International Journal of Religious Tourism and Pilgrimage

Volume 12 | Issue 1 Article 8

21-6-2024

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© International Journal of Religious Tourism and Pilgrimage
ISSN : 2009-7379
Available at: http://arrow.tudublin.ie/ijrtp/ Volume 12(i) 2024

Pilgrim Prioritisation of Religious Activities: Time Use-based Behavioural Approach in Iran

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The present study investigates the time-use activities of pilgrims at their religious destination. The time diary was used to describe the behaviour of pilgrims who came on a pilgrimage to the holy shrine of Imam Reza in Mashhad (Iran) in sufficient detail to measure the overall duration and continuous records of activities. According to the findings, pilgrims spend most of their time on necessary and religious activities, respectively. Free time and shopping activities were also among their other activities. Pilgrims were categorised into three clusters: Active Pilgrims, Tourist-Pilgrims, and Non-active or Passive Pilgrims. Active Pilgrims are mostly involved in religious activities, while Tourist-Pilgrims engage more in recreational activities after completing necessary activities. Non-active / Passive Pilgrims mostly spend their time on necessities and personal activities.

Key Words: time-use, behaviour, pilgrims, activities, typology

Introduction

Time-use studies provide valuable information about spending time on various activities of daily living, such as working, watching TV, sleeping, and exercising. Empirical studies on time use have been conducted since the 1920s (Szalai, 1966), and as a result, the concept of time use, or how people spend their 24 hours per day, is not new. However, it is relatively new in the field of tourism (Alegre & Pou, 2006; Kitamura, 1984; LaMondia *et al*., 2008; Pearce, 2020; Wu *et al*., 2011; Xu *et al*., 2021; Yang *et al*., 2021; Zhang *et al*., 2012; Zhang *et al*., 2005, 2006), and particularly scarce in pilgrimage tourism or among pilgrims (Verma *et al*., 2021).

Timing decisions consist of long-term and short-term components. The long-term aspect occurs before travel when pilgrims decide when to travel (e.g., which seasons or particular events), while the short-term decision relates to decisions during travel when pilgrims need to decide which site to visit, when to visit, and how long to stay in each place (Zhang *et al*., 2006). Understanding the short-term decisions of pilgrims during their travel could have many positive consequences, such as managing diverse supporting resources and improving the equipment of the destination associated with tourist decisions (Ritchie *et al*., 2001; Ritchie & Crouch, 2003).

As a religious country, Iran is one of the main destinations for Muslim travellers. The shrine of Imam Reza is the most eminent holy site in Iran and one of the most significant holy shrines in the Islamic world (Fouladiyan *et al*., 2021), attracting approximately 33 million pilgrims annually (Eshaghi, 2015). Optimal time utilisation by pilgrims during their religious pilgrimage is of utmost importance for policymakers. Urban management needs to strategically plan for meeting demands. Therefore, policymakers should pay close attention to the time usage patterns of pilgrims to ensure that their needs are adequately met. In other words, understanding pilgrims' time-use behaviours could provide helpful insights into policy decisions that may improve levels of transportation services and avoid congestion and excessive use of particular locations. It can also improve the quality of time spent travelling, leading to pilgrims' satisfaction (Varghese *et al*., 2020; Wang & Pou, 2019).

Photo 1: The Shrine of Imam Reza in Mashhad, Iran

https://en.wikipedia.org/wiki/Ali_al-Rida#/media/File:RezaShrine.jpg

The evidence on how pilgrims and religious tourists spend their time during travel is mainly unexplored. Verma *et al*. (2021) observed that pilgrims who participated in the Kumbh Mela event in Ujjain (India) in 2016 engaged in religious and recreational activities, which differed based on socio-demographic variables. Some empirical research has focused on passengers' time use and tourists in general (Gamberini *et al*., 2013; LaMondia *et al*., 2008; Lyons *et al*., 2007; Pearce, 2020; Tang *et al*., 2018; Wang & Pou, 2019; Wu *et al*., 2011; Yang *et al*., 2021; Zhang *et al*., 2012). Gamberini *et al*. (2013), in a study among underground travellers in London, showed that passengers engage in different activities during short trips (2-6 stops), and the use of mobile information and communication technologies was the main activity. A similar study in Shanghai-Nanjing found that more than 90% of passengers use information and communication technology, and most use their travel time for work-related activities (Tang *et al*., 2018). The data from Wu *et al*. (2011) on 761 tourists in Japan illustrated that shopping was the most popular activity, while sports were the least popular.

