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DOMESTIC WASTE DISPOSAL PRACTICES AND AWARENESS ABOUT ITS IMPACTS ON ENVIRONMENT AND HUMAN HEALTH IN AN ISLANDIC VILLAGE: AKHADA-ST. ESTEVAM IN GOA

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ABSTRACT

Effective domestic or household waste management is crucial for environmental sustainability and public health. Improper disposal practices lead to adverse sanitation, pollution, disease outbreaks and ecosystem degradation. This study examines waste disposal practices and awareness level among the households in a selected village in Tiswadi taluka of Goa. While residents show high awareness of the harmful effects of improper waste management, a significant gap exists between knowledge and action. Factors such as poor recycling habits, lack of infrastructure for waste disposal and limited public education contribute to this issue. By analysing household behaviours and perceptions, the study aims to recommend strategies for improving waste management practices and enhancing community health and sustainability. Improper waste disposal continues to pose significant environmental and public health challenges contributing to pollution, fear of disease outbreaks and the degradation of ecosystems. This study evaluates household waste management practices, awareness levels, and perceptions among 60 respondents from a selected village. Data collection was facilitated through structured questionnaires and findings were analysed using tables and visualized through pie charts created in Microsoft Excel to better understand patterns and trends.

A majority of respondents reported suffering from allergies due to waste exposure, and many experienced infectious diseases, highlighting immediate health threats stemming from poor waste management. The study also found that while several respondents consistently separated waste, a considerable number displayed inconsistent segregation practices. Daily waste disposal was commonly observed among households, reflecting regular management efforts; however, recycling habits remained poor, with most respondents rarely recycling and none reporting frequent recycling. Many individuals reused plastic bags, which is a positive trend, yet harmful practices like burning plastic and dumping in water bodies still persist among a minority.

The findings suggest that there is lack of confidence in local government initiatives and poor recycling support. The study recommends strengthening institutional waste management support, expanding public education initiatives focused on sanitary and household waste disposal, improving waste segregation facilities and promoting community engagement to bridge the gap between knowledge and practice. Addressing these issues is crucial to ensuring sustainable development in the studied communities.

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Introduction

Effective waste management is fundamental for protecting the environment and ensuring public health. Household waste, if improperly managed, contributes to severe environmental issues such as soil contamination, water pollution, and air quality degradation, while also increasing the risk of disease outbreaks (Guerrero et al., 2013). As urbanization and consumption rise, especially in developing areas, the volume of household waste continues to grow, often outpacing the capacity of local waste management systems (Aljaradin & Persson, 2012). This study focuses on household waste disposal practices and awareness in a selected village of Goa, a region experiencing rapid social and environmental changes. While prior research suggests that many communities demonstrate awareness of the environmental and health risks associated with improper waste management (Zurbrugg, 2003), there often remains a significant disconnect between knowledge and daily waste disposal practices. Factors such as limited access to recycling facilities, ineffective waste segregation systems, and low confidence in local waste management policies contribute to this gap (Pariatamby & Tanaka, 2014). Understanding how households perceive and manage their waste is essential for designing targeted interventions. Proper segregation, recycling, and sanitary waste disposal not only reduce the burden on landfills but also help in mitigating public health risks, such as respiratory problems, allergies, and waterborne diseases (Wilson et al., 2012).

In Goa, waste management is an emerging concern. Despite initiatives aimed at improving waste segregation and recycling, the problem of littering, illegal dumping, and improper disposal of sanitary and plastic waste persists. The environmental consequences are evident through water contamination, land degradation, and health risks such as respiratory diseases, allergies, and infectious diseases that affect local communities (Aljaradin & Persson, 2012).

Understanding the knowledge, attitudes, and behaviours of households toward waste management is vital for designing effective interventions. Proper segregation of biodegradable and non-biodegradable waste, responsible recycling, and safe sanitary waste disposal can significantly reduce environmental harm and promote sustainable development. Furthermore, community engagement, educational programs, and improved waste management infrastructure are essential to bridge the gap between awareness and action (Moqsud et al., 2011). By analysing household behaviours, practices, and awareness levels, this study aims to highlight key challenges and opportunities in improving waste management systems. The findings seek to inform local authorities, policymakers, and environmental organizations about necessary steps to promote sustainable waste practices and enhance public health outcomes.

