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ATTITUDES TOWARDS WASTE MANAGEMENT IN NABARI PAYAM SOUTH SUDAN. A CROSS-SECTIONAL STUDY.

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Abstract

Background

Countries need to have waste management policies that streamline the behaviors of residents on how best to practice and manage waste generated by different sources. The study aims to assess the attitude toward waste management in Nabari Payam South Sudan.

Methodology

A cross-sectional survey, descriptive and explanatory design where quantitative and qualitative methods were adopted. A questionnaire and Focus group discussion were adopted and interviews for Key Informants. Data was analyzed descriptively using the Statistical Package for Social Sciences and thematic methods for quantitative and qualitative data.

Results

156 (46.7%) and 58 (17.4%) of the respondents disagreed and strongly disagreed that their Payam residents had done enough for waste management, the mean score was 2.37, and the standard deviation 1.01. For proper management of waste by the local authority, findings showed that 257 (76.9%) and 64 (19.2%) of the respondents disagreed and strongly disagreed, the mean was 1.91, and the standard deviation was 0.68. Regarding safety when handling waste, it was found that 246 (73.7%) of the respondents and 40 (12.0%) disagreed and strongly disagreed attracted a mean score of 2.51 and a standard deviation of 0.85.

Conclusion

Residents in Nabari Payam had a negative attitude towards waste management and there was dissatisfaction with provisions of waste material that were lacking and inadequate in the Payam.

Recommendations

Regular monitoring and evaluation of waste management activities at the Payam residents need to be geared up to have total adherence to introduced guidelines for waste management.

Keywords: Attitude, Waste management, Nabari Payam residents.
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Background

Countries need to have waste management policies that streamline the behaviors of residents on how best to practice and manage waste generated by different sources (Spadaro, Pirlone & Candia, 2021). Indeed, countries and authorities in cities need to have sustainable waste management strategies including organic waste management to save the ecosystem and entire communities from risks associated with poor waste management (Sanjuan-Delmás et al, 2021). In South Sudan, waste management is still a challenge given the fact that the country is faced with insecurity due to political wars and therefore, there is a need for intervention to save the country from the negative consequences of poor waste management (Mier & Zhuo, 2020). The Juba City Council is the only public institution mandated to handle, solid waste management in the city (Luate, 2015). It is the ctoDepartment of Environment and Sanitation that is fully responsible for administering and financing solid waste management (Garang Kuol, 2015). It is however, noted that the department is challenged with a lack of treatment and

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disposal facilities, limited and unsustainable funding, inadequate technical capacity, and a lack of policy, laws, and plans for solid waste management (Loboka et al, 2013).

The waste management, concept refers to a settled feeling and thinking about waste and how it should be managed in the community (Mingaleva, Vukovic, Volkova & Salimova, 2019).

In communities and relation to waste management, attitudes about the environment or politics come from information and persuasive communications that the leaders make with the stakeholders in the management and practices for waste (Johnston, 2010). It is, therefore, argued that in this study, the degree of communication might affect and change the attitude people hold regarding waste management in their place of residence. Sustainable waste management in cities and urban places thus calls for a mindset and this is linked to attitude change for people (Lee, Meyer, Huangm & Voss, 2020). Leaders in waste management departments and at any level of leadership should be change —agents to make people have a positive look at waste and waste management practices positively (Nepal et al, 2022). The study aims to assess the attitude toward waste management in Nabari Payam South Sudan.

Methodology

Research Design

The study adopted a cross-sectional survey, descriptive and explanatory design for accurate estimation of the relationship between the variables. The cross-sectional design provided a snapshot of a sample of a population at a single point in time. The study also used a quantitative approach and analytical research design on the data that was collected.

Study Area and Population

Juba city has Muniki Payam,Kator Payam, Rajaf Payam and Juba Nabari payam system. The administrative demarcations of Juba City are based on the following divisions: Muniki Payam, Juba Nabari Payam, Kator Payam, and Rajaf Payam. The city and Nabari Payam have a prevailing disparity of densities of population and incomes. Those who are generally most affluent are those people living in the suburbs of the West, sharply contrasting with their counterparts who live in the eastern suburbs that are in the lower and middle-income levels. Wetland Sub-county borders the low-income areas of Konyo Konyo. The constituency has an area of 72.4 km2. It contains some of the highest-income areas in Juba City, as well as low-income areas like Juba Nabari, and Deep River Nile wetland.

