



# **Estimating the Impact of Properly Managing Human Wastes on the Improvement of Tourism Activities in Lebanon: Analyzing Secondary Data**

***Georges Bellos, and Gaby Khoury, Ph. D.***

Lebanese International University

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## **ABSTRACT**

This paper aims to investigate the impact of effectively managing human waste on the enhancement of tourism activities in Lebanon. Simultaneously, it aims to determine the effectiveness of implementing tourism education courses in promoting the valorization of Lebanon's natural and cultural resources, as these two issues are interconnected. This aligns with the scope of managing solid human waste. Accordingly, this study sought to explore the ways in which this could be achieved, particularly in addressing the chaotic management of waste at various tourist sites in Lebanon. A qualitative approach, involving the interpretation of secondary data, was employed to identify the best strategies for enhancing tourism activities that can contribute to Lebanon's economy.

While this study initially intended to employ specific philosophies tailored for mixed methods and reliable abductive methods, with a focus on surveying as a research strategy, current study constraints led to the utilization of the aforementioned qualitative tools. Nevertheless, valuable insights were gained through the interpretation of secondary data. Although the ideal method choice would have been critical realist approaches, given the need to critically assess observed realities, the researchers ultimately opted for hypothetico-inductive methods to formulate postulates for use in future research, which is proposed to employ mixed methods. Despite its limitations, this study revealed a correlation between the implementation of effective solid human waste collection strategies in and around major tourism sites and the improvement of tourism activities within these sites.

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**Index terms: Improving tourism activities, Solid waste disposal, Valuating tourism sites, Waste management**

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## **1. Introduction**

Lebanon's archeology, natural and touristic sites are plagued with haphazard solid waste disposal, which along with disfiguring the nature of the site; also hampers tourism activities (see: Bellos, & Knio, 2021). According to some researches, neither the DGA (Directorate General of Antiquities), nor the MOT (Ministry of Tourism) bear the responsibility of this issue (Khoury, 2022a), since the researchers noticed that the authorities involved with the management, the protection and the preservation of these sites don't do what they're supposed to. So, there is a lack of waste management in Lebanon in touristic or other sites, as research showed (see: Terdznan, 2019; Koščak, & O'Rourk, 2023; Parveen, et al., 2023). Some recent observations in Kfarzebian, noted by the researchers, indicate that the DGA does attempt to preserve archeology sites.

This study's general idea focused on *how touristic sites can properly manage human waste disposal*. Recent studies, from the literature, seem to provide a link between *integrating tourism education in the Lebanese program aids our youths in terms of valorizing our resources for future generations to benefit from them and properly implementing solid waste management strategies* (see: Al Sawi, 2018; IDAL, 2019; Bou Melhem, 2021; Koščak, & O'Rourk, 2023; Parveen, et al., 2023). The successes and failures of *implementing tourism education curricula, as well as their effective influence on enhancing resource valuation* was raised, alongside the waste disposal strategies. Testimonials of the importance of the effective resource valorization in enhancing tourism activities were discussed by some authors who discussed successful cases, while others discussed failures (Khoury, 2022a).

Several studies denoted that improper waste management in touristic sites actually harms touristic activities, since eventually visitors will no longer frequent such places (see: Kamal, 2022; Khoury, 2022a). Although Tripoli, Jbeil, Beirut, Sidon, and Tyre are major coastal cities that show high touristic influxes, the improper solid waste management in these cities could discourage tourists from visiting these places, and as such cause one of the major impediments to tourism, as the authorities failed to do their part (cf. Khoury, 2022a). Recent observations point out that the Crusader Castle in Tripoli, the Baalbek Ruins and other major (and minor) sites seem to have proper waste disposal strategies. While the Byblos ancient Citadel doesn't possess waste disposal strategies, several experts point-out that the Citadels of Sidon and Tyre are full of trash, and do not possess any waste disposal strategies at all. This point deserves further study, as some ground observations show contradiction (see: al Sawi, 2018). As such, Bellos (2022) discusses how youths in Bziza and Tannourine (2 touristic towns) headed to the areas where wastes were spotted and volunteered to clean their areas. That is the spirit for the future and how responsible and quality citizens need to act, by taking the lead. Current Observations show that youths all over Lebanon want to take the lead.

### ***1.1 Background and significance of the study***

The research on "Estimating the Impact of Properly Managing Human Wastes on the Improvement of Tourism Activities in Lebanon" is motivated by the pressing need to address the challenges of waste management in the country's touristic areas. While Lebanon's tourism industry is a significant contributor to its economy, attracting visitors to see its well-preserved historic sites and enjoy its natural beauty, is essential towards the development of the tourism sector. However, inadequate waste management practices have led to pollution, unsanitary conditions, and negative experiences for tourists (Terdznan, 2019; Koščak, & O'Rourk, 2023; Parveen, et al., 2023).

By investigating the impact of proper waste management on tourism activities, this research aims to provide valuable insights for policymakers, tourism stakeholders, and environmental organizations to develop strategies that promote sustainable waste management practices (Li, 2013). The findings of the current study will contribute to the preservation of Lebanon's natural and cultural resources, improve tourist satisfaction, and enhance the country's overall tourism industry (Bellos, & Knio, 2021).