Aim

This study aims to evaluate domestic household waste disposal practices and awareness regarding environmental and health impacts, identifying gaps between knowledge and behaviour to recommend improvements in waste management and community health.

Study Area

Nestled between the islands of Divar and Juvem, this enchanting island boasts a name bestowed by the Portuguese government, signifying its rich history dating back to the colonial era. Traditionally, the inhabitants of this island primarily relied on agriculture and fishing for their livelihoods. However, in recent years, there has been a noticeable shift, with a growing number of well-educated individuals choosing to make this island their home, bringing new skills and opportunities to the community. One of the most notable villages on the island is Akhada, which is a small yet vibrant part of Tiswadi and falls under the jurisdiction of the St. Estevam Panchayat. The villagers of Akhada have a long-standing tradition of safeguarding the local mangroves, driven by their deep cultural connection to their folk deity, Sakhlyo. This practice is not just a matter of tradition; it highlights the villagers' commitment to environmental stewardship.

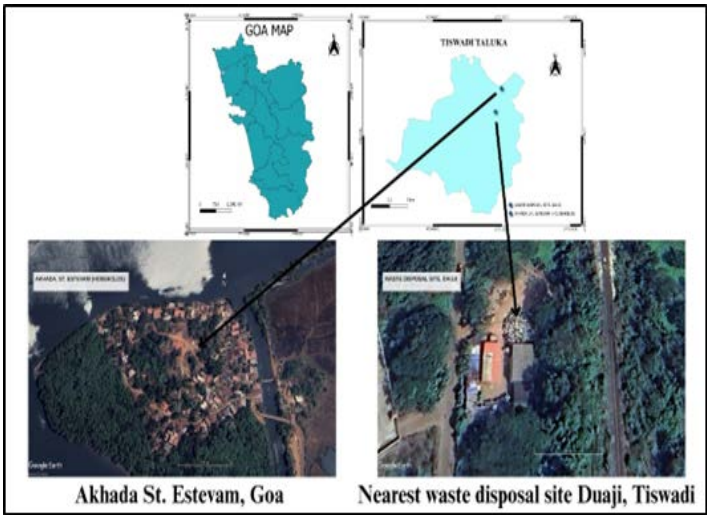


Fig. X: Study Area Location, the nearest Waste Treatment Plant at Dhauji for Tiswadi.

Source: Prepared by the Authors With the help of Ms. Sejal Shetye Using QGIS.

Data Source and Methodology

Primary data was collected from 60 households through a detailed survey using the Kobo Toolbox, a digital tool for data collection. To achieve our research objective, we designed both the structured and semi-structured questionnaires. A random sampling technique was used to collect the data. In addition, secondary data was also utilized by collecting information from various existing sources such as books, research papers, articles and websites.

Discussion

The data offer insights into the awareness, practices, and beliefs regarding waste disposal among the 60 respondents from the households. The households demonstrate a high level of awareness regarding the ecological and health-related effects of improper waste disposal. The respondents are highly aware of the environmental and health consequences of improper waste disposal, but there is a disconnect between awareness and actual waste management practices. The lack of confidence in local government efforts and poor recycling habits further complicate the situation.

Knowledge of Health Risks

The primary health risk is generally reported to be allergies due to the improper waste disposal with 36 cases accounting for 60% of the total responses (Figure 1). This indicates that a majority of individuals exposed to waste are experiencing allergic reactions, which could stem from exposure to dust, chemicals and other pollutants in the waste. Infectious diseases were reported by 23 individuals, making up 38.33% of the cases. This highlights a significant health concern, suggesting that waste contamination might be leading to the spread of diseases caused by bacteria, viruses, and parasites. Heart disease was reported by only 1 individual (representing 1.67%), indicating that it is a less commonly observed health risk among those affected by waste disposal issues. Any other health issues related to improper waste disposal nil. This reflects that allergies and infectious diseases are the most prevalent health risks linked to improper waste disposal, pointing to the immediate necessity for more effective waste management practices to protect public health.