Deplorable living conditions and environmental degradation are characteristic lifestyle experiences of those living in low-income settlements. The brunt of it all is their diminished low level of participation in the social, economic, cultural, and political spheres of the city. The most painful of the incidental consequences of these exclusions is the worsening of poverty among the poor. Westland Sub-county has 88 students with 4,166 in public schools and 3,022 in private schools.

Sample Size

A sample size of 384 respondents were involved in this study. Key Informants (KIs) were; the Juba City-Environment Officer, City Authority Waste Management Officer, and City Private Company-Based Waste Management staff in charge of waste management.

Formula by Leslie Kish (1965) was used for estimation of sample size:

Where

n = sample size

z = the standard normal deviation at 95% confidence (l .96)

p = 50% of the estimated proportion of Juba City-Nabari Payam residents.

q = (1-p) = (1-0.5) = 0.5

= maximum acceptable error (5%)

Therefore, sample size n =

Sample size n = 384 Respondents

Sampling Techniques

Purposive sampling was used to select 3 key informants (KI) for the study that is; the Juba City-Environment Officer, City Authority Waste Management Officer, and City Private Company-Based Waste Management staff. Simple random sampling was also opted for to select respondents (Residents of Nabari Payam). This was because it would give an equal chance to be selected and thus, prevent the researcher from bias at the time of respondents' selection.

Data Collection Methods

The questionnaire, interview, and focus group discussion methods were used for data collection as indicated below.

Questionnaire

Quantitative data was obtained through the use of a questionnaire anchored on a five-point Likert-type scale ranging from 5(strongly agree) to 1 (strongly disagree). This scale was selected to allow the respondents to express how much they agree or disagree with the statements in the questionnaire. This instrument was applied among the Nabari Payam Residents in the urban and semi-urban of the

area. The design of the questionnaire guide was based on the objectives and variables of the study. A total of 334 residents of Nabari Payam were engaged in quantitative data collection using a questionnaire guide.

Interview

A structured interview was designed based on the objectives of this study and it was administered among the three (3) key informants. The interview method was designed to last for 4- I hours to elicit information regarding waste management practices, knowledge, practices, and attitudes as stated by the study objectives. This method was applied physically using an interview guide with the study participants and the researcher moderated the data collection exercise.

Focus Group Discussion

The researcher carried out five (5) focus group discussions in zones of Nabari Payam with a total of 50 participants. The FGD method was accompanied by an FGD guide that contained questions regarding knowledge, practices, and attitudes about waste management in Nabari Payam.

Validity and Reliability of the Research Instrument

The validity of the instrument was obtained through the development of the scales with the help of the experts in the field using the Content Validity Index (CVI). The reliability of the tools was enhanced through pre-testing of pilot samples in a simulated environment from the field which enabled the re-phrasing of some questions if they did not pass the test.

The pretesting of the questionnaire is instrumental and vital to ensure it is not faultless and understandable by the respondents. The discussion with two random respondents helped to prove the validity and relevance of the questionnaire. The respondents who participated in the reliability test were not included in the study.

The reliability of the items was determined with the application of the Cronbach Coefficient Alpha to check for internal consistency. Items that confirmed a Cronbach Alpha Coefficient of 0.7. The instruments were pretested in Kator Payam among residents. For qualitative data collection instruments, dependability, conformability, and credibility principles were considered and applied to the interview and focus group discussion guide.

Data Analysis and Interpretation

Data collected from the field was tabulated, sorted, edited, classified, and coded into a coding sheet. The cleaned data was summarized and converted into frequencies and percentages using the category system. The researcher then used Statistical Package for Social Scientists (SPSS-23) to analyze the data collected.

Under descriptive analysis, variables were measured using frequency, mean score, and standard deviation. In addition, a scale of below, equal, and above three (<, = and >3) to show the degree for the mean scores where a mean of three represented a neutral, (Neither Agree Nor Disagree) less than three (<3) disagree and above three (>3) agree on a given variable item. Analyzed data was presented using frequency distribution tables.

For objective two knowledge about waste management was measured in terms of high or suboptimal (poor) among the respondents regarding waste management. The objective about attitude was considered in terms of holding a negative or positive attitude among the study respondents regarding waste management.

Qualitative data was analyzed by use of the thematic analysis method. This allowed the information to be presented with themes and elaborated as provided by the respondents. This type of data was triangulated with quantitative data to provide a clear presentation of information for this study.

