The Role of Health Information Systems to Support Tourism in Badung Regency, Bali

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ABSTRACT

The importance of health in human life cannot be underestimated. Health helps people develop economically, socially, and culturally if it is prioritized. Understanding the importance of health must be prepared as early as possible. In this case, health promotion and prevention stages are requirements that must be implemented. The availability of health information is one of the promotional and preventive actions that the government may use in order to anticipate negative consequences that may arise as a result of a lack of information about diseases and health issues. Bali, as a tourism destination that attracts people from all walks of life, from different endemic areas, and different rate of vaccinations, requires filtration in order to welcome future visitors. In light of the spread of various diseases in Bali, the government should adopt promotive and preventive stages in addition to the curative and rehabilitative ones, one of which is the development of tourism health information systems. Health information systems, including both the availability of health services and disease-related information, require attention to avoid negative things from happening, which might lead to the need for curative and rehabilitative actions, which, of course, involve substantial energy, time, and money.

Keywords: Health, Information, Tourism.

1. INTRODUCTION

The worldwide COVID-19 pandemic demands everyone to be more concerned about their own health, which has an influence on the health of those with whom they interact. The COVID-19 virus' rapid spread and transmission has forced everyone to become more health-conscious. Via Peta-SebaranCovid19.go.id[1] all Indonesians become aware of the data on the decline and increase in Covid-19 cases, in which there appeared to be an increase between the beginning of the year and the middle of 2021. It demonstrates that vacation time, without requiring strict control, has an influence on communal activities. In these circumstances, many parties, particularly the government, are forced to impose various restrictions on people’s activities. In addition, the government developed, socialized, and strictly implemented a number of laws relating to the health of people. It aims to prevent the virus from spreading, especially in sectors that include a large number of people, such as tourism.

In the development of health and tourism, many collaborations have been carried out by observing the movement of people from one location to another. In this situation, people’s mobility while traveling must be completed with health information. [2] defines travel medicine as "an understanding that does not only aim to implement the prevention of infectious diseases during travel but also to ensure the personal safety of travelers and avoid environmental risks," which is emphasized as important for travelers by The International Society Travel Medicine (ISTM) or for anyone interested in visiting a certain region or country. Travel medicine, according to [3], is a very dynamic specialty that focuses on pretravel preventive care. In this regard, a comprehensive risk assessment for each individual traveler is required to accurately assess the specific risks of travel, the itinerary, and the destination, as well as to provide advice on the most appropriate risk management interventions to promote health and prevent adverse health outcomes while traveling. Vaccinations may be necessary as well, and should be tailored to each.
Travel medicine is an interdisciplinary specialty concerned not only with preventing infectious diseases when traveling, but also with ensuring tourists’ safety and minimizing environmental hazards. The idea of travel medicine necessitates competence in travel-related diseases, worldwide epidemiology of infectious and non-infectious risk factors, health regulations, and immunizations required in each location, as well as changes due to drug resistance [3]. There are certain things to grasp about travel medicine [2], such as the fact that it must be performed by clinics and by individuals who are familiar with the health management techniques in questions. In practice, medical workers, nurses, doctors, and experts must be able to advise visitors on the health hazards they are likely to encounter when visiting a certain location or country. A medical worker must be able to provide information about diseases that exist in the area that tourists wish to visit, how to prevent them, vaccines that may be required if they wish to visit a particular location, and possible diseases that will be encountered after returning to the area or country of origin. As a medical officer, he must record a variety of information on tourists, including the tourists’ age, health condition, vaccines that may be taken often, immunization history, season of travel, length of trip, and tourist activities to be completed.

