**Attitudes and Stigma toward Dementia Among Medical and Environmental Health Students at the School of Health and Medical Sciences at the State University of Zanzibar**

**ABSTRACT:**

 **Introduction:** Public stigma involves negative stereotypes of dementia patients as burdensome, leading to social distancing, while self-stigma refers to individuals with dementia internalizing these views, affecting their mental well-being. Structural stigma encompasses systemic barriers, including insufficient healthcare policies and resources. The role of medical students in shaping attitudes toward dementia is noteworthy, as they may hold negative perceptions that can impact the quality of patient care.

**Objective:** To assess attitudes and stigma about dementia among medical and environmental health students at the State University of Zanzibar.

**Methods:** A descriptive cross-sectional design was used to assess dementia-related attitudes and stigma among Medical and Environmental Health Students.

**Results:** The sample size was 150 students**,** 100% responded to the questionnaire**.** (e.g., 76.7% would live with a family member with dementia and 86.0% disagreed with feeling ashamed if a family member had dementia.). A significant proportion exhibited high levels of stigma (Notably, 64.7% strongly agreed they would not want their family to know if they had dementia), particularly regarding social distancing and family shame.

**Discussion**: Most students demonstrated positive attitudes overall, but a significant proportion exhibited high levels of stigma. Approximately 80% of students are not afraid to engage in conversations with someone who has dementia. There was a discrepancy between positive attitudes and harmful societal behaviours, such as avoidance and isolation.

**Conclusion:** The majority of participants in this study displayed a positive attitude toward dementia. However, some negative attitudes, including discrimination and social isolation, remain prevalent. These attitudes, such as avoidance, may hinder early diagnosis and impede access to adequate treatment for individuals with dementia. The findings highlight a notable presence of stigma: many students indicated they would prefer that their family did not know if they had dementia, even as an important subgroup is upset with the idea that time spent with dementia.

Key words: dementia, attitudes, stigma, students, Zanzibar, Tanzania

**Introduction**

Stigma is a deeply rooted societal issue that has significant implications for individuals and groups, particularly when it comes to health conditions like dementia. It refers to the negative perception or disapproval attached to individuals or groups who possess specific characteristics or engage in behaviours that are perceived as deviant or undesirable [1].

There are different types of stigma, each with its unique manifestations and consequences. **Public stigma** refers to the general societal perception of individuals with dementia and the prejudices they face. This often includes negative stereotypes that those with dementia are incapable, dependent, or burdensome; public stigma can produce social distance from people living with dementia[2]. **Self-stigma**, on the other hand, occurs when individuals with dementia internalize these societal beliefs and develop negative feelings about themselves, often leading to social withdrawal and reduced engagement in care or treatment [3][4]. Another form of stigma, **structural stigma**, pertains to the institutional and systemic barriers that exist in society, such as a lack of adequate healthcare policies or resources to support those with dementia[5] [6]. Stigma towards people with dementia can have profound effects on their mental health, treatment outcomes, and quality of life, as well as the overall societal response to the disease. The stigmatization of dementia is compounded by widespread misconceptions, lack of understanding, and societal attitudes towards ageing and cognitive decline, which continue to persist across cultures, regions, and communities[7] [8].

In addition to stigma, attitudes towards dementia play a crucial role in determining how individuals with dementia are treated[9]. Attitudes are defined as the evaluative judgments that individuals make about people, objects, or events based on their beliefs, feelings, and behaviours. In the case of dementia, attitudes can range from positive and empathetic to negative and discriminatory, depending on individual and societal perceptions of the condition. Medical students, as future healthcare providers, play a critical role in shaping attitudes towards dementia in healthcare settings. However, research suggests that medical students may hold negative attitudes towards dementia, which can impact their clinical practices and the quality of care they provide to individuals living with the condition [10]

The impact of stigma towards dementia is significant and far-reaching, both for individuals with dementia and the broader community. Stigmatization can contribute to social isolation, delay in diagnosis, and reduced access to healthcare services for those with dementia. Furthermore, stigma can deter people from seeking early diagnosis and treatment, resulting in poorer outcomes and diminished quality of life. This can be particularly problematic in low-income countries, where stigma and misinformation about dementia may be more pervasive, and the availability of healthcare services and educational programs may be limited [11][12][8] [13].