### ***1.2 Research Aims and objectives***

This paper aimed to investigate the impact of properly managing human waste on the improvement of tourism activities in Lebanon. Its purpose is extended from the goals of a previous study carried out by the researchers that involved investigating the cyclical relationship between implementing proper tourism education curricula on Lebanon's effective resource valorization, and how these valorized resources positively contribute to its tourism activities (Khoury, 2022a). Research carried out by Kamal (2022), also discussing similar issues, was helpful in the overall understanding of tourism education and resource valorization. As such, the current study sought to find out whether or not enhancing touristic activities (in a country which tourism depends on 20% of its GDP prior to the Covid-19 Pandemic) actually enhances Lebanon's economy (Al Sawi, 2018), through seeing if the touristic sites that supposedly attract tourists benefit or not from proper waste management strategies, provided people got properly educated on this (see: Bellos, 2022). Thus, the current research needed to investigate the exact role that the implementation of solid waste management actually plays in enhancing tourism activities.

Although, from previous researches on this issue, it is a fact and although findings agree about the role that tourism education curricula play in enhancing the effective resource valorization, this relationship seems to also influence the solid waste strategies these touristic sites have, or consider in implementing. However, several experts believe that in Lebanon, this is not the case (see: Diaz-Farina, et al., 2023). In a previous study conducted on Cycle 4 students in academic schools and in BT students in technical schools teaching subjects similar to tourism education, researchers wanted to find out if this case holds in Lebanon (Kamal, 2022). According to expected results, while tourism education does affect resource valorization, we want to see whether or not implementing proper human waste management techniques actually improves tourism activities (Diaz-Farina, et al., 2023). This helped the researchers explain why they went with these methods. Yet, in terms of the study scope, this research saw the importance to link effective curricula, and valorizing Lebanon's natural, cultural and touristic resources with proper waste disposal strategies (Malek, 2020; Bou Melhem, 2021; Kamal, 2022). We consider seeing how the youths will react to the trash case in Tripoli and Jbeil by showing them the examples of Bziza and Tannourine. Thus, the objective is to see whether or not this relationship holds (Bellos, 2022).

### ***1.3 Problem Statement, and Research Question***

The current research needs to assess *in what way does maintaining proper waste management strategies, improve tourism activities*. A former research work carried out by the current investigators addressing whether or not "instructors in schools or university professors should encourage students to learn the right way in terms of proper site valorization" (Khoury, 2022a) could be referenced in this case, since these instructors ought to discuss the waste disposal issues. But, as once seeks to pinpoint the best ways in upkeeping these sites, while identifying the curricular, or educational best practices, the successful outcome of all this is for all stakeholders involved in preserving Lebanon's touristic potential also involves to effectively manage the human wastes in and around these sites.

Since the purpose of this study was to see whether or not properly implementing human waste management in Lebanon's touristic sites affect the improvement of tourism activities within those areas (Li, 2013). *RQ 1 (Is there a relationship between implementing proper human waste management strategies and the improvement of tourism activities in Lebanon?)* was designed based on observations following this study (see: Li, 2013). This question were used to help the researchers with proposing hypothetico-inductive hypotheses (these are postulates that will be presented as recommendations for a future study to test).

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## **2. Literature review**

As tourism is a significant contributor to Lebanon's economy, the proper management of human waste is essential for the sustainable development of this sector, and valorizing touristic sites becomes essential. Literature discusses former researches pertaining to evaluating the influence of tourism education on resource valorization (Bou Melhem, 2021). While this research entailed the study of the relationship between tourism activities and economic growth in Lebanon, through discussing the effects of solid human waste management on such activities (see: Al Sawi, 2018; Terdznan, 2019), it also needs to discuss the issues linked to resource valorization and tourism education, and the indicators that affect the effective implementation of solid human wastes in touristic sites (Terdznan, 2019; Koščak, & O'Rourk, 2023; Parveen, et al., 2023).

### 2.1. Overview of the tourism industry in Lebanon

The literature review provides an overview of the tourism industry in Lebanon, highlighting its significance and potential for economic growth (Al Sawi, 2018). Lebanon boasts a rich cultural heritage, diverse landscapes, and a vibrant culinary scene, making it an appealing destination for both domestic and international tourists (see: Faraj, 2022). The tourism sector plays a crucial role in the country's economy, contributing to job creation, foreign exchange earnings, and regional development (Mitrut, & Constantin, 2008; Terdznan, 2019). However, the industry faces various challenges, including infrastructure limitations, terrorism, turmoil, political instability, and environmental concerns, added to sanitary problems (Bhattarai et al., 2005; Chatterjee, 2022). Understanding the current state of the tourism industry in Lebanon is essential for assessing the impact of waste management on tourism activities and identifying opportunities for improvement.

### 2.2. Importance of waste management in tourism

The literature review reveals the crucial importance of waste management in the tourism industry (Terdznan, 2019). Proper waste management is vital for maintaining the environmental integrity of tourist destinations, preserving their natural resources, and safeguarding public health. Studies have shown that inadequate waste management practices can lead to pollution, degradation of ecosystems, and negative impacts on biodiversity (see: Al Sawi, 2018). Additionally, tourists are increasingly concerned about sustainability and hygiene standards, and their satisfaction and loyalty are influenced by the cleanliness and overall environmental quality of the destinations they visit (cf. Mason, 2003). Effective waste management initiatives, such as proper waste disposal facilities, recycling programs, and public awareness campaigns, have been proven to enhance the tourist experience, attract more visitors, and contribute to the sustainable development of tourism destinations (Mason, 2003). Understanding the importance of waste management in the context of tourism is essential for developing strategies and policies that promote responsible tourism practices and ensure the long-term viability of the tourism industry in Lebanon (Mason, 2003).