Therefore, the main objective of this article is to examine the importance of religious behaviour among all pilgrims visiting the pilgrimage destination. This will be achieved by analysing the behavioural aspects of pilgrims and investigating whether activities related to pilgrimage are considered a top priority by all pilgrims. The study also attempts to identify different behavioural patterns among pilgrims based on their individual characteristics.

Literature Review

First, we will briefly review the literature on time use and the essential elements of a time-use study. Then, we will highlight the limitations of existing studies and discuss this study's contributions.

A time budget is a systematic record of a person's time use over a given period. It describes the sequence, timing, and duration of the person's activities, typically for a short period ranging from a single day to a week. As a logical extension of this type of record, a space-time budget includes the spatial coordinates of activity locations (Pearce, 1988:109).

Time-use research is more common in the social sciences and the field of tourism, with the main developments in this research occurring in the 1960s and early 1970s by individuals such as Hagerstrand (1970), Szalai (1972), and Chapin (1974). The core of a time-use study is a time-use diary that continuously records a person's sequence of activities over a given time. The diary is set up so that the respondent can record different aspects of each activity in distinct fields (Harms & Gershuny, 2009). Time-use data give information on how a specific activity is positioned with respect to recreational and non-recreational activities over time, the geographical location of activities, the time of day they took place, and the sequence of temporal-spatial locations (Gershuny, 2000).

Due to limited time, pilgrims must decide which activities they want to participate in or which destinations to visit. Dellaert *et al*. (1998) identified specific activities that impact tourists' choices, including cultural activities (e.g., visiting galleries, museums, theater, dance, festivals, etc.), dining, historical attractions, shopping, outdoor recreation, sports, and nightlife. As suggested by As (1978), there are four types of time allocation: '***Necessary Time***' refers to the amount of time required to meet one's basic physiological needs, such as sleep, eating, and other activities. The main characteristic of this time is stability, and people in all nations must allocate regular time for these activities. '***Contracted Time***' refers to regular paid work. '***Committed Time***' encompasses various activities that share specific characteristics, such as shopping, housework, child care, and pilgrimage, among others. People often commit to doing certain activities because they have already chosen to do them. It is noteworthy that the activities within the framework of committed time are a form of work, even though they are not paid. When we subtract the time for necessary, contracted, and committed activities, we are left with '***Free Time***'.

Researchers working in religious tourism lack data on pilgrims' time-use decisions (time and activities) at religious destinations. With this realisation, researchers are interested in determining how much time pilgrims spend on various activities because it affects policy planning and regulation. However, the literature shows minimal relevant studies in the pilgrimage area. The existing studies in this area can be divided into two categories.

At first, some researchers focused on people's activities during a limited time period or focused on passenters undertaking internal short trips (Alegre & Pou, 2006; Gamberini *et al*., 2013; Lyons *et al*., 2007; Varghese *et al*., 2020; Wang & Pou, 2019). For example, Wang & Pou. (2019) found that passengers on high-speed railways use communication technology devices the most.

Secondly, studies have been done on long external travels focused on tourists and visitors. For instance, in a study in Japan, Wu *et al*. (2011) showed that tourists spend their time on seven activities, with shopping activities and natural attractions being the most participated in. The data gathered from one-day car tourists illustrated that timing decisions encompass various interrelated choices, from natural sceneries, shrines, and museums to eating out and souvenir shopping (Zhang *et al*., 2006).

The activities that passengers and tourists engage in during internal short trips and long external travels can be more clearly explained based on Becker's (1965) theory of time allocation. This theory distinguishes between time-consuming activities (such as cooking at home and sleeping) and activities that take less time (such as e-reading, using mobile devices for information, and eating hamburgers). The optimal time allocation to activities depends on a household's preferences, time, and income constraints. Short internal travels, such as those taken on high-speed railways, require people to engage in less time-consuming activities. In contrast, long external travels allow people to engage in more time-consuming activities, such as shopping excursions.

Therefore, this study investigates pilgrims' time-use behaviour, including participation in multiple activities and the allocation of time for those activities. The study makes two main contributions to the existing literature.