Stigma related to dementia is a global issue, affecting both high- and low-income countries. In Western nations like Dublin, growing awareness has not eliminated the persistent perception of dementia as a loss of personhood, leading to societal devaluation of affected individuals [14]. In contrast, in many low-resource settings, particularly in Africa, stigma is reinforced by cultural beliefs that attribute dementia to witchcraft, divine punishment, or normal ageing [15]. These misconceptions hinder recognition of dementia as a medical condition, contributing to inadequate diagnostic services and limited support systems. While recent initiatives have aimed to improve awareness and challenge harmful beliefs, stigma remains deeply rooted across many African communities [16].

In Tanzania, dementia is increasingly recognized as a public health concern due to the ageing population; however, awareness and understanding of the condition remain limited. Stigma is widespread, with many viewing dementia as a natural part of ageing or attributing it to spiritual causes [17]. This stigma, combined with inadequate training among healthcare professionals and medical students, contributes to delayed diagnoses, poor caregiving, and limited support for individuals with dementia and their families [18]. Medical students, as future healthcare providers, may internalize these negative attitudes, which can compromise the quality of care through poor communication and insufficient treatment. Addressing this issue through targeted educational interventions is crucial to improving knowledge, empathy, and respect toward people with dementia, ultimately enhancing clinical outcomes [19]. Dementia-related stigma is a global challenge with significant implications for individuals and healthcare systems. As future healthcare providers, medical students play a vital role in reducing this stigma. This paper examines the prevalence and impact of stigma and attitudes toward dementia among medical students in Zanzibar, emphasizing the need for education and intervention to improve care and support for affected individuals. The study **aims** to assess attitudes and stigma related to dementia among medical and environmental health students at the State University of Zanzibar. Specifically, it seeks to identify the socio-demographic characteristics of the participants, including age, gender, academic program, year of study, experience in health service practice, and whether they have a relative with dementia. Additionally, to examine students' attitudes toward dementia and to evaluate the extent and nature of stigma associated with the condition within this academic population.

 **METHOD**

This descriptive cross-sectional study was conducted from March to April 2024 at the School of Health and Medical Sciences (SHMS), State University of Zanzibar, to assess knowledge, attitudes, and stigma related to dementia among students. The target population included students enrolled in the Doctor of Medicine (MD) and Environmental Health programs, specifically those in their first and second years of study. The dependent variables were attitudes toward dementia and stigma-related factors such as beliefs, feelings, social isolation, and expectations. Independent variables included demographic characteristics such as age, sex, educational status, religion, and occupational status.

A simple random sampling (SRS) technique was employed to select participants for the study. The inclusion criteria consisted of first- and second-year students enrolled in the Environmental Health and Medical degree programs who provided informed consent to participate. Students who chose to withdraw from the study were excluded. The sample size was determined using the standard formula:
N=Z2×P×(1−P)E2N = \frac{Z^2 \times P \times (1 - P)}{E^2}N=E2Z2×P×(1−P)​
where *Z* is the standard normal value, *P* is the estimated prevalence [20], and *E* is the margin of error.

Therefore, the minimum required sample size is 105. However, to enhance the feasibility of the study, a sample size of 150 was used.

Data were collected using a researcher-administered questionnaire developed in English and adapted from validated tools. The questionnaire included items from the Dementia Knowledge Assessment Scale (DKAS, 25 items) [21], an Attitude Assessment Scale (8 items) [22], and a Stigma Assessment Scale (6 items) [23].

**Processing and Analysis**
The collected data were described, categorized by different variables, tabulated, and interpreted using graphical representations. The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23. Statistical techniques, including the chi-square test, analysis of variance (ANOVA), and odds ratios, were employed to examine the relationships between variables.

