linked to the concepts proposed by the World Health Organisation in the definition of health. Three core concepts are used to describe morbidity: Impairment, disability and handicap. Impairment is defined as the loss or abnormality of physical bodily structure or function, of logic-psychic origin, or physiological or anatomical origin. The impairment is the basic pathology of the disease, e.g. the eczema, the scleroderma or the tumour. Impairments lead to disabilities. Disability is defined as any limitation or function loss deriving from impairment that prevents the performance of an activity in the time-lapse considered normal for a human being. The disability in a dermatological context is therefore e.g. the psychosocial consequences to the individual with a severe acne vulgaris. The disability may in turn lead to a handicap, which is defined as the disadvantaged condition deriving from impairment or disability limiting a person performing a role considered normal in respect of their age, sex and social and cultural factors. A dermatological example of handicap would be the loss of employment suffered in consequence of hand eczema.

In many ways the concept of cumulative life course impairment (CLCI) is particularly suited to dermatology, as the diseases are rarely lethal and well within the realm of the psychosocial sphere due to their immediate visibility and obvious presence even to the untrained eye. Stigma as well as socialisation are therefore important factors when assessing the impact of skin disease on patients. In addition to these psychosocial consequences of skin disease, dermatological conditions frequently have symptoms that are difficult to control adequately influencing the resources of the patients negatively. The balance between the stressors and coping abilities of the patients may therefore be more volatile, which over the course of longstanding disease may lead to more negative events and life course changing consequences. It may be argued that CLCI reflects the handicap of the disease in the broadest sense of the word, but offers the dynamic perspectives of time and context thereby identifying additional opportunities for adjuvant interventions beyond the narrow biological process at the root of the handicap. In the following we will review some of the evidence supporting the concept of CLCI in dermatology.

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Hand eczema

Hand eczema is a major occupational hazard in many countries, and management often difficult. It has an acknowledged negative impact on the quality of life,[2-5] but studies also suggest that the development of hand eczema causes CLCI. In a one year follow-up study of secondary individual prevention in health care workers with occupational hand eczema by Diepgen and co-workers, a beneficial effect of the intervention was found, but in spite the structured intervention 9% of the patients studied had left their job due to the skin disease.[6] This suggests that even with specific interventions aimed at improving the coping abilities of the patients, occupational hand eczema has a significant life course impact. A similar result was found in a study of kitchen employees.[7] The relevance of CLCI in occupational hand eczema is underlined by the findings in a study by Cvetkovski *et al*. that indicating the consequences of the disease are affected by the life conditions of the patients. Patients with lower socioeconomic status were found to have a higher risk of prolonged sick leave, job change, and loss of job, whereas the identification of a specific contact allergy was not found to be a risk factor for poor prognosis.[8] Severe hand eczema and lower socioeconomic status were both associated with a lower quality of life.[2] In a study by Fowler *et al.* it was found that hand eczema had a detrimental effect on working productivity, activity impairment and health care costs.[3]

Acne

Acne is a common skin disease, and in milder forms often seen as physiological. In

terms of CLCI two factors have been described in the literature: psychological consequences and social consequences.

This is a skin disease that affects predominantly teenagers, i.e. persons at a dramatic developmental stage of their life, making them susceptible to many factors. It is well established that quality of life is adversely affected by acne, and the consequences of this has been the topic of some debate. Although studies have found no increase in depression among acne patients,[9] a recent population based study found acne associated with depression, suggesting insufficient coping in this group of patients.[10] It has previously been shown that acne is a common diagnosis among dermatological patients who commit suicide due to their disease, indicating that acne may be associated with the ultimate CLCI.[11]

In societal terms data exist to suggest that acne can have a considerable negative CLCI, as unemployment has been shown to be higher among acne patients than controls, suggesting that the changed appearance and possible prejudice associated with skin disease negatively affects the prospects of acne patients. These observations may however also be secondary to the self-image of acne patients or due to other hitherto undescribed mechanisms.

Atopic eczema

Atopic eczema (AE) is a frequent disease affecting up to 1 in 5 preschool children, and although the majority of cases appear to resolve spontaneously, a history of AE conveys a lifelong increase in the risk of developing hand eczema. Because of the frequent spontaneous resolution AE is more difficult to study in a CLCI context. It has never the less been shown that patients with severe AE in childhood have delayed socialization, indicating that the skin disease has psychosocial consequences which reach beyond signs and symptoms of the disease itself. Several studies have described the negative effects on the quality of life of the individual patient, and recently this has been extended to the household.[12,13] By describing the family impact of skin disease, Finlay and coworkers have suggested that the family unit as a whole is adversely affected by skin disease, indicating that CLCI may occur indirectly as a consequence of illness in the family.

For adult AE patients it has however been shown that AE leads to job changes and increased number of sick days off work. The flares as well as the increased risk of flares associated with jobs that involve a chemical or mechanical strain on the skin play a role in the career choice of AE patients, thereby providing long-term influence on their life course. Finally AE may lead to job loss, and if severe to disability pension.[14] Although the numbers are small it is also suggested that a number of patients receive permanent disability pensions due to AE indicating major CLCI.

Psoriasis

Psoriasis is often taken as a prototypical skin disease causing embarrassment and stigma. It is also suggested that it may be triggered by significant life events, suggesting that it is at least temporarily linked to major traumatic life events.[15] It has furthermore been suggested that while most diseases may be associated depression at their onset, psoriasis, myocardial infarction, and migraine are also associated with with depression on subsequent flares, suggesting that the disease may have a more profound effect on the psyche than many other diseases.[16] Whether any subsequent psychosocial impact of psoriasis on the lives of patients is a consequence of this psychological mechanism or due to stigma is not currently known, but it has been shown that psoriasis is associated with low quality of life particularly among the socioeconomically challenged.[17] The relationship between the psychosocial burden of psoriasis, the disease severity and the social and economical achievements of psoriasis patients is at best described as complex.[18] It is however clear that the diagnosis of psoriasis, and in particular severe psoriasis, is associated with concrete life-event differences from other patients.[19] For psoriasis patients approximately 30 years old, higher divorce rates are seen than in others, suggesting the disease affects social connectivity, which may also reflect in the worklife of patients.[20] This is further supported by the observation that psoriasis is the second most common disease associated with disability pensions.[21] Psoriasis has therefore been suggested as a model of dermatological life impairment.[22]

Conclusions

The concept of CLCI appears well suited to describe the handicap of dermatological disease. The chronic recurrent nature of the diseases, coupled with their visibility and the ability of lay persons to recognise pathology immediately, indicates that skin disease may affect both context and process repeatedly leading to handicap. Data are however sorely lacking to provide an adequate model of CLCI in dermatological disease. The present knowledge is based on few descriptive surveys, most often without a control group making it difficult to draw conclusions. Furthermore, data have not been gathered systematically, which means that a number of possible confounders such as education, socioeconomic status, family context etc. are not available. The introduction of CLCI into dermatological research therefore necessitates the development of appropriate technologies to identify the mechanisms that would allow predictions to be made and in consequence possible intervention studies.

In addition to methodological developments such as prospective databases, additional case-control studies are needed to further describe the available data and substantiate the role of CLCI in dermatology.

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