Segregation of wastes

It is found that 32 (53.33%) respondents stated that they always separate wastes into different categories (Figure 2), suggesting that a majority of individuals consistently practice proper waste segregation, which is a positive sign for waste management and recycling efforts. Forty percent (numbering 24) respondents stated that they sometimes separate wastes indicating that while a significant portion of the population engages in waste segregation, their practices may not be consistent, potentially reducing the overall efficiency of waste management systems. A negligible 6 percent of the (Only 4) respondents reported that they rarely separate wastes or never engage in wastes separation, which could still contribute to issues in waste management if left unaddressed. Overall, most individuals demonstrated awareness and participation in wastes separation.

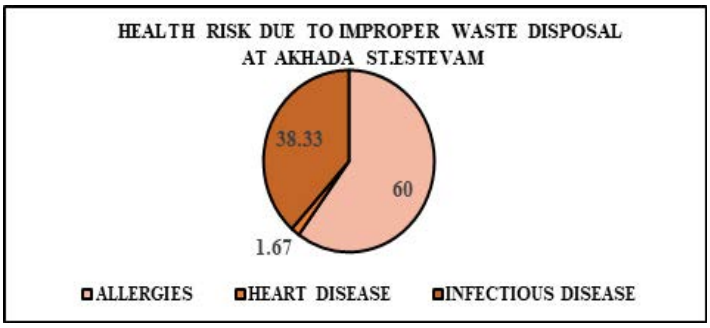


Figure 1: Awareness of Primary Health Risk due to Improper Waste Disposal, 2024

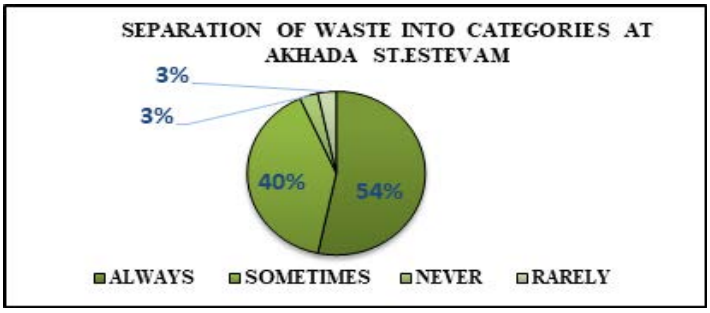


Figure 2: Separation of Waste into Categories at Akhada St. Estevam

Interval of wastes disposal

The analysis shows that 57 respondents (95%) reported disposing of household wastes daily, indicating that the vast majority of households maintain a regular and consistent waste disposal routine (Figure 3). This suggests a high level of awareness and adherence to waste management practice, which can contribute to cleaner living environments and more efficient waste collection services. Only 2 respondents (3.33%) indicated that they dispose of wastes twice a week, while 1 respondent (1.67%) stated the disposal of wastes weekly. This reflects that a small segment of the population follows a less frequent waste disposal routine, which could lead to issues such as waste accumulation and bad Odor, if not properly managed. Overall, the analysis highlights that daily

waste disposal is the norm among the surveyed households, pointing to a positive trend in waste management behaviour.

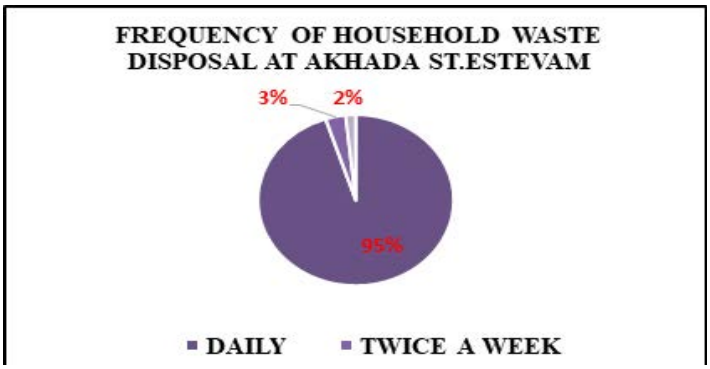


Figure 3 :Frequency Of Household Waste Disposal at Akhada St. Estevam

Visual Perception of waste management

The analysis shows that 58 respondents (96.67%) reported often noticing littering or illegal dumping, indicating that improper waste disposal is a widespread and highly visible issue in the community (Figure 4). This suggests that littering and illegal dumping are persistent problems, which have negative environmental, health and aesthetic impacts on the village. Only 2 respondents (3.33%) stated that they occasionally notice littering or illegal dumping, indicating that these issues may be less frequent or less noticeable. Overall, the survey data reflects that littering and illegal dumping are major challenges faced by the community, highlighting the need for stricter waste management policies and increased public awareness to address these issues effectively.