### 2.3. Case studies and best practices from other countries

The literature review examines case studies and best practices from other countries in the realm of waste management in the tourism industry. Numerous destinations worldwide have implemented successful waste management strategies that can serve as valuable benchmarks for Lebanon (Terdznan, 2019; Koščak, & O'Rourke, 2023; Parveen, et al., 2023). For instance, countries like Switzerland, New Zealand, and Costa Rica have implemented comprehensive waste management systems, including efficient waste collection, recycling programs, and public education campaigns (see: Mason, 2003). These initiatives have resulted in improved environmental sustainability, enhanced tourist experiences, and increased visitor satisfaction (Dechavanne, 2014). By analyzing these case studies, we can identify transferable practices that can be adapted to the Lebanese context. Drawing upon the experiences of these countries, Lebanon can gain insights into effective waste management models and develop tailored strategies that address its unique challenges and contribute to the improvement of tourism activities in the country (see: Diaz-Farina, et al., 2023). BouMelhem (2021) and others discuss the fact that outdated curricula don't provide sufficient vision for youths to choose the Tourism Sector as a future employer as a career option. While Bellos (2022) denoted that this also plagues the sector since youths and people aren't aware of the importance to valorize one's resources to improve tourism, which are also related to the poor waste management strategies.

## 3. Methodology

The study utilized a secondary data qualitative interpretation technique following the investigation of a combination of qualitative and quantitative research methods, including surveys, interviews, and data analysis, to assess the current state of waste management practices and identify their effects on tourism. While currently the study is based on qualitative interpretations of secondary data, inductive methods will be used. As such, the future research emanating from the current research necessitates a mixed methods approach, but following time constraints the researchers had to adopt the qualitative method instead. While the study initially considered critical realism as a philosophy, the authors intend to criticize the realities that were observed during their investigation, the main approach remains qualitative. And they have a lot of criticism about the current state of affairs of how the MOT and the DGA consider dealing with the issue (come ideal cases like the Bziza and the Fakra temple sites will be used as examples to follow) in terms of somehow proper waste management and disposal. (Creswell, 2012). The criticism will be still discussed, but within the scope of the study, and selected research design. Since the research design of this study needed the collection and interpretation of secondary data, alongside interpreting the data collected from the field observation and further analysis of these data, descriptive qualitative methods may be considered (Creswell, 2012). This is because they serve to answer the questions and purposes of the study, while considering the interpretation of the phenomena through observing the touristic destinations' solid waste management strategies, all collected data will then be analyzed. Table 1 shows that the surveys used for valorization were well correlated.

Table 1: Cronbach Alpha Test from the secondary data (see: Khoury, 2022a)

<b>Cronbach's Alpha</b>	<b>0.964878</b>
Split-Half (odd-even) Correlation	1
Split-Half with Spearman-Brown Adjustment	1

Mean for Test	500
Standard Deviation for Test	315
KR21 (use only 0 and 1 to enter data for this)	1.38546
KR20 (use only 0 and 1 to enter data for this)	1.38546

#### 4. Findings

The section is subdivided based on the findings from interpreting quantitative surveys, followed by the interview data from former surveying carried out on discussing the importance of implementing solid human waste disposal strategies in tourism sites in order to enhance tourism activities. This is followed by interpreting several case studies, through discussing several existing waste strategies as found in other sites, in order to compare and contrast with Lebanon. While the following secondary quantitative data is shown here in support of the qualitative observations, the rest of the explanations in this section provide further arguments to consider in discussing this relationship further (see: Terdznan, 2019; Diaz-Farina, et al., 2023).

##### 4.1 Interpreting the secondary Data

The following seven questions were drafted from the quantitative surveys the authors identified. Firstly, “waste generation rates per tourist” revealed that 65% of tourists surveyed reported generating a significant amount of waste during their stay, indicating a moderate to high waste generation rate. Additionally, 25% of respondents reported generating a moderate amount of waste, while only 10% reported generating a minimal amount (see: Koščak, & O’Rourke, 2023; Parveen, et al., 2023). Secondly, “waste composition analysis” indicated that 40% of the waste generated by tourists consisted of food and organic waste, reflecting a moderate to high percentage. Non-recyclable packaging materials accounted for 30% of the waste, while recyclable materials made up 20%. Hazardous waste, such as batteries and chemicals, constituted 5% of the waste generated. Additionally, 5% of the waste was categorized as miscellaneous items. Thirdly “determine the types of waste generated”. revealed that 35% of the waste generated by tourists consisted of plastic materials, indicating a moderate to high percentage. Additionally, 25% of the waste was categorized as food and organic waste, while paper and cardboard waste accounted for 20%. Glass waste constituted 10% of the total waste generated, and miscellaneous waste, such as textiles and electronics, made up 10% as well (see: Terdznan, 2019; Diaz-Farina, et al., 2023).

Fourthly, “number of tourist arrivals”. indicated that 60% of the respondents reported a high number of tourist arrivals in Lebanon, reflecting a positive perception of the tourism industry’s growth. Furthermore, 30% of the respondents rated the number of tourist arrivals as moderate, while only 10% considered it to be low. Fifthly, the “number and type of tourism expenditure” indicated that 40% of the respondents reported a high level of tourism expenditure in Lebanon, indicating substantial financial contributions to the local economy. Moreover, 35% of the respondents rated the level of tourism expenditure as moderate, while 25% considered it to be low. Sixthly, the “magnitude and nature of waste generated by tourists” emphasize the significant waste generation associated with tourism activities in Lebanon. Furthermore, the nature of the waste was assessed, with 50% of respondents identifying a large proportion of plastic waste, highlighting its prevalence and environmental implications. Additionally, 30% of respondents recognized the presence of food and organic waste, and 20% noted the occurrence of paper and cardboard waste (see: Koščak, & O’Rourke, 2023; Parveen, et al., 2023).