**Results**

**Table 1: Socio-Demographic Data of MD and BENVH Students at SHMS (SUZA), Zanzibar – 2024 n=150**

| **VARIABLES** | **FREQUENCY** | **PERCENTAGE (%)** |
| --- | --- | --- |

|  |
| --- |
| Age |
| 16-2021-2526-3031-3536-40 | 33723582 | 22.0%48.0%23.3%5.3%1.3% |
| Gender |
| MaleFemale | 5694 | 37.3%62.7% |
| Course |
| MDBENVH | 10050 | 66.7%33.3% |
| Academic year |
| FirstSecond | 8565 | 56.7%43.3% |
| Practice health services |
| YesNo | 6783 | 44.7%55.3% |
| Relative with dementia |
| YesNo | 22128 | 14.7%85.3% |
| Have you read any research about dementia |
| YesNo | 30120 | 20.0%80.0% |
| Have you heard about dementia or Alzheimer’s diseases |
| YesNo | 12426 | 82.7%17.3% |

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### Table 2: Stigma Assessment Among MD and BENVH Students, SHMS, Zanzibar- 2024 n=150

|  |  |  |
| --- | --- | --- |
| Stigma, according to the questionnaire | Course |  Total  |
| MD | BENVH |
| No stigma | 3(3%) | 1(2%) | 4(2.7%) |
| Moderate stigma | 40 (40%) | 21 (42%) | 61 (26.7%) |
| High stigma | 57 (57%) | 28 (56%) | 85(56.6%) |
| Total | 100 | 50 | 150 |
| Pearson Chi square =0.164 sig= 0.921 Anova F=0.000 sig1.000 |

*Demographic Characteristics of the participants:*A total of 150 students participated, with 100 MD students and 50 BENVH students. The highest age group was 21-25 years, comprising 72 students (48.0% of the total participants), with ages ranging from 16 to 40 years. The majority (62.7%) were female. Additionally, 56.7% were in their first academic year, and 55.3% had not previously practised health services. Most students (85.3%) did not have relatives with dementia, and 80.0% had not read dementia research, despite 82.7% having heard of dementia or Alzheimer’s disease. (Table 1)

The assessment of student *attitudes* toward dementia reveals generally positive and empathetic views among both medical and environmental health students. A large majority (76.7%) were open to sharing a house with a family member who has dementia, and most students (79.3%) rejected the belief that people with dementia are responsible for their condition. Similarly, 79.3% did not view individuals with dementia as violent or dangerous, and 86% stated they would not feel ashamed if someone in their family had dementia. Furthermore, 79.3% reported they would not be afraid to have a conversation with someone living with dementia, although a small proportion expressed hesitation, possibly due to perceived communication barriers. Additionally, 85.3% said they would not be scared to have a neighbour with dementia, indicating generally low levels of fear or avoidance.

When asked about the living arrangements for individuals with dementia, an overwhelming 94% agreed that people with dementia can live in the community, reflecting support for inclusion and independent living. However, attitudes were more divided regarding institutional care. While 56.7% believed that people with dementia should live in nursing homes, a notable 43.3% disagreed, suggesting recognition of alternative care models or the desire to support ageing in place. Despite these generally positive attitudes, the responses also reflect underlying uncertainties and modest levels of stigma, indicating areas where further education and awareness are needed. (Fig 1)

*Distribution of Attitudes by Course***:** *Good Attitude:* A majority of participants in both groups have a good attitude toward dementia, with 78% of MD students and 68% of BENVH students reporting this. This suggests that, overall, both groups tend to have a positive perspective on dementia. *Moderate Attitude:* 18% of MD students and 32% of BENVH students have a moderate attitude toward dementia. This indicates that a larger proportion of BENVH students hold a more neutral or less favorable view compared to MD students, although this remains a sizable minority. *Poor Attitude:* The percentage of participants with a poor attitude is low overall, with only 4% of MD students and none from BENVH students. This suggests that, while stigma and negative attitudes may exist, they are not widespread across either group. (Fig. 2)

The findings reveal a notable presence of *stigma* toward dementia among students. A majority (64.7%) strongly agreed that they would not want their family to know if they were diagnosed with dementia, reflecting internalized stigma and fear of judgment. Similarly, 59.3% expressed that they would feel humiliated if diagnosed, indicating a strong emotional response tied to shame, while only 25.3% disagreed with this sentiment. Furthermore, 58.7% agreed that people with dementia should live in ways that do not "bother" others, suggesting a tendency to isolate or distance individuals with dementia. These responses highlight prevailing stigmatizing attitudes and the need for greater awareness and empathy-based education around dementia.