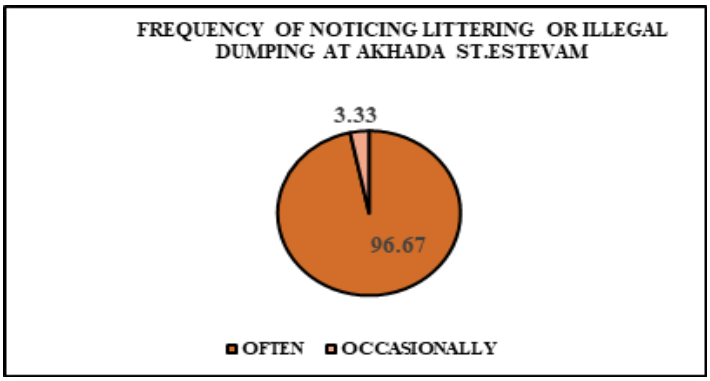


Figure 4: Frequency of Noticing Littering or Illegal Dumping at Akhada St. Estevam

Recycling Habits

The analysis (Figure 5) shows that 39 respondents (65%) reported that they rarely recycle household items may be due to barriers such as a lack of awareness, inadequate recycling facilities or limited motivation to recycle. However, 17 respondents (28.33%) stated that they occasionally recycle household items, reflecting engagement in recycling, but not consistently. Only 4 respondents (6.67%) reported that they never recycle household items showing complete non-participation in recycling. Consistent recycling behaviour is lacking within the community. This reflects the need for increased public awareness, better access to recycling infrastructure, and incentives to encourage regular recycling practices.

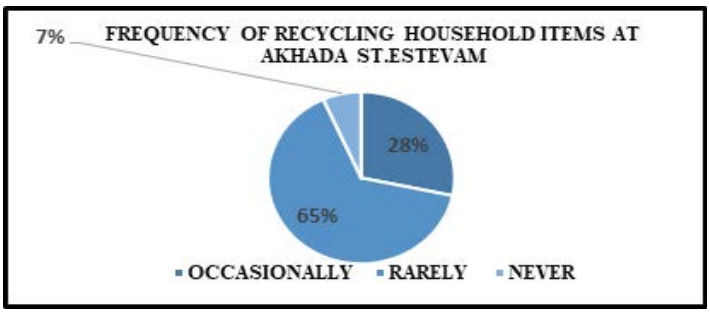
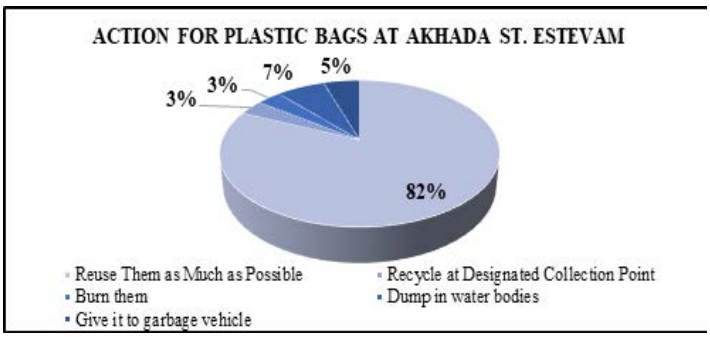