The International Society of Travel Medicine (ISTM), a division of the Can Fam Physician, encourages all people crossing international borders to travel in a healthy, safe, and responsible manner. ISTM promotes education, services, monitoring, and research in travel medicine by working collaboratively with healthcare practitioners, academic institutions, the travel industry, and the media. ISTM focuses on disease and injury prevention, diagnosis, and treatment, with an emphasis on understanding, impacting, and changing environmental, behavioral, or host variables that affect travelers, migrants, and refugees. The objectives of the ISTM are (1) to promote health in travel, (2) to develop guidelines for the practice of travel medicine, (3) to educate health care professionals, public health professionals, and the travel industry; (4) to provide a scientific focus for travel medicine; (5) to stimulate the professional advancement of travel medicine practice; (6) to promote the distribution of rapid exchange of information relating to the matter of medications needed for travel; (7) to facilitate international contacts between travel medicine practitioners; (8) to promote the development and evaluation of safe, effective, preventive and curative interventions; and (9) to encourage research in travel medicine, including promoting international collaborative studies. Based on the objectives of the ISTM, in its application in the field to tourism, when tourists first arrive at the targeted tourism destination, it is important for them to hold valid information about existing health services.

Travel medicine, which is capable of providing accurate information to visiting tourists as well as the readiness of the places to be visited, is an important item for all parties concerned to prepare. Understanding the need for health information prior to a tourist’s visit is critical, especially in the pandemic situation where it is unclear whether circumstances would improve. In this case, it is critical to conduct research with the goal of creating pre-visit health service management for visitors in order to avoid diseases and tourists’ accidents in Badung Regency, based on the concept that prevention is better than curing. Badung Regency was chosen because the district had the largest number of tourists’ visits and destinations, as well as the highest number of tourist attractions.

2. LITERATURE REVIEW

Travel medicine [2] is an interdisciplinary field concerned not only with the prevention of infectious diseases when traveling, but also with the personal safety of travelers and the avoidance of environmental hazards. In response to the massive rise in worldwide travel over the last two decades, travel medicine has developed as a distinct entity that is now developing its own identity, authority, and purpose to protect the health of visiting tourists [4]. The availability of information given by the responsible party will aid in raising the quality of need for pre-visit information services for tourists, which seeks to protect people who travel for leisure.

Travel medicine is a dynamic specialty that focuses on preventive care prior to travel, according to [3], to correctly estimate traveler risk, a complete risk assessment for each individual traveler is required. To enhance health and prevent negative health outcomes when traveling, advice on risk management interventions is critical. Vaccinations are also required and should be tailored to each traveler's vaccination history, travel plans, and time available before departure [3]. Tourists' health and safety are dependent on the practitioner's degree of experience in giving pre-travel advice and immunizations, if necessary. Those who provide travel advice should be aware of their scope of responsibility and, where feasible, send all high-risk passengers to a travel physician.

Travel medicine is an essential item to consider, pay attention to, and apply in tourist activities as a promotional and preventive stage. The pre-visit service, which includes data collection of tourists who will visit and the readiness of destinations to be visited, is a matter that must be prioritized. Tourism is an economic activity that occurs as a result of people moving from one place to another, both within and between countries. Furthermore, because health is an absolute consideration
for all parties participating in tourists’ activities at present time, information about the health of both subjects and objects in tourism is highly important to know and understand by all parties involved. Following concepts from [2]; [3], the management of pre-visit health services for visitors in Badung Regency to avoid diseases and tourists’ accidents will be extremely beneficial to enhance tourism development.

3. METHOD

This study aims to learn, analyze, and describe health information on places that would become tourists’ attractions in Badung Regency, specifically in three tourism areas: Nusa Dua, Tuban, and Jimbaran. The type of disease that had become an outbreak in the area, the availability of health facilities, and the availability of medical professionals in the three places were all investigated. Secondary data was gathered from the Badung District Health Office, as well as direct observations at a number of health institutions in the three tourism regions of Nusa Dua, Tuban, and Jimbaran.

The data were collected, then reduced, presented, and conclusions or verification were then drawn. The findings of the data analysis were presented in descriptive-narrative format (Fig. 1).