Photo 2: Imam Reza Shrine at Night

https://upload.wikimedia.org/wikipedia/commons/5/59/Imam_Reza_shrine.jpg

First, it provides a clear framework for academic researchers to conduct studies on time use in the field of religious tourism. Second, the study has significant implications for policymakers, market stakeholders, tourism management, urban management, and other service providers to tailor their services and products based on pilgrims' time-use behaviour. This can help stakeholders optimise their services, increase desirability, and improve the quality of pilgrims' travel satisfaction.

Methodology

Respondents and data collection

The data in this paper were collected in Mashhad, Iran's second-largest city. We chose Mashhad because it is one of the most well-known religious cities in the Islamic world and welcomes many pilgrims annually. This time-use survey was conducted from 21 March to 12 April, concurrent with Nowruz, the day of the Iranian New Year. The inclusion criteria involved pilgrims with the following characteristics: (1) being 15 years of age or older, (2) being available at the time of data collection, (3) being able to understand and answer the questions, and (4) having a willingness to participate in the study. We distinguished pilgrims from mass tourists by focusing on participants who came on a pilgrimage to the holy shrine of Emam Reza. As a result, we obtained 300 valid participants for face-to-face interviews. Before conducting the survey, interviewers were educated to control sampling bias by using random selection.

Measurement

Time diaries were used to describe behaviour during a 24-hour day in adequate detail to enable the measurement of activity duration and continuous recording of activities. The main reasons for using a time diary, as compared to other measurement methods such as stylised respondent reports and experiential sampling methods, were less statistical bias, applicability for all ages, and the provision of exact information regarding what activity is being done, where, and with whom (Harvey & Pentland, 2005; Thomas Juster *et al*., 2003).

We divided responses into fixed time intervals of 15 minutes and asked respondents to record a maximum of two activities at each specific time point over a 24-hour period. For example, what they were doing between 4:00 a.m. of the previous day and 4:00 a.m. of the interview day. We used 'yesterday's diaries' because they are more standardised and easier to conduct than tomorrow's

(Harms & Gershuny, 2009; Pentland *et al*., 2002). Tomorrow's diaries are used when respondents are able to estimate and calculate the exact amount of time they will allocate to diverse activities on the following day and have a high level of discipline (Harms & Gershuny, 2009). In the present study, we encountered different types of pilgrims who did not meet the same standards, so we used open-ended diaries, through which respondents could use their own language and record their activities freely, even if they were unusual or unpredictable.

To manage activities, we followed the codebook provided by the Statistical Centre of Iran, which categorised them into 21 distinct groups. These categories include sleeping and napping, resting, eating and drinking, personal transportation, unpaid indoor activities, personal hygiene, visiting the shrine of Imam Reza, transportation for religious and charitable activities, congregational prayer, reading the Quran and engaging in prayer, purchasing souvenirs, going on shopping trips, participating in recreational and sports activities, transportation for recreational and sports activities, communicating with family members, watching television, partaking in other religious activities, engaging in other recreational and sports activities, handling daily affairs, participating in social interactions, and engaging in other personal activities (Table 1).

In the second step, the activities were categorised into four main groups based on the research literature (As,

Table 1: Descriptive Statistics of Time Spent on Activities in 24 hours
(Percentage of total time spent by pilgrims) (n=300)

Activities	Mean	Std. Deviation	Skewness	Kurtosis	Percentage
Necessary Activities (NA)	**13:39:27**	**3:26:01**	**0.744**	**1.162**	**56.9%**
Sleeping and napping	07:25:42				
Resting	02:02:09				
Eating and drinking	01:06:54				
Transportation for personal activities	01:03:36				
Unpaid indoor activities	00:32:42				
Personal hygiene	00:26:41				
Talking to family members	00:12:20				
Other activities related to social interactions	00:17:56				
Other personal activities	00:16:42				
Other activities related to daily affairs	00:14:45				
Religious Activities (RA)	**05:59:20**	**3:42:57**	**-0.250**	**0.685**	**25%**
Attendance at the shrine of Imam Reza	03:49:03				
Reading the Quran and praying	00:45:35				
Transportation for religious and charitable activities	00:44:14				
Praying in congregation	00:31:41				
Other religious activities	00:08:47				
Free Activities (FA)	**02:08:14**	**2:23:56**	**1.648**	**3.241**	**8.9%**
Recreational and sports activities	00:53:57				
Watching TV	00:40:12				
Transportation for recreational and sports activities	00:29:51				
Other recreational and sports activities	00:04:14				
Shopping Activities (SA)	**01:25:08**	**1:42:58**	**1.291**	**1.299**	**5.9%**
Shopping excursion	01:02:20				
Buying souvenirs	00:22:48				
Total	23:12:09				96.7%
Missing / Unanswered	0:47:51				3.3%