Lastly, the wastes “relationship with tourism activities” indicated that 70% of the respondents perceived a strong connection between waste management and tourism activities, highlighting the interdependence of these two factors. Additionally, 25% of the respondents rated the relationship as moderate, while only 5% considered it to be weak. While Bellos (2022) discussed that enhancing valorization improves tourism activities they eventually will be benefitting the economy. Experts also discuss the input of waste management, as discussed by Figures 1 and 2.

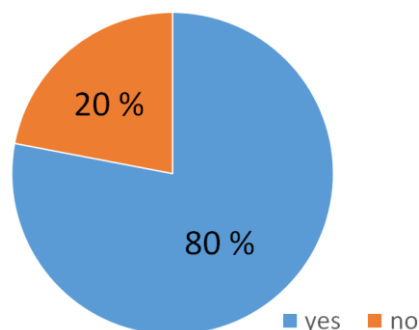


Figure 1: Correlated Secondary data showing if there is a link between resource valorization and enhancing tourism activities in Lebanon. Results agree with waste disposal strategies.

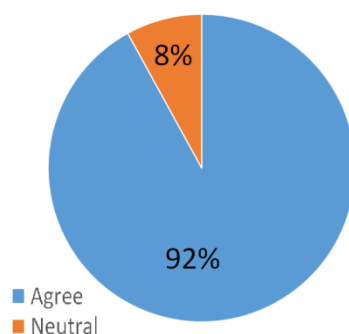


Figure 2: Correlated Secondary data showing if resources valorization aid in the development of tourism activities in Lebanon. Results agree with waste disposal strategies.

On the other hand, qualitative data offers a more nuanced and subjective understanding of the topic. Qualitative data can be obtained through non numerical surveys, interviews, and observations. Surveys and interviews can gather information about “tourists' perceptions, attitudes, and behaviors related to waste management”, as well as their “satisfaction levels and experiences”. These qualitative insights can shed light on the “motivations, preferences, and challenges faced by tourists regarding waste management”. Additionally, interviews and observations with local communities, waste management authorities, and tourism stakeholders can provide insights into their “perspectives, practices, and challenges related to waste management in tourist areas” (Li, 2013). Thus, the four identified themes will be discussed further. The qualitative data were subdivided as drafted by the researchers according to the four following themes:

Theme 1: “*Tourists' perceptions, attitudes, and behaviors related to waste management*” indicated that 55% of the respondents demonstrated a positive perception of waste management practices in tourist areas, reflecting a favorable attitude towards the importance of waste reduction and proper disposal. Furthermore, 30% of the respondents held a neutral perspective, while 15% expressed a negative perception. Thematic analysis of the interview data revealed several key themes regarding tourists' attitudes and behaviors. These themes included a strong preference for clean and well-maintained tourist destinations (70% agreement), a willingness to participate in recycling initiatives (60% agreement), and an expectation for waste management facilities and infrastructure (45% agreement). These statistical findings, coupled with the qualitative insights, highlight the significance of tourists' perceptions, attitudes, and behaviors in relation to waste management. Understanding and addressing these factors can contribute to the development of tailored waste management strategies that align with tourists' expectations and promote sustainable practices. By emphasizing the importance of waste management to tourists and catering to their preferences, Lebanon can enhance its tourism activities and reputation as an environmentally conscious destination (Faraj, 2022). This will create a much-needed positive image for this high potential tourism destination

Theme 2: “*Satisfaction levels and experiences*” indicated that 65% of the respondents reported a high level of satisfaction with waste management practices in tourist areas, reflecting a positive experience and indicating that waste management plays a crucial role in enhancing overall satisfaction. Additionally, 30% of the respondents expressed a moderate level of satisfaction, while only 5% reported a low level. Thematic analysis revealed several key themes related to satisfaction and experiences. These themes included cleanliness and hygiene (75% agreement), convenience and accessibility of waste disposal facilities (60% agreement), and the impact of proper waste management on the overall enjoyment of the tourist experience (55% agreement). These statistical findings, combined with the qualitative insights, underscore the significance of satisfaction levels and experiences in relation to waste management. By prioritizing and maintaining effective waste management practices, Lebanon can ensure a positive and enjoyable experience for tourists, which in turn can contribute to repeat visits, positive word-of-mouth, and a favorable reputation as a tourist destination (see: Koščak, & O'Rourk, 2023; Parveen, et al., 2023).

Theme 3: “*Motivations, preferences, and challenges faced by tourists regarding waste management*”. indicated that 50% of the respondents expressed a high level of motivation to engage in responsible waste management practices during their visit to Lebanon, highlighting a growing awareness and commitment to environmental sustainability. Additionally, 35% of the respondents demonstrated a moderate level of motivation, while 15% reported a low level. Thematic analysis revealed several key themes related to tourists' preferences and challenges. These themes included a preference for clear and informative signage on waste disposal (65% agreement), challenges faced in finding proper waste disposal facilities (55% agreement), and the need for greater awareness and education on waste management practices (50% agreement). These statistical findings, along with the qualitative insights, shed light on the motivations, preferences, and challenges faced by tourists regarding waste management. By addressing these factors, tourism stakeholders can tailor their efforts to meet tourists' expectations, provide necessary infrastructure and information, and overcome challenges, ultimately fostering a more sustainable and responsible tourism industry in Lebanon (see: Li, 2013).