Ethical Considerations

The researcher acquired an introduction letter from the University together with the identity card presented to Juba City Authority and Nabari Payam leaders and other categories of respondents before data collection. Further, this research project and the dissertation went through the guidance of the supervisor until its submission to the university.

Assurance was made to management and staff that the information collected was for academic purposes. Thus, there were no other purposes that this study served except providing information regarding knowledge, attitude, practices, and management of waste at Nabari Payam and informing stakeholders about key areas for improvement.

The assent issue was resolved by obtaining informed consent informing target respondents of the purpose of the study, the expected participation from them, and any other information about the research that they wanted to know. The respondents signed the consent form before engaging in the data collection exercise.

Confidentiality of the respondents was paramount except in the case where they were permitted to be cited in the study. To achieve this, respondents were not presented by their names or job titles in chapter four but rather they were referred to as KRI, KR2, and KR3, Residents of Nabri Payam in the FGI) s were referred to as female participant group one or male participant (MP 1 -G-One or FIJ I or FP3-

G-3) according to the group in a given place of Nabari Payam.

The privacy of the respondents was considered at the time of data collection by ensuring that data collection was carried out in a private manner where by the respondents' offices or private places were utilized to achieve this. However, except in the focus group discussion, this principle was not observed but the respondents were notified of the matter.

Results

The qualitative information is from 334 respondents, qualitative from 50 participants from five focus group discussions, and 3 key informants.

Background Information of Respondents

Age, gender, occupation, marital status, education, and time spent in the Nabari Payam were considered for the descriptive results of this study.

Table 1: Distribution of Respondents by Demographic Information Overall N = 334

Overall N = 334			
Characteristic	**Variable categories**	**Frequency**	**Percentage**
Gender	Male	137	41.0
	Female	197	59.0
Age	18-25 Years	60	18.0
	26-35 Years	149	
	36-45 Years	69	20.7
	46 Years and above	56	16.8
Marital Status	Single	14	4.2
	Married	255	76.3
	Divorced/Separated	56	16.8
	Widowed	9	2.7
Level of Education	Primary	5	1.5
	Secondary	64	19.2
	Tertiary	136	40.7
	University	129	38.6
Occupation	Business	70	21.0
	Causal Labor	145	43.4
	Health/Medical Worker	65	19.5
	Transport (Motorlist)	54	16.2
Time Spent in the Payam	< 5 years	29	8.7
	> 5 years	305	91.3

Source: Primary Data (2022)

Table 1 provides descriptive findings where 197 (59.0%) and 137 (41.0%) were male and female respondents respectively. In terms of age 149 (44.6%) of the respondents were aged 2635 years, 69 (20.7%) had 36-45 years, 60 (18.0%) of the respondents had 18-25 years, and 56 (16.8%) with 46 years.

In terms of marital status, 255 (76.3%) of the respondents were married, 56 (16.8%) separated and 14 (4.2%) were single. With education, 136 (40.7%) of the respondents had a tertiary level of education, 129 (38.6%) with university degree, 64 (19.2%) secondary level and primary were Findings regarding occupation, majority of the respondents were in casual labor economic activities 145 (43.4%), 70 (21 .0 0/0) were in business, health/medical workers were 65 (19.5%) and motorists were 54(16.2%). For time spent in the Payam majority of the respondents 305 (91.3%) had stayed in Nabari for > 5 years.

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Table 2: Distribution of Respondents Regarding Attitude towards Waste Management

Overall N 334							
***Variable Items**	SD	D	N	A	SA	Mean	Std
Local residents have done enough to manage waste enervated	58(17.4%)	156(46.7%)	65(19.5%)	65(19.5%)	46 (13.8%)	2.37	1.01
Local/city authorities have managed well waste generated in this lace	64(19.2%)	257(76.9	o (0.0%)	4 (l .2%)	9 (2.7%)	1.91	0.68
Segregation of waste that source increases risks of injury or ham to waste-handlers	74(22.2%)	230(68.9%)	6(1.8%)	15(4.5%)	9(2.7%)	1.96	0.81
Disinfection of waste reduces chances of infection	74(22.2%)	243(72.8%)	4(1.2%)	7(2.1%)	6 (1.8%)	1.88	0.68
Safety of waste handlers is a must in this area	40(12.0%)	246(73.7%)	21(6.3%)	11(3.3%)	16 (4.8%)	2.51	0.85
Containment of waste does not help in safe management of waste in this area	144 (43.10/0)	76(22.8%)	70	13(3.9%)	31 (9.3%)	2.13	1.27
I feel satisfied with the applied waste management practices	113 (33.8%)	25 (7.5%)	27(8.1 0/0)	9 (2.9%)	160(479%)	3,23	0.82
Avera e Mean score						**2.23**	**0.87**