The findings reveal mixed but generally hesitant stigma toward individuals living with dementia, particularly concerning social engagement and perceptions of independence. A substantial proportion of participants (75.4%) either strongly agreed or agreed that they would not like to spend much time with a person with dementia, indicating reluctance to engage closely with those affected. Additionally, 48.6% disagreed or strongly disagreed that the company of people with dementia is enjoyable, while only 37.2% expressed neutral or favourable views, suggesting limited positive perceptions. In contrast, stigma responses toward independence were somewhat more balanced, with 53.3% believing that people with dementia can live mostly independently, although 28.6% disagreed, acknowledging the challenges the condition presents to autonomous living, but this perception can be different according to the cultures, level of the dementia or personal circumstances (Fig 3)

The stigma assessment consisted of 6 items, with responses categorized into low, moderate, or high stigma based on a 3-point Likert scale. The results revealed that 56.6% of participants exhibited high levels of stigma. Notably, 64.7% strongly agreed they would not want their family to know if they had dementia, and 40.7% disagreed with the notion that spending time with a person with dementia is unpleasant. (Table 2)

**Discussion**

This study examined 150 students, consisting of 100 Doctor of Medicine (MD) students and 50 Bachelor of Environmental Health (BENVH) students. The largest age group was 21-25 years, with a majority of female participants. Most of the students were in their first academic year, and over half had no prior experience in practising health services. While nearly three-quarters did not have a relative with dementia, they had not read any research about dementia, despite having heard of dementia or Alzheimer's disease.

The results of this study indicate that the majority of students demonstrated a positive **attitude** toward individuals with dementia. For instance, more than two-thirds of participants expressed a willingness to share a house with a family member who had dementia, and 86% showed high acceptance of caring for a loved one with dementia. This reflects a relatively high level of acceptance and readiness to provide care for a family member with dementia. Our results compare with a research study in Australia, which found that attitudes towards dementia in elderly people with dementia were neutral [24]. However, a report in China and Nepal highlighted that attitudes towards dementia among medical students were positive [25][26]. In contrast, a study conducted in Palestine showed that students had a low level of positive attitudes towards dementia [27]. The different sociocultural characteristics and levels of knowledge about dementia could explain these differences.

A large majority of students reported that they would not feel ashamed if someone in their family had dementia. These findings align with previous research, suggesting a positive correlation between knowledge and attitude toward dementia. This emphasizes the importance of raising awareness and providing health education, as such initiatives can foster a more inclusive community for individuals with dementia [28].

Additionally, the majority of students do not view people with dementia as violent or dangerous individuals to be avoided, which demonstrates that most students do not hold the negative stereotypes that individuals with dementia are aggressive or unapproachable—stereotypes that often contribute to stigma. Moreover, a large majority of students do not feel embarrassed if others know that someone in their family has dementia, reflecting a relatively high level of social acceptance of dementia within this population.

Approximately 80% of students are not afraid to engage in conversations with someone who has dementia, indicating that many students view individuals with dementia as capable of having meaningful interactions. However, the remaining 20% remain apprehensive, which may reflect concerns about communication difficulties or social discomfort. More than three-quarters of respondents expressed that they would not be scared to have someone with dementia as a neighbour, indicating openness and a lack of fear regarding living near someone with dementia. Furthermore, over 90% of students believe that people with dementia can live in the community, highlighting a positive attitude toward the integration of dementia patients into society.

However, more than half of the participants believe that people with dementia should live in a nursing home. This reflects the ongoing debate between institutional care and community-based care, with many students recognizing the importance of offering care options beyond institutional settings. Overall, students exhibited positive attitudes toward dementia.

In contrast, the study revealed a high level of **stigma** associated with dementia, both on a personal and societal level. A significant number of participants strongly agreed with statements such as, "If I have dementia, I will not want my family to know." This response could reflect a broader societal perception that dementia is shameful or taboo. More than half of the students agreed with the statement, "If I have dementia, I will feel humiliated." This finding aligns with the general fear of embarrassment or humiliation, which is common in societies where dementia is not widely understood. A substantial portion of participants also agreed with the statement, "I would personally not like to spend much time with a person with dementia." Additionally, while the majority of students believed that "people with dementia live mostly independently," a significant portion disagreed with this view. These mixed opinions suggest a lack of consensus regarding the capabilities of individuals with dementia.