Table 2: Socio-demographic Characteristics (n=300)			
Individual Attributes		**Number**	**Percentage**
Gender	Female	151	50.3%
	Male	149	49.7%
Age (years)	< 20	24	8.0%
	20-29	81	27.0%
	30-39	96	32.0%
	40-49	58	19.3%
	50-59	29	9.7%
	≥ 60	12	4.0%
Education	Non-university	194	64.7%
	University	106	35.3%
Area of residence	Urban	276	92.0%
	Rural	24	8.0%

1978; Wight *et al*., 2009) and the nature of pilgrims' activities at the destination:

- ***necessary activities*** (sleeping and napping, resting, eating and drinking, transportation for personal activities, unpaid indoor activities, personal hygiene, talking to family members, other activities related to daily affairs, other activities related to social interactions, and other personal activities),
- ***religious activities*** (attendance at the shrine of Imam Reza, transportation for religious and charitable activities, praying in congregation, reading the Quran and praying, and other religious activities),
- ***shopping activities*** (buying souvenirs and shopping excursion), and
- ***free activities*** (recreational and sports activities, transportation for recreational and sports activities, watching TV, and other recreational and sports activities) (Table 1).

An expert group was created to review the coding and make necessary improvements to increase coding reliability. The socio-demographic characteristics (gender, age, education, and area of residence) were also considered (Table 2).

Data Analysis

We first used descriptive analysis to determine how much time pilgrims spent on different activities. We then used comparison means analysis (T-test and one-way ANOVA) to compare activities based on socio-demographic characteristics. Finally, we used cluster analysis (K-means) to identify patterns among pilgrims based on their activities.

Results

Table 1 provides information on the average duration and percentage of the four main activities and the average duration of detailed activities. Necessary activities (around 13.5 hours) were the most popular activities throughout the day, and pilgrims allocated 56.9% of their time to activities such as sleeping, resting, and eating. Sleeping and napping were the primary necessary activities (around 7.5 hours). Religious activities were the second most popular, comprising a quarter of a day (25%), while shopping activities were at the bottom of the list with almost 1.5 hours. During religious activities, pilgrims spent most of their time at the shrine of Imam Reza (almost 4 hours). Free activities took up 8.9% of respondents' time, with recreational and sports activities and watching TV being the two most popular activities.

Table 3 presents the average duration of the four main activities categorised by gender, age, education, and area of residence. The data indicate that male and female pilgrims spend a similar amount of time on the four activities, as most of the respondents traveled with their families (85%), resulting in a family pattern for their activities. However, age is significantly associated with allocating time to different activities. While necessary activities such as sleeping, resting, and eating increase with age, free and shopping activities decrease. This finding is consistent with previous studies that suggest physical constraints tend to incline individuals towards more sedentary activities as they age, while younger individuals are more inclined towards more active and participatory pursuits, such as recreational activities,

Table 3: The average time spent on activities during 24 hours by Socio-demographic attributes (n=300)					
Attribute		Religious Activities (RA) (Mean)	Necessary Activities (NA) (Mean)	Free Activities (FA) (Mean)	Shopping Activities (SA) (Mean)
Gender	Female	5:41:00	13:59:54	2:10:48	1:24:36
	Male	6:19:01	13:24:33	2:04:13	1:26:16
	T-Test	-1.606	1.402	0.394	-0.140
	p-Value	0.109	0.162	0.694	0.888
Age (years)	< 20	6:08:45	13:27:30	2:22:30	1:40:00
	20-29	5:47:02	13:11:51	2:35:55	1:24:48
	30-39	6:05:18	13:32:39	1:49:13	1:23:35
	40-49	5:38:16	13:44:13	2:14:28	1:47:35
	50-59	6:48:06	14:25:51	1:38:47	0:48:06
	≥ 60	5:45:00	15:51:15	1:17:30	0:51:15
	F-Test	0.537	1.384	1.555	1.685
	p-Value	0.748	0.230	0.173	0.138
Education	Non-university	6:12:08	13:48:19	1:50:29	1:31:18
	University	5:37:25	13:31:08	2:39:00	1:14:34
	T-Test	1.398	0.649	-2.813	1.343
	p-Value	0.163	0.517	0.005	0.180
Area of Residence	Urban	6:01:48	13:32:40	2:12:32	1:27:36
	Rural	5:38:45	15:32:30	1:10:00	1:00:37
	T-Test	0.527	-2.605	2.052	1.231
	p-Value	0.599	0.010	0.041	0.219