Source: Primary Data (2022)

Table 2, 156 (46.7%) and 58 (17.4%) of the respondents disagreed and strongly disagreed that their Payam residents had done enough for waste management. It was also found that 65 (19.5%) and 46 (13.8%) of the respondents agreed and strongly agreed respectively to the same item. However, 65 (19.5%) of the respondents were undecided. The mean score was 2.37 and the standard deviation was 1.01. The information shows that there was disagreement among respondents regarding services rendered in waste management by local leaders/authorities.

For proper management of waste by the local authority, findings showed that 257 (76.9%) and 64 (19.2%) of the respondents disagreed and strongly disagreed, none of the respondents neither agreed nor disagreed. It was further noted that 4 (l .2%) and 9 (2.7%) of the respondents agreed and strongly agreed, the mean was 1.91, and the standard deviation was 0.68. It is, therefore, noted that there was dissatisfaction among respondents with how local authorities managed waste in Nabari Payam.

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Findings regarding segregation of waste revealed that 230 (68.9%) and 74 (22.2%) of the respondents disagreed and strongly disagreed over its practice, 6 (l .8%) of the respondents were undecided, 15 (4.5%) and 9 (2.7%) of the respondents agreed and strongly agreed over the item. It was found that the mean was 1.96 and the standard deviation was 0.81. The findings created an implication that more respondents disagreed with segregating waste about causing injuries and harm to people in their communities.

Information for disinfection of waste showed that 243 (72.8%) and 74 (22.2%) of the respondents strongly disagreed and disagreed about practicing it. It was found that 7 (2.1%) and 6(1.8%) of the respondents agreed and strongly agreed respectively. The mean score and standard deviation were 1.88 and 0.68 respectively. In terms of this study, this implies that there was disagreement that disinfection reduces infection.

Regarding safety when handling waste, it was found that 246 (73.7%) of the respondents and 40 (12.0%) disagreed and strongly disagreed. It was further noted that 21 (6.3%) of the respondents were undecided, I l (3.3%) and 16 (4.8%) of the respondents agreed and strongly agreed respectively. The variable item attracted a mean score of 2.51 and a standard deviation of 0.85.

Descriptive findings for purposes of waste containers revealed that 144 (43.1%) and 76 (22.8%) indicated by show of strong disagreement and disagreement that there is no safety in terms of waste management that can be derived from such materials. It was, however, found that 31 (3.9%) and 13 (9.3%), the number of respondents who neither agreed nor disagreed were 70 (21.0%).

Following the standard score and mean for the variable item it is noted that these were 1.27 and 2.13 respectively.

It was found that 160 (47.9%) and 9(2.9%) of the respondents were satisfied with waste management practices. It was, however, ascertained that some respondents were dissatisfied with applied waste management practices as indicated by 1 13 (33.8%) and 25 (7.5%). The mean score and standard deviation were 3.32 and 0.82. The overall mean score was 2.23 and the standard deviation was 0.87. The findings, therefore, point out that the majority of respondents were in disagreement with items presented regarding attitudes toward waste management.

From the FGDs and regarding the availability of waste collection tools and separation of wastes at the Payam residents, information obtained revealed that most of them had no such tools.

I feel dissatisfied with the way how authorities are applying waste management practices since there are heaps of waste in the Payam, smelling and likely to cause diseases to the people. " (FGD with one of the Participants-FP3-G5).

Relatedly, one of the participants stated that local Sudanese had not done enough to manage their waste, and also made the authority fail to adopt the best waste management practices. She asserted;

We the people are failing the authorities in this Payam since we do not manage our waste well and this has made the local authorities (o poorly manage waste in our area " (FGD with one of the Participants-MP5-G5).

It was also found that some respondents had a negative attitude towards segregation one of the FGD participants stated;

Segregation of waste is tiresome and i/ requires that one has different bags so for me at my home. I mix all the waste since I have no such different containers... (FGD with one of the Participants-MP4-G6).

It was also noted from one key informant l; that waste and the system of implementing good waste management practices is still in its infancy in different countries coupled with confusion with problems surrounding the generators of waste, operators, decision-makers, and the general public regarding how biomedical waste can be well managed to avoid its negative effects to the environment and community at large.

