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## Alzheimer's Disease Burden, Diagnosis, and Care Systems: A Comparative Study Between Samarkand and Germany

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**Abstract:** Alzheimer's disease (AD) is the most common form of dementia and has become a devastating economic and social burden for an aging society. This report compares public health aspects of the management of patients with AD in Samarkand, Uzbekistan (prevalence, diagnosis and healthcare provision) and Germany. Secondary epidemiology data and health care systems from around the world were analyzed to explore differences in case detection, medical specialist accessibility, long-term care architecture and caregiving practices. Care is more established in Germany: there are dementia care resources, and diagnosis at an early stage is more common than in Samarkand. Nevertheless, reliance on informal family caregivers results from problems of underdiagnosis and lack of specialist support. Intervention points also includes public education and more screening programs, and greater healthcare access in low-income countries.

**Keyword:** Alzheimer's Disease; Dementia; Public Health; Aging Population; Healthcare Systems; Comparative Study; Samarkand; Germany

### Introduction

Alzheimer's disease is a neurodegenerative disorder that gets worse over time, leading to memory loss, cognitive decline and an overall inability to take care of oneself. Currently it affects about 55 million people worldwide, and contributes to roughly 60–70% of dementia cases [1]. Because of longer life expectancy, the overall burden of Alzheimer's disease is likely to substantially increase worldwide and especially in low- and middle-income countries. Thus, on one hand there is Germany which is a country with one of the fastest ageing populations in Europe and has a well-established infrastructure for dementia care and treatment; on the other hand there are brain healthcare practices of Samarkand as an example of local applications in a gradually aging population with limited facilities for diagnosis and chronic support [2]. This contrast raises important structures for comparative public health assessment.

### Literature review:

Worldwide research indicates that aging is the single greatest risk factor for Alzheimer's, followed by

genetic predisposition, cardiovascular risk factors, physical inactivity and low education [3]. The Lancet Commission on Dementia recently calculated that almost 40% of dementia may be potentially preventable or delayed worldwide by lifestyle and environmental risk factor modification [4]. A National Dementia Strategy has been introduced in Germany with focus on early diagnosis and community-care of dementia patients, as well as support for the affected caregivers; this has led to a better detection and treatment [5]. In contrast, those from Central Asia suggest growing prevalence of dementia with little community awareness, poorly developed registration and a shortage of trained geriatric specialists [6]. However, comparative studies between Western Europe and Central Asia are lacking, which underlines the significance of our study.

### **Relevance:**

This study is so critical as Alzheimer's disease has become one of the most common forms of disability among older people around the world. The comparison of Samarkand and Germany demonstrates the impact of healthcare infrastructure, prevention measures and development on dementia prevalence. The results reinforce evidence based planning for early detection, long term care services, and caregiver support within developing health systems.

### **Purpose of the study:**

The present study is intended to provide a comparative overview over the public health burden of Alzheimer's disease in Samarkand, Uzbekistan, and Germany based on the role of prevalence rate disease occurrence early diagnosis services for dementia specialist care long-term management system. The goal of the study is to better characterize structural deficiencies and opportunities for improving dementia care in resource-limited settings.

### **Materials and Methods**

This work was done in Samarkand and Germany on the comparison of the health burden, diagnostics capabilities as well as care systems for Alzheimer's disease adopting comparative cross-sectional observational study design. Secondary country-level information was sourced from the World Health Organization (WHO), the Global Burden of Disease (GBD) Dementia Database, OECD Health Statistics For Germany, and national public health reports on Uzbekistan [7], [8]. The elderly individuals aged 60 years and older in both counties were the study population. Outcomes included the prevalence of Alzheimer's and mortality due to dementia, as well as early diagnosis coverage, and availability of institutional long-term care. Explanatory variables were neurologist and geriatrician workforce density, the availability of memory clinics, public awareness of dementia, family-dependent caregiving needs [9], [10], [11], [12]. All indicators were specified according to the adopted standards of WHO and GBD in order to allow cross-regional comparison. Descriptive statistics were used to describe burden of disease and health system indicators. We conducted comparative analysis with percentage differences, and age-standardized rates were included to determine regional disparities. Data analysis was in accordance with epidemiological principles for population-based dementia studies. Since the study used only publicly available, anonymized secondary data, it did not need ethical approval and patient consent [13], [14].

### **Results and Discussion**

The comparative element pointed out stark regional contrasts regarding burden, diagnosis and management of Alzheimer's disease between Samarkand and Germany. The estimated prevalence of Alzheimer's disease in individuals aged 60 years and over was much higher in Germany (as a result of longer life expectancy and more systematic case finding), while a lower recorded prevalence was observed for Samarkand, with clearly underreported cases. The rate of early diagnosis in Germany was over 60%, while it did not reach even 20% in Samarkand, probably reflecting a delay in clinical presentation. Neurologist and geriatric specialist rates were much higher in Germany, access to memory clinics was wider, and cooperation between specialties more established. The homes (formal residential care facilities) in Germany covered nearly 50% institutional LTC, but patients from Samarkand had merely less than 15% facility-based provision. The

family-based caregiving was over 80% in Samarkand and about 40% in Germany. General knowledge regarding the signs and symptoms of dementia, as well as timely healthcare-seeking behaviour, was significantly greater in Germany. As a result, patients in Germany received prompt therapeutic treatment and an extended period of functional independence while those in Samarkand often consulted at later stages of the disease, showing more profound cognitive and functional deficits [15], [16].

## Conclusion

This study shows that Alzheimer's disease is becoming an urgent public health concern, both in Samarkand and Germany, linked mainly to the demographical transition into older ages. There is a substantial difference in healthcare system preparation in these two regions, however. Germany has high early detection, specialist care and long-term institutional support performance while Samarkand has great problems in late diagnosis, insufficient workforce production capacity and limited formal care infrastructure. The results clearly indicate the pressing need for National-level dementia plans in Samarkand that include public campaigns, early diagnostic interventions, human resource development and establishment of community-based and institutional long-term care facilities.

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