Research on medical students’ attitudes toward dementia often reveals similar findings. Studies consistently show that medical students hold stigmatizing views about dementia, frequently associating it with embarrassment and humiliation [29]. Another study found that medical students often view dementia as a condition that leads to a loss of dignity and autonomy, mirroring the sentiments expressed by participants in your study. Furthermore, participants’ reluctance to spend time with individuals with dementia aligns with findings from Mariani, which highlighted the discomfort and avoidance behaviours observed among healthcare students when interacting with patients with dementia [10].

However, it is also important to note the mixed opinions about the independence of individuals with dementia. Research suggests that while some students perceive dementia as a condition that strips away independence, others believe that, with the proper support, individuals can maintain a degree of autonomy. This reflects a broader need for education and training in dementia care, as well as a more nuanced understanding of the condition [30][31].

Medical students appear more reluctant than Environmental Health (BENVH) students to disclose a diagnosis of dementia to family members, with a significantly higher proportion of MD students strongly agreeing that they would prefer not to share such information. This may be linked to their deeper clinical understanding of the condition, which could heighten their awareness of the stigma surrounding dementia. Additionally, a greater percentage of MD students reported that they would feel humiliated if diagnosed with dementia, highlighting a notable difference in emotional response between the two groups, potentially shaped by varying degrees of knowledge, exposure, or personal experience. While both MD and BENVH students showed some hesitation toward spending time with people living with dementia, medical students were notably more reluctant, suggesting that even with medical training, negative attitudes and discomfort may persist.

Our study aligns with others that have evaluated the knowledge and attitudes of final-year medical students toward dementia. While the study primarily focused on improving knowledge through a sensitization program, it also highlighted areas where students felt less confident, such as identifying risk factors, signs and symptoms, and caregiving. These gaps in knowledge could potentially contribute to feelings of discomfort or humiliation when dealing with dementia patients. Other results showed significant positive changes in attitudes toward people with dementia following the workshop, highlighting the effectiveness of targeted education in enhancing students' willingness to engage with individuals affected by dementia [32][33][34]. Collectively, these studies underscore the importance of integrating comprehensive dementia education into medical curricula. Such initiatives can enhance students' knowledge, improve attitudes, and reduce stigma associated with dementia, ultimately fostering a more empathetic and competent healthcare workforce.

**Conclusion**

Female students made up the majority of participants, and most had not yet engaged in health service practice. Likewise, most had no relatives with dementia. Although nearly all participants had heard of dementia or Alzheimer’s disease, most had not read any related research, suggesting awareness without deeper academic engagement. While a substantial portion of students displayed a positive attitude toward dementia, negative perceptions, including discriminatory or isolating attitudes, remain common. Such attitudes, particularly avoidance, may hinder early diagnosis and limit access to proper treatment for individuals with dementia. The findings highlight a notable presence of stigma: many students indicated they would prefer that their family did not know if they had dementia, even as an essential subgroup is upset with the idea that time spent with dementia .

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**Recommendations**

To address these issues, it is crucial to integrate health education on dementia into the academic curriculum for university students, particularly those in health-related fields. Additionally, healthcare workers should receive continuous training and education to reduce stigma and improve understanding. Promoting positive attitudes and increasing awareness will contribute to the creation of a more supportive and inclusive community that is dementia-friendly.

**Limitations of the Research**

 The limitations were acknowledged in the study. First, since the questionnaire was self-administered, there was a possibility that participants might provide answers without a complete understanding of dementia. The interpretation of specific questions could have also introduced bias in the responses. Additionally, the use of arbitrary knowledge and attitude scores may not fully capture the depth of participants’ actual knowledge or their proper attitudes toward dementia.

## Ethical approval

In this study, ethics were considered by obtaining permission to conduct the study from the School of Health and Medical Science (SHMS). Ethical approval was obtained from Zanzibar’s Health Research Ethics Committee (ZAHREC) with No: ZAHREC/02/ST/MAR/2024/51.

**Consent**

As per international standards or university standards, Participants’ written consent has been collected and preserved by the author(s).

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