sports, and other stimulating activities. Conversely, necessary activities decrease as age decreases, while free activities increase significantly.

Regarding education, the data show that educated pilgrims are more involved in free activities than non-educated ones. Finally, the data reveal that pilgrims residing in rural areas spend significantly more time on necessary activities and less time on free activities than those from urban areas.

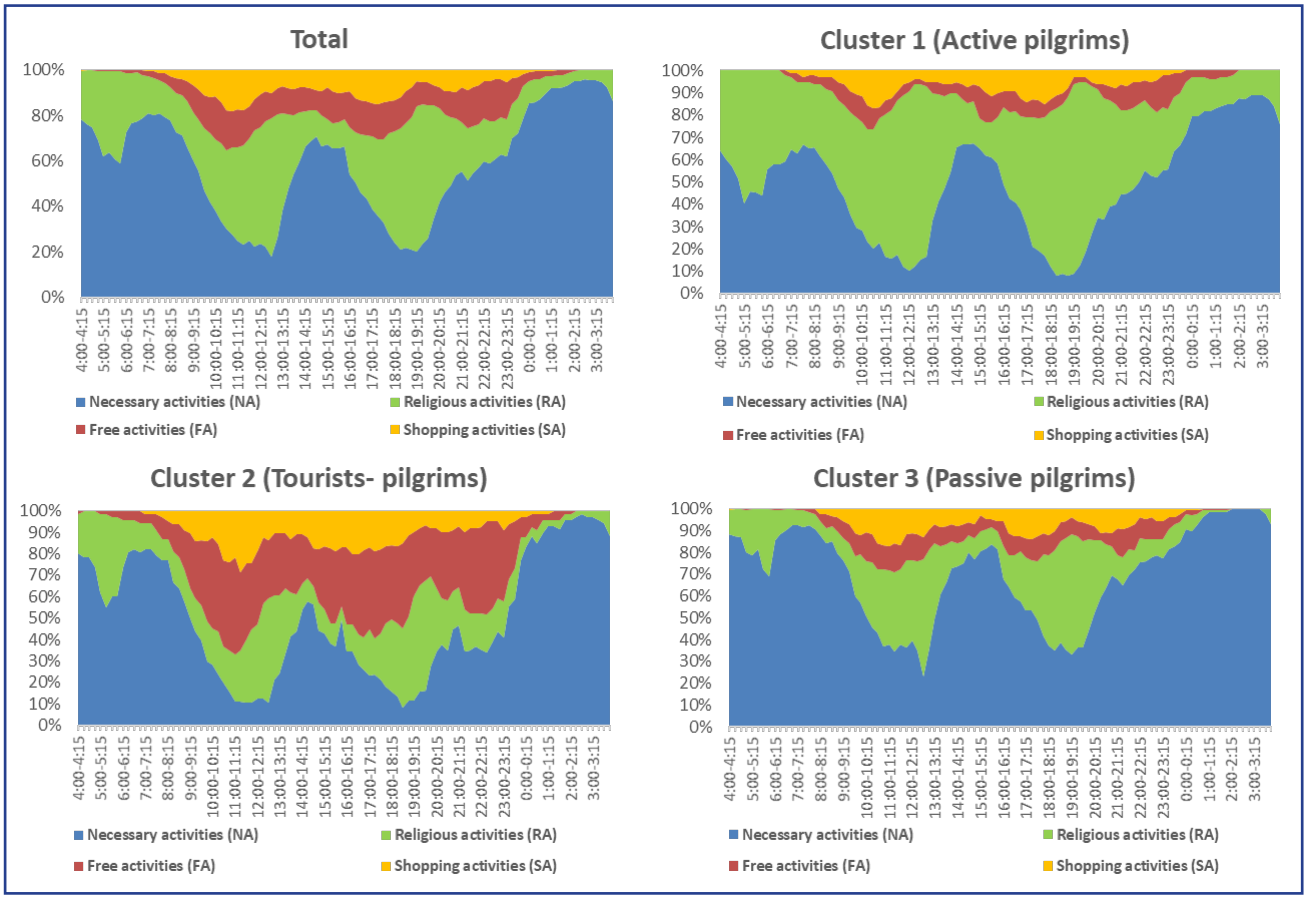
K-means cluster analysis was used to identify patterns among pilgrims based on their activities. The results showed that most pilgrims were grouped into three clusters based on their activities (Cluster 1: 31.3%, Cluster 2: 26.3%, Cluster 3: 42.7%) (Table 4).