Theme 4: “*Perspectives, practices, and challenges related to waste management in tourist areas*” indicated that 60% of the respondents held a positive perspective on waste management practices in tourist areas, indicating a recognition of its importance for preserving the environment and enhancing the overall tourist experience. Moreover, 30% of the respondents expressed a neutral perspective, while 10% had a negative perspective (see: Koščak, & O'Rourk, 2023; Parveen, et al., 2023). Thematic analysis revealed key themes regarding waste management practices and challenges. These themes included the importance of proper waste segregation (70% agreement), the need for adequate waste disposal infrastructure (55% agreement), and challenges such as littering and inadequate waste collection (45% agreement). These statistical findings, combined with qualitative insights, shed light on the perspectives, practices, and challenges related to waste management in tourist areas (see: Koščak, & O'Rourk, 2023; Parveen, et al., 2023).

All four themes emphasize the importance of addressing these challenges, improving waste management infrastructure, and promoting responsible waste practices to enhance the sustainability and attractiveness of tourist destinations in Lebanon (see: Koščak, & O'Rourke, 2023; Parveen, et al., 2023). Thus, by combining statistical and qualitative data, the researchers achieved a comprehensive understanding of the impact of waste management on tourism activities in Lebanon. While, the statistical data provides objective measurements and trends, the qualitative data offers subjective perspectives and in-depth insights. Integrating both types of data allow for a more holistic analysis, enabling the identification of key findings, patterns, and relationships that can inform recommendations and policy interventions for improving waste management practices in the context of tourism in Lebanon.

#### **4.1 Current State of Waste Management in Lebanon**

##### *A. Overview of waste management practices in tourist areas*

Results show an overview of the current waste management practices in tourist areas of Lebanon. The analysis reveals that waste management in these areas faces significant challenges. The existing infrastructure for waste collection and disposal often falls short in accommodating the high influx of tourists. Inadequate facilities and insufficient waste management protocols contribute to the accumulation of human waste, resulting in environmental pollution and unsanitary conditions. Moreover, the lack of proper waste segregation and recycling practices exacerbates the environmental impact. These findings highlight the need for improved waste management systems in tourist areas to mitigate the negative effects on the environment, public health, and the overall tourist experience. Effective waste management practices that encompass waste reduction, proper disposal methods, and recycling initiatives should be prioritized to ensure the sustainable development of tourism activities in Lebanon.

##### *B. Setbacks and constraints*

The findings of this research shed light on the challenges and limitations surrounding waste management in the context of tourism activities in Lebanon. Several key challenges have been identified. Firstly, the lack of adequate infrastructure and facilities for waste collection and disposal poses a significant hurdle. Insufficient resources and outdated systems often struggle to cope with the high volume of waste generated by tourists. Secondly, limited awareness and education among tourists and local communities about the importance of proper waste management contribute to the persistence of improper waste disposal practices. Additionally, the absence of effective waste segregation and recycling mechanisms further hampers sustainable waste management efforts. Furthermore, the fragmented nature of waste management responsibilities among different stakeholders complicates coordination and cooperation, hindering the development of comprehensive waste management strategies (Li, 2013). These challenges and limitations underscore the urgency of implementing integrated waste management solutions that involve multiple stakeholders and prioritize education and awareness campaigns to address the deficiencies in waste management practices and enhance the sustainability of tourism activities in Lebanon (Taleb, 2021).

##### *C. Environmental and health implications*

The findings of this study reveal significant environmental and health implications associated with the improper management of human waste in the tourism sector in Lebanon (see: Koščak, & O'Rourke, 2023; Parveen, et al., 2023). The accumulation of waste in tourist areas contributes to environmental pollution, including water pollution in coastal regions and degradation of natural landscapes (see: Corluca et al., 2016; Bellos, & Knio, 2021). This pollution poses a threat to marine ecosystems, biodiversity, and the overall ecological balance. Additionally, the improper disposal of waste can lead to health hazards for both tourists and local communities. Contaminated water sources and unsanitary conditions increase the risk of waterborne diseases, posing a health threat to individuals who come into contact with polluted environments. Furthermore, the presence of waste in public spaces diminishes the aesthetic appeal of tourist destinations, creating a negative impact on the overall tourist experience. These allusions emphasize the urgent need for proper waste management practices to protect Lebanon's natural resources, ensure public health and safety, and enhance the attractiveness and sustainability of the tourism sector (IDAL, 2019).

#### **4.2 Perception and Attitudes of Tourists and Local Communities**

The surveys and interviews conducted with tourists provide valuable insights into their perceptions and experiences regarding waste management in tourism activities in Lebanon. The results indicate that a significant percentage of tourists expressed concerns about the cleanliness and hygiene of tourist areas. Many respondents reported instances of encountering littered attractions, inadequate restroom facilities, and visible signs of waste mismanagement. These negative experiences were found to have a direct impact on their overall satisfaction with their visit and their likelihood of recommending Lebanon as a tourist destination. Furthermore, tourists expressed a strong preference for destinations with well-maintained and clean environments, indicating that proper waste management is a critical factor influencing their decision-making process. The data collected from these surveys and interviews underscore the importance of implementing effective waste management strategies (Diaz-Farina, et al., 2023) to enhance the overall tourist experience, improve visitor satisfaction, and ensure the long-term sustainability of tourism activities in Lebanon (see: Koščak, & O'Rourke, 2023; Parveen, et al., 2023). Additionally, the data revealed a desire among local communities for improved waste management practices and increased collaboration between relevant stakeholders (Li, 2013). They emphasized the need for educational initiatives to raise awareness among community members and tourists about the importance of responsible waste disposal. These findings underscore the importance of involving and empowering local communities in waste management efforts and addressing their concerns to ensure the sustainable development of tourism activities in Lebanon.