Figure 5: Frequency of Recycling Household Items at Akhada St. Estevam

Healthy Practice of Reuse of Plastic bags

Regarding the reuse of plastic bags, it was found that 49 respondents (81.66%) said that they practice as much as possible, indicating that most of the households are making an effort to minimize plastic wastes by reusing it for other purposes reflecting a positive behaviour towards waste reduction and sustainability. Only 2 respondents (3.33%) specified that they recycle plastic bags at designated collection points, suggesting that access to or awareness about proper recycling options for plastic bags is limited. Honestly, 2 respondents, i.e. another 3.33% admitted to burning plastic bags, which poses serious environmental and health hazards due to the release of toxic fumes. Further, 4 respondents (6.66%) reported dumping of plastic bags in nearby water bodies, which can lead to water pollution, harm to aquatic life and disruption of ecosystems. Three of them, accounting for 5%, hand over their waste to the garbage vehicle. Overall, while most individuals engage in positive waste management behaviour by reusing plastic bags, a small portion of the population still resort to environmentally harmful practices like burning and dumping, highlighting the need for stronger awareness and proper vigilance or disposal infrastructure.

Figure 6: Action for Plastic Bags at Akhada St. Estevam



Disposal Methods of Bio-Wastes

About the disposal of bio-sensitive wastes like sanitary pads or diapers, it was found that 40 respondents (66.67%) reported that they burn sanitary pads or diapers as their primary method of disposal. While burning may be a convenient disposal method, it poses serious environmental and health risks due to the release of toxic chemicals. More seriously, 2 of the respondents (3.33%) stated that they throw sanitary pads or diapers in regular trash treating sanitary waste like any other general household waste. Only 1 respondent (1.67%) reported using a separate bag before disposal, representing that very few individuals follow more hygienic and environmentally responsible disposal methods. A concerning 17 respondents (28.33%) admitted to throwing sanitary pads or diapers in water bodies, which can lead to severe water pollution, blockage of drainage systems and harm to aquatic ecosystems. Overall, the significant proportion of respondents dumping sanitary wastes into water bodies highlights an urgent need for better waste management facilities and public education on proper sanitary waste disposal.

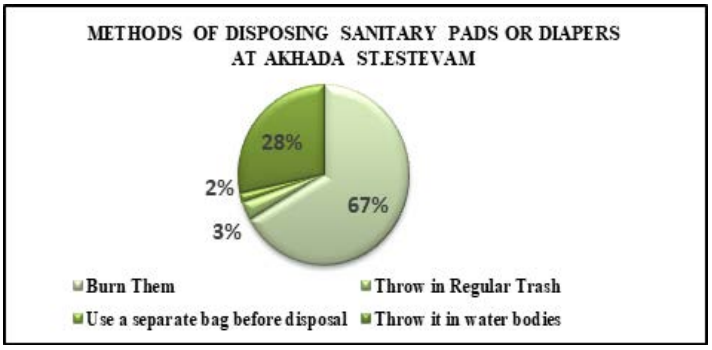


Figure 7: Methods of Disposing Sanitary Pads or Diapers at Akhada St. Estevam

Conclusion

The findings of this study highlight a significant gap between awareness and action regarding household waste disposal practices in the surveyed households. While the majority of respondents exhibit a strong awareness of the environmental and health risks associated with improper waste disposal, their waste management behaviours do not consistently align with this knowledge. Health risks such as allergies and infectious diseases, which are common consequences of poor waste management are widely reported, underscoring the immediate need for more effective waste disposal systems. Waste segregation practices are present, with a large proportion of respondents separating waste at least occasionally. However, the inconsistency in waste segregation and recycling habits indicates a need for stronger enforcement of waste management policies and better infrastructure to support recycling efforts. The prevalent practice of burning and dumping plastic bags, as well as the improper disposal of sanitary waste, is particularly concerning. These practices not only exacerbate pollution but also pose significant health risks, particularly to vulnerable population.

The limited awareness regarding proper sanitary waste disposal methods and the widespread lack of knowledge on how to dispose of such materials safely suggest an urgent need for targeted educational campaigns and accessible disposal facilities. Strengthening institutional support, improving waste separation infrastructure, and increasing community engagement are essential to bridging the gap between knowledge and action. while some positive behaviours such as reusing plastic bags and maintaining regular waste disposal routines, are observed, there is a pressing need for comprehensive strategies to address the challenges of waste management. This includes educating the public on sustainable practices, enhancing recycling facilities, and promoting responsible waste disposal to protect both public health and the environment.

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