Cluster 1, which we named '***Active Pilgrims***' in this study, consists of those who spend most of their time on necessary and religious activities (Table 4, Figure 1, Figure 2). This group, on average, spends 10 hours a day on religious activities such as attending the shrine of Imam Reza, praying, and reading the Quran. The religious activities of this group reach their peak during the noon and evening calls to prayer (Figure 1), accounting for 80% of their time (Figure 2).

Within the ***Cluster 2***, is a group of individuals who are identified as '***Tourist-Pilgrims***'. This group is

Table 4: Average Time Spent on Different Activities by Three clusters (n=300)			
Activities	Cluster		
	Active pilgrims (31.3%)	Tourists-pilgrims (26.3%)	non-active pilgrims (42.7%)
Religious Activities (RA)	10:01:26	3:55:15	4:16:44
Necessary Activities (NA)	11:07:10	11:26:23	16:53:37
Free Activities (FA)	1:18:30	4:20:07	1:20:40
Shopping Activities (SA)	1:06:03	2:04:33	1:14:50

Figure 1: Percentage of Activities Done by 3 Clusters in 24 hours



characterised by their tendency to allocate slightly more time to free activities than to religious activities, once they have completed necessary tasks (Table 4, Figure 1). Tourist-pilgrims distribute their free time equally throughout the day, including before noon, in the evening, and at night (Figure 1). They also spend between 20% and 30% of their time shopping from 10:00 a.m. to 11:15 a.m. (Figure 2).

Finally, ***Cluster 3*** is named ***'Passive / Non-active Pilgrims'***, who allocate most of their time to necessary activities and then take part in religious activities (Table 4, Figure 1). Non-active Pilgrims are more involved in activities such as sleeping and napping, eating and drinking, unpaid indoor activities, and personal hygiene 24 hours a day (Figure 2).

Figure 1 offers a visual representation depicting the distribution of activities among the different Clusters of pilgrims over a 24-hour period. The top-left sub-figure demonstrates the percentage of activities carried out by all pilgrims. The top-right sub-figure displays the percentage of activities specifically performed by Cluster 1 - 'Active Pilgrims'. The bottom-left sub-figure illustrates the proportion of activities undertaken by 'Tourists-Pilgrims'. Lastly, the bottom-right sub-figure presents the percentage of activities engaged in by 'Passive Pilgrims 'at the pilgrimage destination.

Figure 2 comprises four sub-figures that depict the status of various activities within three clusters of pilgrims over a 24-hour period. The top-left sub-figure illustrates the status of 'religious activities' across the clusters. The top-right sub-figure compares the status of 'necessary activities' among the pilgrims in the three clusters. The bottom-left sub-figure provides a comparison of 'free activities' among the pilgrims in the three clusters. Lastly, the bottom-right sub-figure compares the status of 'Shopping activities' among the pilgrims in the three clusters over the course of 24 hours.