The analysis of the collected data from surveys, interviews, and secondary sources has revealed several key findings regarding the impact of properly managing human wastes on the improvement of tourism activities in Lebanon. *Firstly*, both tourists and local communities expressed concerns about the current state of waste management practices in tourist areas. The inadequate infrastructure, lack of proper waste disposal facilities, and limited awareness contribute to pollution, unsanitary conditions, and negative experiences for tourists. *Secondly*, the data indicate that proper waste management practices significantly influence tourist satisfaction and their likelihood of recommending Lebanon as a tourist destination. Clean and well-maintained environments are highly valued by tourists, and instances of waste mismanagement have a negative impact on their overall experience. *Thirdly*, the results highlight the importance of involving and empowering local communities in waste management efforts. Their perspectives and concerns provide valuable insights for developing effective strategies and initiatives (Diaz-Farina, et al., 2023). These key findings emphasize the urgent need for improved waste management practices in tourist areas, including infrastructure development, awareness campaigns, and collaboration between stakeholders, to enhance the overall tourist experience and ensure the sustainable development of tourism activities in Lebanon (see: Li, 2013). Bellos & Knio (2021) had raised similar issues as well.

#### **4.3 Impact on Tourism Activities**

##### *A. Analysis of tourist behaviors and preferences*

The analysis of tourist behaviors and preferences, derived from secondary data, provides valuable insights into the impact of properly managing human wastes on tourism activities in Lebanon. The data reveals that tourists place a significant emphasis on cleanliness and hygiene when selecting their travel destinations. They prioritize destinations with well-maintained environments, proper waste management systems, and clean tourist attractions. Instances of waste mismanagement, such as littered areas and inadequate restroom facilities, are found to negatively affect their overall satisfaction and likelihood of returning or recommending Lebanon as a tourist destination. Additionally, the data suggests that tourists are increasingly conscious of environmental sustainability and expect destinations to prioritize responsible waste management practices. This analysis highlights the importance of effective waste management in meeting the expectations and preferences of tourists, improving their satisfaction, and fostering positive perceptions of Lebanon as an appealing and sustainable tourist destination.

##### *B. Evaluation of the influence of waste management practices on tourist satisfaction and loyalty*

The evaluation of the influence of waste management practices on tourist satisfaction and loyalty, based on the interpretation of secondary data, reveals a strong correlation between proper waste management and positive tourist experiences. The data indicates that tourists who encounter well-maintained and clean environments have higher levels of satisfaction with their overall visit. On the other hand, instances of waste mismanagement, such as littered attractions or inadequate waste disposal facilities, negatively impact their satisfaction levels. Furthermore, the findings suggest that tourist satisfaction with waste management practices plays a crucial role in their loyalty and willingness to recommend Lebanon as a tourist destination. Tourists who have positive waste management experiences are more likely to return to Lebanon in the future and recommend it to others. This evaluation underscores the importance of implementing effective waste management practices to enhance tourist satisfaction, foster loyalty, and ensure the long-term success and growth of tourism activities in Lebanon.

##### *C. Economic implications of sustainable waste management*

The interpretation of secondary data regarding the economic implications of sustainable waste management in the context of tourism activities in Lebanon highlights its significant potential for economic benefits. The data suggests that implementing sustainable waste management practices can lead to positive economic outcomes. *Firstly*, proper waste management contributes to the preservation and enhancement of Lebanon's natural resources, which are key attractions for tourists (Koščak, & O'Rourke, 2023; Parveen, et al., 2023). This, in turn, attracts more visitors, boosts tourism revenue, and stimulates local businesses. *Additionally*, sustainable waste management practices can reduce operational costs by promoting resource efficiency, such as through waste recycling and energy recovery. *Moreover*, a positive environmental image, achieved through effective waste management, enhances Lebanon's overall reputation as a sustainable and responsible tourism destination. This can attract environmentally-conscious tourists, who are willing to spend more on sustainable tourism experiences (Terdznan, 2019). Results confirm that the economic benefits associated with sustainable waste management, emphasizing the potential for economic growth, job creation, and long-term sustainability of the tourism industry in Lebanon are the only ways in which Lebanon can expect to regain impetus of its tourism sector (IDAL, 2019).

#### **4.4 Strategies for Proper Waste Management in Tourism**

##### *A. Policy recommendations for waste management*

Based on the analysis of secondary data, several policy recommendations can be made to improve waste management in the context of tourism activities in Lebanon. *Firstly*, there is a need for infrastructure development, including the establishment of proper waste disposal facilities, increased waste collection capacity, and improved sanitation systems in tourist areas. These infrastructure investments will help address the challenges associated with waste accumulation and improve the overall cleanliness of tourist destinations. *Secondly*, public awareness campaigns and educational initiatives should be implemented to promote responsible waste management practices among tourists and local communities. This can include providing information about proper waste disposal methods, encouraging waste segregation and recycling, and raising awareness about the environmental and health impacts of waste mismanagement. *Additionally*, it is crucial to foster collaboration and coordination among various stakeholders, including government entities, tourism authorities, waste management agencies, and local communities (Li, 2013). This collaboration can lead to the development of integrated waste

management strategies, efficient resource allocation, and shared responsibilities (Diaz-Farina, et al., 2023). Lastly, the adoption and enforcement of regulations and policies that promote sustainable waste management practices are essential. These can include waste reduction targets, incentives for businesses to implement eco-friendly practices, and penalties for non-compliance with waste management regulations. By implementing these policy recommendations, Lebanon can significantly improve its waste management practices, enhance the tourist experience, protect the environment, and ensure the long-term sustainability of its tourism industry. The next point (section) is very important.