4. RESULTS & DISCUSSION

4.1. Identifying Tourists’ Data Needs in Accordance with the Health and Tourism Code of Ethics

Indonesia experienced the spread of diseases brought by foreigners, such as the first corona virus (Covid-19) outbreak in March 2020. The presence of a Japanese person who had been exposed to the virus in Depok led two Indonesian citizens to get flu, cough, and shortness of breath, which were diagnosed as corona virus-related diseases following a health check. It was, of course, a consideration that the government, as the policymaker, should take promptly to enhance the system for welcoming foreigners, for the benefit of many people. In this context, it did not mean that the government was restricting visitors’ access to Indonesia, but rather that early screening was required as a precautionary measure for both international and local parties [5]. Furthermore, the presence of foreigners as visitors, who might bring economic advantages through the purchase of tourism products and services supplied by Bali tourism actors, was extremely important to Indonesia, particularly Bali. In this context, the prevention stage was intended to promote and prevent health problems that might arise as a result of human movement through tourism activities, such as tourists understanding their condition, diseases they had experienced, health information about the area to be visited, vaccination needs, and the availability of health services for their insurance.

Travel medicine is the term used in the tourism industry to describe the preventive stage. The concept that a tourist must comprehend the health of the place or country to be visited [2] was provided by travel medicine, which was committed to the health of tourists visiting other countries or areas. In practice, travel medicine was an interdisciplinary specialty concerned not only with preventing infectious diseases when traveling, but also with ensuring tourists’ safety and minimizing environmental hazards. According to [6] defines tourism health as a field of public health concerned with health in tourism activities, including both tourists’ health and public health in tourism destinations, as well as the availability of health services for tourists at both the local places and in areas visited by tourists which can still be accessed easily and adequately [6].

In Figure 2, it is indicated that the scope of tourism health covers tourists’ health, the health of the people in tourism destinations, tourism actors’ health, and regulations linked to health and tourism, citing reference [6] viewpoint. It was consistent with research on the importance of technology-based health information (e-healthy) in promoting tourism, which might then be synergized into an information system application. In this situation, health information (e-healthy) was critical and should be available to a variety of stakeholders. Its advantages were not restricted to the health sector, but also extended to other sectors, particularly tourism (towards e-healthy tourism). As a result, it was important to restore circumstances impacted by the COVID-19 pandemic, particularly in Bali tourism, by implementing preventative measures in community activities, particularly those connected to economic activities [6].

Figure 1 Research Method
Figure 2 The Concept and Scope of Tourism Health Source [6]

Figure 3 Tourists’ Sickness Data

Table 1. KLB in Badung Tourism Area

<table>
<thead>
<tr>
<th>Year</th>
<th>Area of Incidents</th>
<th>Types of Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>South Kuta</td>
<td>Measles</td>
</tr>
<tr>
<td></td>
<td>Kuta I</td>
<td>Food poisoning</td>
</tr>
<tr>
<td></td>
<td>Kuta II</td>
<td>Measles</td>
</tr>
<tr>
<td>2015</td>
<td>Kuta I</td>
<td>Rabies</td>
</tr>
<tr>
<td></td>
<td>Kuta II</td>
<td>Legionella</td>
</tr>
<tr>
<td></td>
<td>North Kuta</td>
<td>Japanese Encephalitis</td>
</tr>
<tr>
<td>2016</td>
<td>South Kuta</td>
<td>Legionella</td>
</tr>
<tr>
<td>2017</td>
<td>Mengwi II</td>
<td>Food poisoning</td>
</tr>
<tr>
<td>2018</td>
<td>South Kuta</td>
<td>Food poisoning</td>
</tr>
<tr>
<td></td>
<td>Mengwi II</td>
<td>Legionella</td>
</tr>
<tr>
<td>2019</td>
<td>South Kuta</td>
<td>Food poisoning</td>
</tr>
</tbody>
</table>