Table 5: Average Time Spent on Different Activities in Three Clusters by Socio-demographic Attributes (n=300)

Attribute		Cluster 1				Cluster 2				Cluster 3			
		RT	NT	FT	ST	RT	NT	FT	ST	RT	NT	FT	ST
Gender	Female	9:35:44	11:31:35	1:07:20	1:23:37	3:32:45	11:05:31	4:41:50	1:56:50	4:02:30	17:13:10	1:27:02	1:05:27
	Male	10:27:07	10:42:45	1:29:40	0:48:30	4:16:05	11:45:43	4:00:00	2:11:42	4:30:29	16:35:39	1:13:01	1:24:50
	T-Test	-1.800	1.471	-1.191	1.939	-1.535	-1.180	1.034	-0.523	-1.433	1.613	0.883	-1.209
	p-Value	0.075	0.145	0.237	0.056	0.129	0.242	0.304	0.603	0.154	0.109	0.379	0.229
Age (years)	< 20	9:40:30	12:34:30	0:45:00	1:00:00	3:01:52	12:37:30	4:46:52	3:15:00	4:25:00	16:02:30	1:52:30	0:40:00
	20-29	10:46:30	10:35:15	1:24:45	1:04:30	3:59:03	11:35:37	4:18:16	1:58:35	4:19:39	16:46:02	1:32:04	1:01:33
	30-39	10:14:05	10:35:00	1:27:43	1:07:16	3:23:49	10:00:00	3:39:42	2:15:00	4:06:31	16:58:41	1:23:48	1:16:18
	40-49	8:58:14	11:01:45	1:26:28	1:25:35	4:27:00	11:46:00	4:42:00	2:11:00	4:08:39	16:38:39	1:20:46	1:48:27
	50-59	10:09:13	12:15:00	0:57:41	0:38:04	3:51:00	12:51:00	4:48:00	0:45:00	4:10:54	17:43:38	1:01:21	1:01:21
	≥ 60	7:45:00	11:45:00	2:00:00	2:30:00	7:07:30	10:30:00	4:52:30	0:05:00	5:13:20	17:30:00	0:25:00	0:51:40
	F-Test	1.436	1.510	0.546	0.596	1.688	2.017	0.276	1.375	0.585	0.723	1.065	1.200
	p-Value	0.219	0.195	0.741	0.703	0.148	0.086	0.925	0.244	0.712	0.607	0.383	0.313
Education	Non-university	10:01:23	11:05:04	1:01:23	1:17:04	3:53:24	11:46:49	4:24:08	2:20:07	4:27:26	16:45:30	1:15:10	1:19:05
	University	10:01:33	11:11:53	1:56:53	0:41:22	3:57:14	11:04:20	4:15:47	1:47:45	3:50:00	17:16:55	1:31:55	1:05:00
	T-Test	-0.005	-0.188	-2.829	1.817	0.296	0.300	0.725	0.623	1.777	-1.242	-0.976	0.809
	p-Value	0.996	0.852	0.006	0.072	-0.133	1.248	0.205	1.146	0.078	0.217	0.331	0.420
Area of residence	Urban	10:01:34	11:07:19	1:23:11	1:07:09	3:55:31	11:24:21	4:17:31	2:05:27	4:22:10	16:43:32	1:23:45	1:16:35
	Rural	10:00:00	11:05:37	0:28:07	0:54:22	3:45:00	12:45:00	6:00:00	1:30:00	3:25:42	18:28:55	0:52:30	1:00:00
	T-Test	0.030	0.028	1.650	0.386	0.115	-0.740	-0.794	0.392	1.820	-2.904	1.239	0.646
	p-Value	0.976	0.978	0.102	0.700	0.908	0.462	0.430	0.696	0.071	0.004	0.218	0.520