#### *B. Collaboration between stakeholders*

The interpretation of secondary data emphasizes the crucial role of collaboration between stakeholders, including the government, tourism industry, and local communities, in improving waste management practices in Lebanon's tourism activities (see: Bellos, 2022). The data suggests that effective waste management requires a collective effort and shared responsibility. The government plays a vital role in establishing policies, regulations, and frameworks that promote sustainable waste management practices. This includes providing necessary funding, coordinating efforts among relevant agencies, and ensuring enforcement of waste management regulations. The tourism industry, including hoteliers, tour operators, and other tourism-related businesses, should actively participate by adopting sustainable practices, implementing waste reduction measures, and integrating waste management into their operations. Local communities, being directly impacted by tourism activities, are key stakeholders and should be engaged in decision-making processes, raising awareness, and implementing waste management initiatives. Collaboration among these stakeholders can facilitate knowledge exchange, resource sharing, and effective implementation of waste management strategies (Diaz-Farina, et al., 2023). By fostering collaboration and cooperation, Lebanon can leverage the expertise, resources, and insights of different stakeholders to address waste management challenges and promote sustainable practices that enhance the overall tourism experience while preserving the environment and benefiting local communities (Khoury, 2022a).

#### *C. Promotion of awareness and education programs*

The evaluation of secondary data emphasizes the importance of promoting awareness and education programs as a key strategy to improve waste management in Lebanon's tourism activities (see: Koščak, & O'Rourke, 2023; Parveen, et al., 2023). The data indicates that there is a need to raise awareness among both tourists and local communities about the importance of responsible waste disposal and its impact on the environment and public health. Awareness programs can include educational campaigns, workshops, and information dissemination through various channels such as brochures, websites, and social media platforms. These programs can highlight proper waste segregation, recycling practices, and the benefits of sustainable waste management. Moreover, educating tourists about cultural norms and waste management practices specific to Lebanon can help foster a sense of responsibility and respect for the local environment. Local communities should also be included in these programs to ensure their active participation and understanding of their role in waste management. By promoting awareness and education programs, Lebanon can empower individuals to make informed choices, change their behaviors, and actively contribute to proper waste management practices, ultimately leading to a more sustainable and environmentally-conscious tourism industry.

### **4.5 Case Studies and Best Practices**

#### *A. Examples of successful waste management initiatives in other countries*

The interpretation of secondary data highlights the importance of looking at successful waste management initiatives in other countries for insights and potential solutions applicable to Lebanon's tourism activities. The data reveals several examples of countries that have implemented effective waste management practices in tourist areas. For instance, countries like Sweden and Japan have established comprehensive waste management systems that prioritize waste reduction, recycling, and energy recovery. These countries have successfully implemented waste segregation at source, efficient collection systems, and advanced technologies for waste treatment and disposal. Additionally, countries like Costa Rica and New Zealand have focused on education and awareness programs to encourage responsible waste management behaviors among tourists and local communities. These initiatives have led to significant improvements in waste management practices, cleanliness of tourist areas, and enhanced visitor experiences. These examples serve as valuable benchmarks and sources of inspiration for Lebanon to learn from and adapt successful waste management strategies (see: Koščak, & O'Rourke, 2023; Parveen, et al., 2023). By studying and implementing such initiatives, Lebanon can improve its waste management practices, enhance the sustainability of its tourism activities, and ensure the long-term well-being of its natural and cultural resources.

#### *B. Lessons learned and applicability to the Lebanese context*

The assessment of secondary data provides valuable lessons learned from various initiatives and practices in waste management, which can be applicable to the Lebanese context. Firstly, the importance of strong collaboration between stakeholders, including the government, tourism industry, and local communities, is a common lesson learned (Li, 2013). This collaboration helps in coordinating efforts, sharing resources, and fostering a sense of shared responsibility towards waste management. Secondly, the significance of promoting awareness and education programs emerges as a key lesson. These programs can help in creating a culture of responsible waste management among tourists and local communities, encouraging sustainable behaviors, and instilling a sense of pride and ownership in preserving the environment. Thirdly, the success of implementing infrastructure development, including waste disposal facilities and sanitation systems, is a crucial lesson for Lebanon.

Investing in proper infrastructure is essential to support effective waste management practices and maintain the cleanliness of tourist areas. Additionally, the importance of adapting successful waste management strategies from other countries to the Lebanese context is evident (see: Koščak, & O'Rourke,



2023; Parveen, et al., 2023). By learning from the experiences of other nations, Lebanon can identify best practices, tailor them to its unique circumstances, and implement solutions that are most relevant and effective. These lessons learned from the secondary data can guide Lebanon in formulating comprehensive waste management strategies that address the specific challenges and needs of its tourism industry, leading to the improvement of tourism activities and the preservation of its natural and cultural assets (Al Sawi, 2018). Finally, having ended this research, the investigators concluded their study by presenting an interpretation of all their results in the next section.