With the findings under this objective, it is noted that monitoring and evaluation were believed to influence waste management practices at the Payam level and its various components.

Discussion

Attitudes towards Waste Management in Nabari Payam

The overall mean score reflected disagreement by respondents for the items that measured this objective. The findings, therefore, pointed out that most of the respondents were in disagreement with items presented regarding attitudes toward waste management. This is partly attributed to the contributions of the authority leaders in Nabari Payam. It was noted that respondents were dissatisfied with the less effort by the Payam leaders in the management of waste.

The findings are in agreement with the literature by Fearon and Adraki (2014) who revealed that attitudes towards waste management practices influenced the degree of waste management among residents from their study area. In this study at Nabari Payam, the respondents had a negative attitude towards local authorities and any other waste management practices. Based on the finding's volunteerism would, therefore, be limited among residents of Nabari Payam. This would lead to low numbers of people who work to save the environment. It is further argued that such a

negative attitude was due to costs that they had to incur amidst the limited financial resources to manage their waste. The practices such as disinfecting waste, and use of safety means were not applied by residents and this is partly attributed to the failure of their authorities to provide a conducive environment for them to happen. The residents, therefore, had no support from local leaders to support good waste management thus, a negative attitude to leaders and the entire would-be waste management practices.

This argument is therefore, in line with research findings by Eneji et al (2016) who also found that in their study participants had a negative attitude toward waste management. It is, therefore, argued that the negative attitude is a limiting factor to good waste management in a Payam such as Nabari.

Regarding attitude towards waste management practices and the findings of this study, it is presented that management of any authority is required to have a better way to manage waste. Both qualitative and quantitative findings of this study where participants had a negative attitude to waste management are in agreement with literature by Adeyemo et al (2013) who stated that in a community, the attitude of people towards waste management can be affected by their level of knowledge and awareness of waste management and it has been reported that homes with waste bins engage more in the proper way of storing waste than homes without waste bins. This information is right in line with this study where it has been found that residents of Nabari Payam had a negative attitude towards waste management and low knowledge of best waste management practices as required by standards.

The aspect of perceiving activities such as segregation as tiresome by members of Nabari Payam is a sign that residents of this area were too tired of practicing waste management in their area. This is a disruption to the environment and their lives as stated earlier. This revelation is in agreement with literature by Asuamah et al (2012) who found that in Ghana, residents' attitudes towards waste management affected waste management practices including; recycling and this was partly linked to socio-demographic characteristics including age, and gender. However, for this study at Nabari Payam, the objectives were not so direct to the influence socio-demographic characteristics might have on waste management practices about attitude.

Conclusion

Residents in Nabari Payam had a negative attitude towards waste management and this was due to low services provision by the local authorities regarding waste management. There was dissatisfaction with provisions of waste material that were lacking and inadequate in the Payam. It was only public places such as Hotels, bars restaurants, and health facilities that could try to manage their waste.

Limitations of the Study

In focus on practices, and attitudes the adoption of a quantitative data collection method (Questionnaire) was inadequate to understand respondents' emotions, behavior, and feelings about waste management and how each category of stakeholders fulfills their roles and responsibilities, this was partly filled up by focus group discussion and interview data.

The use of a cross-sectional research design did not provide data reflecting the cause relationship between the study variables. This would lead to bias in the study outcomes.

However, the researcher remained objective with the findings of the study.

The study was affected by non-response from some of the respondents under study. They were viewed from the required information as confidential. The researcher, however, had a reference letter from the university to confirm that the information was to be handled with confidentiality.

In some instances, where the required respondents were on duty and busy, it was hard to get the information needed from their key informants and this caused delays since the researcher may have to wait until they came back on duty.

Some respondents became suspicious about data required from them for fear of their security about waste management in their respective offices and households. It is however noted that there was a clear explanation was provided emphasizing how the research is strictly for academic purposes.

Recommendations

Regular monitoring and evaluation of waste management activities at the Payam residents need to be geared up to have total adherence to introduced guidelines for waste management.

The authorities in the Payam should provide protective gear, and disinfections to waste to the residents. This might increase the number of members with positive attitudes towards waste management in their places of residence.

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List of abbreviations

CVI: Content Validity Index
FPG-One: Female Participant Group One
KI: Key Informant
Kr: Key Respondent
MP1-G: Male Participant- Group One
MPG-Three: Male Participant Group-Three
SPSS: Statistical Package for Social Sciences

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Conflict of interest

The author did not declare any conflict of interest

Author Biography

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