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OBM Geriatrics

Opinion

Do Social Isolation and Loneliness Kill People with Alzheimer's Disease?

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Academic Editors: Miyako Tazaki and Michael Fossel

Special Issue: Treatment of Dementia

OBM Geriatrics
2018, volume 2, issue 4
doi:10.21926/obm.geriatr.1804021

Received: October 04, 2018
Accepted: November 24, 2018
Published: November 27, 2018

Keywords
Loneliness; social isolation; Alzheimer's disease

Mortality following the initial clinical manifestations of dementia can vary but it is widely accepted that dementia is a terminal illness reducing life expectancy [1]. Causes for the amplified mortality are not established. Rhodius-Meester and colleagues have recently reported on disease-related causes of death linked with mortality in Alzheimer's disease (AD) concluding that in comparatively younger sample of patients with AD, disease-related determinants were associated with an increased risk of mortality, while neither physical or psychiatric comorbidity nor APOE genotype status had any prognostic significance [2].

We wish to highlight an additional public health threat to people with AD, loneliness, which is relevant to consider in discussing mortality risk factors. Loneliness, social isolation and living alone foretell an increased premature mortality odds, and the World Health Organization nowadays lists "social support networks" as a "determinant of health." Loneliness is accompanied by cardiovascular and cerebrovascular disease [3] as well as mortality. A meta-analysis including 70 studies encompassing 3.4 million people established that loneliness, social isolation, and living

alone all had a significant effect on the risk of premature deaths in the range of 29% to 32% increased likelihood of mortality [4].

The population attributable fraction for social isolation as a risk factor for the development of AD is similar to that for hypertension and physical inactivity. Social isolation might be a prodrome or a part of the dementia syndrome. However, evidence is growing that social isolation is a risk factor for dementia and it increases the risk of hypertension, coronary heart disease, and depression. Social isolation might also result in cognitive inactivity, which is linked to faster cognitive decline and low mood. All these are risk factors for dementia themselves, but at the same times have all been linked to increased mortality [5]. Thus, the mechanisms by which loneliness affects mental and physical health remains largely unclear but health behaviours, excess stress reactivity, inadequate and inefficient physiological repair and maintenance processes are thought to play an important role in how loneliness has an impact on health.

Loneliness is a highly prevalent experience in AD. Already in 2000 the Kungsholmen longitudinal project demonstrated that cognitively intact elderly subjects self-reported loneliness significantly less often compared to subjects with dementia, but there were no differences in the emotional experience of loneliness [6]. Cognitive and functional impairment observed in AD, thwarts communication and social interactions. One consequence of this obstacle to the maintenance of social interactions may be a feeling of loneliness. In fact, more social isolation, and loneliness are found in AD cohorts than in healthy control groups [7]. The experience of loneliness starts early in the disease course. In fact, loneliness is more uniquely associated temporally with MCI. In a typical community cohort of 4,803 older adult individuals irritability, loneliness and subjective slowing recognized at baseline were associated with incident MCI [8]. Loneliness is associated with moving into a care facility and this association perseveres after adjusting for established predictors such as age, depression, memory impairments including diagnosis of AD, disability and enduring physical health [9]. The negative impact of dementia on relationships, intimacy, and sexuality has been widely documented. Increasing social isolation and loneliness are invariably part of the experiences of the individual and dyad struggling with AD [10].

Loneliness has been classically defined as a subjectively experienced aversive emotional state that is related to the perception of unfulfilled intimate and social needs. There are two types of loneliness: social and emotional loneliness. Social loneliness occurs when the amount and quality of relationships with others is smaller than one desires. It concerns the subjective experience of the quality of relationships. Emotional loneliness occurs where the perceived intimacy in relationships is not satisfactory. Emotional and social loneliness are also referred to as intimate and relational loneliness, respectively. Emotional and social loneliness are distinct from social isolation, which can be defined in terms of a quantifiable reflection of the social network size and frequency and paucity of contacts. Focusing on each of these definitions does not seem to change the adverse outcomes assessed. Recently, an exploration of how loneliness, social isolation, and social support relate to morbidity in later life demonstrated that both social isolation and loneliness imparted health-damaging effects. Situational loneliness, by definition, is a transient experience, albeit painful, whereas individuals who suffer from chronic loneliness experience these unwelcome feelings, with proven health-damaging effects, for long periods of time [11, 12]. From a theoretical point of view, these two types of loneliness are different in nature and thus, may influence mortality differently. However, in a longitudinal study that employed the situational versus chronic loneliness differentiation, chronically lonely individuals had shown poorer physical

health in terms of chronic illnesses while both types of loneliness were associated with increased mortality rates.

It is surprising that only one study published to date has focused on both social and emotional loneliness [6]. The expanding research into objective social behavior and social metrics in dementia may inform us in the coming years about the difference and relevance of objective versus subjective measures of social function. This is an area that is generally less explored and we can only speculate that future research might suggest the neurobiological adverse effects of loneliness possibly mediated through sensory deprivation affecting a person's ability to comprehend emotional valence in complex social interactions.

Already in the 1990s when constructing AD patients' narratives researchers reported on the loss of identity, confusion and loneliness. Qualitative interviews with AD family caregivers in the USA identified and described three dissimilar story styles, each with a distinct configuration of illness meanings and principal theme. One of the themes placed the elder's illness in stories about tragic losses, loneliness, and family responsibility [13].

Loneliness appears to be distinct from other AD-related deficits, with similar effects in patients with AD and cognitively intact comparison subjects. This suggests that models of loneliness developed in the general population may generalize to AD.

The fact that patients with AD have shortened life expectancy than the general older population is well established. Loneliness may be another risk factor to consider if we wish to understand and improve the premature mortality of AD.

Author Contributions

Both authors contributed to the conception of the work; acquisition and interpretation of relevant literature for the work; drafted the work and approved the version to be published.

Competing Interests

The authors have declared that no competing interests exist.

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