The establishment of a health information system, which included giving health information to tourists coming to Badung Regency, was a serious issue that had to be addressed. The management of health information systems [7] was a critical component that had to be prepared comprehensively. Even if Badung Regency became a tourism destination capable of making a significant economic contribution to Bali and was expected to immediately increase tourism activities, it was hoped that it would be able to have enough screening to avoid additional health issues such as those now occurring. The following are the types of diseases suffered by tourists during their visit to Bali for the last three years (2018 – 2020) in Badung Regency:

The diseases suffered by tourists during their visit to Bali between 2018 and 2021, whose data was collected through data collecting from the health office at clinics in Badung Regency visited by tourists for treatment, were identified based on field results. According to the data in Graph 1, there was an increase in cases in 2019, followed by a fall from 2020 to 2021, which might be attributable to a substantial drop in tourist visits at the beginning of 2020. The data were collected from the reporting clinic, and it was critical for the dissemination of information, which surely had to respect the privacy of tourists. In this case, tourist health information was required to predict the occurrence of further health issues. In fact, given the current situation of virus spread, tourists’ health information was required at the time of travel or afterward, including the tourists’ age, health condition, the medication that might be taken frequently, the history of immunization, the season of travel, the length of the trip, and the tourist activities were completed.

4.2. Health Information Data on Three Tourism Areas in Badung Regency (Nusa Dua, Kuta and Tuban Tourism Areas)

It was essential that health information for tourism destinations be prepared and presented in such a way that all parties participating in tourism activities, including tourism actors and potential tourists, could readily access it. In this situation, given the spread of the Covid-19 virus, which had had an influence on practically every aspect of life, particularly the decline in tourism, health information in the targeted places was extremely important to be prepared. The health information in question included the availability of health services, information on health issues that had occurred in a tourism destination, the need for vaccination to be able to visit the destination and the availability of health insurance services. Travel medicine [2] in its implementation, expected the availability of the ability of medical workers to be able to provide advice to tourism actors about possible health risks in a destination. Thus, tourism development in Bali, particularly in Badung Regency, could not be conducted just by tourism actors; it was necessary to include health workers in the planning stage, specifically the implementation of tourism preventive actions, as a kind of synergy. The information might be in the form of disease information in a destination, how to prevent it, vaccines that might be required when visiting a place, and diseases that might be suffered after returning to one’s own region or country.

The types of diseases that had occurred in Badung Regency’s tourism area were mentioned as extraordinary incidents in table 2 above (KLB). It was critical information to offer to tourists and tourism actors so that
they were aware of the things that had be prepared for and avoided. The availability of data and information systems concerning extraordinary events in a certain region [8] was an essential factor to examine and prepare for, with the goal of putting in place a preventive stage for all parties involved, particularly those in the area. For example, according to data 2, there was a rabies outbreak in Kuta I in 2015. Even though this incident had been going on for a long time, it should not be ignored; rather, information should be prepared for tourists about things that had to be prepared if they wanted to visit the area, such as inviting a tour guide, knowing the first treatment for a dog bite, and knowing the closest health service that could be reached. As a result, tourists had a strong understanding of travel, which might give comfort and security to both tourists and other tourism stakeholders.

Health information, particularly regarding diseases that had happened in a tourist destination, was extremely useful in forming policy on preventive steps that might be implemented to reduce or even eliminate the occurrence of the same or similar cases in the future. Information regarding a disease, its spread, and how it was dealt with in a certain region was extremely important in assisting the government in developing infrastructure and facilities to avoid the development of the same or similar diseases in the future. Similarly, tourism actors and visitors might obtain advice on how to avoid it for their own comfort and safety when visiting. The following is the data on existing diseases that had been handled well by health workers in the three tourism areas in Badung Regency in Table 2.