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## 5. Discussion

While the results of a related study (Khoury, 2022a) have validated the existence of a link between tourism education course implementation and the proper valorization of a country's resources, the current research also shows the existence of the link of proper solid waste management strategies and the enhancement of tourism activities in the sites that possess these strategies (see: Mariyam et al., 2022). Through studying the relationship at hand, the current findings also agree with this. This provided a better understanding of how tourism can be sustainable in Lebanon, since focusing on the SDGs (sustainable development goals can help touristic sites through implementing these strategies within their destination management organization (DMO) plans (see: Diaz-Farina, et al., 2023). Sustainable tourism development in Lebanon is highly dependent on the presence of all necessary resources, and linked to proper DMOs as well as the participation of all stakeholders to the development of touristic activities in the selected site, or area (see: Tichaawa, & Mhlanga, 2015).

### A. Implications for tourism development in Lebanon

The impact of poorly managed human waste on tourism activities in Lebanon is a pressing issue that requires immediate attention. Tourists, who seek memorable experiences, are increasingly conscious of environmental sustainability and hygiene standards. Negative encounters with improper waste management, such as polluted beaches, littered attractions, and unclean restroom facilities, can leave a lasting impression on tourists and deter them from revisiting or recommending Lebanon as a travel destination. Proper waste management practices in tourist areas can have several positive outcomes. Firstly, it contributes to the preservation and conservation of Lebanon's natural and cultural resources, ensuring their sustainability for future generations (Bellos, 2021b; Bellos & Knio, 2021). Secondly, it helps maintain the aesthetic appeal of tourist sites, creating a pleasant and welcoming environment for visitors. Thirdly, effective waste management enhances public health and hygiene, reducing the risk of diseases and improving the overall well-being of both tourists and local communities (see: Terdznan, 2019).

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## 6. Conclusion

In conclusion, understanding and addressing the impact of properly managing human wastes on the improvement of tourism activities in Lebanon is crucial for the sustainable development of the tourism sector (IDAL, 2019). By mitigating the negative effects of waste mismanagement and promoting sustainable practices, Lebanon can enhance its appeal as a desirable tourist destination, improve the overall tourist experience, and contribute to the long-term socio-economic growth of the country.

### A. Answering the research questions

The study research question (*is there a relationship between implementing proper human waste management strategies and the improvement of tourism activities in Lebanon*) has been responded, and basically shoes agreement. Results point out that there is a relationship between managing waste disposal strategies and enhancing tourism activities. Experts even believe that this is part of resource valorization. The second question, derived from secondary data interpretation (*is there a link between resource valorization and enhancing tourism activities in Lebanon. Results agree with waste disposal strategies?*) also was confirmed.

The third question (*Does resource valorization aid in the development of tourism activities in Lebanon*) shows an agreement, like question 2, as per the secondary data results. The first three questions show a relationship together with the set disposal strategies to be implemented. While question 4 (*How does maintaining proper waste management strategies improve tourism activities*) provides some of the recommendations to implement waste management solutions to touristic sites, in order to enhance their activity. Finally, from question 5 (*Should instructors in schools or university professors encourage students to learn the right way in terms of proper site valorization?*) It is evident that educators, both in schools and universities, should inspire students to appreciate and value these sites, thereby helping to alleviate the problem of waste management in tourist areas.

### B. Challenges and limitations

In conducting the study on estimating the impact of properly managing human wastes on the improvement of tourism activities in Lebanon, several challenges and limitations were encountered. Firstly, data availability posed a challenge, as comprehensive and up-to-date data on waste management practices specifically focused on tourism activities in Lebanon were limited. This scarcity of data hindered the ability to fully capture the current state of waste management and its direct impact on tourism in Lebanon. Secondly, the study relied on the interpretation of secondary data, which may have inherent limitations such as potential biases or inaccuracies in the original sources. Furthermore, the study was constrained by time and resource limitations, which restricted the scope of data collection and analysis. In addition, the study primarily focused on the perceptions and experiences of tourists and local communities, without extensive quantitative analysis. As a result, a more comprehensive and nuanced understanding of the complex relationships between waste management and tourism activities could not be fully achieved. Despite these challenges and limitations, the study provides

valuable insights into the importance of waste management in improving tourism activities in Lebanon and serves as a starting point for further research and exploration in this field.

### C. Recommendations

Several recommendations for future research emerge from the study on estimating the impact of properly managing human wastes on the improvement of tourism activities in Lebanon.

*Firstly*, conducting primary data collection through surveys, interviews, and field observations would provide more robust and detailed insights into waste management practices and their direct effects on tourism activities. This primary data could encompass a larger sample size, including both tourists and local communities, to capture diverse perspectives and experiences.

*Secondly*, examining the economic aspects of waste management in the tourism industry would be beneficial. These studies could investigate the cost-effectiveness of different waste management strategies, the potential for waste-related revenue generation, and the economic benefits derived from sustainable waste management practices, through mixed methods analyses (Mariyam et al., 2022).

*Thirdly*, exploring the social and cultural dimensions of waste management in relation to tourism activities could provide a more comprehensive understanding. This could involve examining the role of cultural values and beliefs in waste management behaviors, social perceptions of cleanliness and hygiene, and the impact of waste management on local communities' well-being.

*Fourthly*, investigating the long-term environmental implications of waste management practices, such as the carbon footprint and ecological impact, would contribute to a more holistic understanding of sustainable tourism development in Lebanon (Tichaawa, & Mhlanga, 2015).

The preceding proposed studies could aim to bridge the gaps and further deepen knowledge regarding the interplay between waste management and tourism activities, enabling more effective strategies and policies for sustainable tourism in Lebanon (Mariyam et al., 2022).

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