Table 2 contains information on the ten most common diseases treated by medical staff in the Kuta area in 2020, namely North Kuta Health Center and Kuta II Health Center. According to this information, the incidence of respiratory tract diseases was higher in both places. Given the ease with which respiratory-related diseases might spread, it was a problem that should not be overlooked. Medical workers could utilize information on the top 10 diseases handled by a health center in an area to give timely counseling to the local community [9] about the kind of disease, early treatment, and how to prevent it.

In order to perform the preventive action, information regarding the health in a certain area should be published appropriately. Due to the spread of the top 10 diseases in a given location, the public, tourism actors, and tourists should be aware of the situation and follow health precautions, at the very least wearing a mask when visiting the area. However, the public's lack of knowledge and medical workers' inability to address the people about the significance of disease prevention, particularly infectious diseases, had resulted in a high number of cases of respiratory-related diseases in the area. It was critical to offer socialization relating to respiratory diseases to the public [10];[11]. Preventive precautions were especially important now that the corona virus has spread so widely, including to the three tourism areas of Badung Regency. In addition to giving information on diseases that had happened in the area, it was critical to have information about local health services on hand. In this situation, by giving accurate information, tourism actors would be able to consider preventive and management measures when planning to visit. Tourists could also prepare for their visit by being vaccinated if necessary, preparing medications for tourists with a history of certain diseases, and purchasing insurance that could be used in their vacation locations. As a result, the availability of conveniently accessible health services in Badung Regency's tourism areas was critical.

According to secondary and primary data searches, Badung Regency had forty-one health service locations in the form of clinics, public and private health centers, and hospitals. The presence of these health facilities [12] could directly contribute to the region's tourism growth. Furthermore, given the community's present failing health status, appropriate health facilities were required, both in terms of the availability of health workers, the completeness of medications, and the availability of medical equipment needed to treat patients. In addition to hospitals, Badung Regency had thirty-two Primary Clinics that provided health services to both the public and tourists visiting tourist destinations like as Kuta, Nusa Dua, and Tuban.

Table 2. Top Ten Diseases in Health Centers in Kuta Area in 2020

<table>
<thead>
<tr>
<th>No.</th>
<th>Types of Diseases</th>
<th>North Kuta Health Center</th>
<th>Kuta II Health Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Essential hypertension</td>
<td>Upper respiratory tract infections</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Acute pharyngitis</td>
<td>Essential hypertension</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Upper respiratory tract infections</td>
<td>Dental disease</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Dyspepsia</td>
<td>Diabetes Mellitus</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>Nonspecific upper respiratory tract infections</td>
<td>Acute nasopharyngitis</td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>Acute nasopharyngitis</td>
<td>Allergic contact dermatitis</td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td>Diarrhea</td>
<td>Myalgia</td>
<td></td>
</tr>
<tr>
<td>VIII</td>
<td>Myalgia</td>
<td>Dog bite</td>
<td></td>
</tr>
<tr>
<td>IX</td>
<td>Atopic dermatitis</td>
<td>Dyspepsia</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Pulp necrosis</td>
<td>Periarticular abscess</td>
<td></td>
</tr>
</tbody>
</table>
There were also 435 health services offered by health workers in Badung Regency's tourism areas, which could be located in three tourism areas and included both independent practice and health facilities. The availability of health workers when they were required was also beneficial to tourism growth, particularly in Badung Regency, which served as Bali's economic powerhouse. The synergy between the tourism industry and the healthcare industry would be critical, and each party had to understand their individual roles as well as how the ideal relationship should be addressed with all stakeholders [6]. General practitioners, specialists, dentists, midwives, laboratory personnel, and other supporting health workers were all included in this case. According to data from the health office, there were 156 specialized doctors in Badung Regency's health care facilities, including hospitals, clinics, service agencies (BP), and pharmacies. Badung Regency also provided health services by general practitioners, including those who provided medical services at health facilities such as hospitals, service agencies, clinics, or pharmacies, as well as those who practiced independently, to support the needs of the community, actors, and tourists.

Tourists visiting a place might suffer from a variety of diseases caused by a variety of factors. Apart from specialists and general practitioners, the need for health workers to support tourist activities necessitated the availability of dental health services, sanitation, and rehabilitation services. Dentists are now extremely vital, given that anybody, even tourists visiting Badung Regency's tourism areas, might require dental treatment at any time.

According to the documentation study, there were 20 dentists practicing in tourism areas who had been properly registered with the Badung District Health Office. Dentists were in great demand, owing to growing awareness of the significance of maintaining good oral health, particularly during the pandemic. Dental care, especially for tourists, needed high-quality treatments.

According to [13], Bali Dental Clinic 911 could become a viable alternative for the public and tourists by providing professional treatments at the preventive, curative, and rehabilitative stages [13].

Tourist activities could exhaust tourists or create disruptions in the movement system or body functions, which could be triggered by reflex movements when traveling, especially for those who were adventurous. As a result, travelers who had problems with their mobility or body functions should seek professional help. A physiotherapist is a medical professional that specializes in treating movement problems and physiological functions.

Physiotherapy's main goal was to restore or reduce movement system and body function abnormalities caused by injury or disease, such as respiratory diseases, neurological disorders, neuromuscular disorders, and cardiovascular disorders (heart and blood vessels). Physiotherapists' treatment was not only for adults, but also for children. Physiotherapy services [14] were also highly essential as a support for tourism activities, especially to assist tourists in regaining their health after engaging in tourism activities [14].
Health services, of course, required fees to cover the costs of health workers, medical equipment, medications, and other expenditures associated with patients’ recovery. Tourists visiting Bali would undoubtedly incur a variety of medical expenses, particularly those with congenital diseases. Reserve funds for health were important, especially after health problems were getting more complex. One way that could be prepared was to have insurance. In this case, information on the availability of health insurance services for tourists in Bali was very important, as a consideration for tourists, namely they knew the type of insurance that could be claimed in Bali if they experienced a health problem.

The importance of health insurance was emphasized, and it was also said that the travel agency (BPW) was responsible for providing information on the possibility of a health risk arising during a trip, as well as conveying the importance of insurance. There were twenty health insurances in Bali, namely Asuransi Kesehatan Allianz Bali, Asuransi Jiwa Inhealth Indonesia Pemasaran & Operational Denpasar, Prudential Insurance Office, Allianz Bali, International Global Health, Asuransi Allianz Bali, Agen Asuransi Prudential Bali Emmy, PT Jasa Raharja Cabang Bali, MYPRU.net, PT Equity Life Indonesia, Manulife, Asuransi Allianz Syariah, Asuransi Astra (Garda oto) - Cabang Denpasar, Asuransi Kesehatan Barracuda Agency, Pan Pacific insurance Asuransi Allianz Denpasar Bali | GUSTI NGURAH PUTRA Denpasar, PT Asuransi Jasa, Kantor BPJS Kesehatan Kedeputian Wilayah Bali, NTT dan NTB, CAR Life Insurance, dan Kantor Generali Bali Galaxy Victory.

5. CONCLUSION

Health information is becoming a requirement for the general public. In this context, health data should be able to offer accurate, up-to-date information and make it simpler for data users to obtain the information they want. Data on health is now required not just during the curative and rehabilitative stages, but also during the preventive stage, particularly in tourism activities. In this situation, health information is required by tourism actors, particularly tourists, who are preparing to visit a place. It is important in order for them to be able to adequately plan for their journeys’ safety and comfort. Likewise, the health of the people in tourism destinations, also need data related to tourist health information to prevent unwanted things from happening, such as vaccination history and tourist-borne diseases. This two-way information is expected to be able to provide travel comfort for tourists and tourism service actors during their visit to Bali, especially in the Badung Regency area.

REFERENCES