Figure 2: Comparison of Activities Done by 3 Clusters in 24 hours

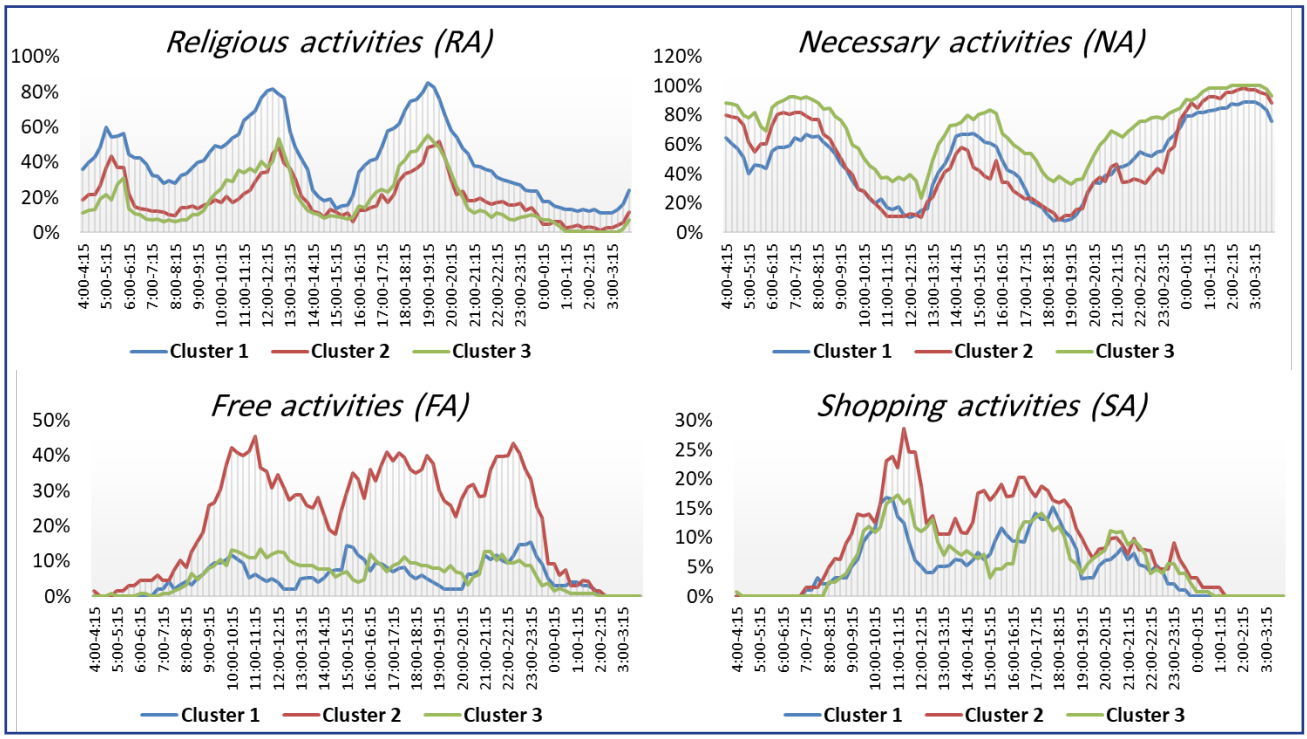


Table 5 presents the average time spent on various activities in the three clusters categorised by gender, age, education, and area of residence. The table indicates two significant differences in free and necessary activities based on education and area of residence in Cluster 1 and Cluster 3, respectively.

Specifically, in Cluster 1 ('Active Pilgrims'), educated individuals significantly spent more time on free activities than non-educated individuals. Additionally, in Cluster 3 ('Non-active / Passive Pilgrims'), people residing in rural areas were significantly more engaged in necessary activities than urban dwellers.

Discussion and Conclusion

The results of this study have shown two key findings that improve the existing literature. Firstly, all pilgrims' activities over a 24 hour period were categorised into four main categories: necessary, religious, shopping, and free activities. Secondly, participants were categorised into three clusters: Active Pilgrims, Tourist-Pilgrims, and Non-active / Passive Pilgrims. Thus, people who visit the shrine of Imam Reza cannot be identified solely as pilgrims and their activitis cannot be identified solely as religious. Although travels to religious centers was mainly due to religious motivations in past decades, time-use behaviours have evolved, and activities during religious journeys have become more diverse (Santos, 2003).

Active Pilgrims mostly engage in religious activities, such as praying, reading the Quran, and performing religious rites in the holy shrine. In contrast, after completing the necessary activities, Tourist-Pilgrims are extensively involved in recreational activities (Verme *et al*., 2021). Meanwhile, Non-active / Passive Pilgrims mostly spend their time on necessities and personal activities, such as sleeping, eating, resting, and unpaid indoor activities. These results partially align with previous studies (Canoves & Prat, 2016; Kliot & Collins-Kreiner, 2000; Liro *et al*., 2017; Nolan & Nolan, 2018; Rinschede, 1992; Shinde & Rizello, 2014). For instance, Liro *et al*. (2017) proposed that visitors to a pilgrimage center in Krakow, Poland, can be classified into three groups: pilgrims, religious tourists, and tourists.

In historical times, the main functions of pilgrimage centers were considered to be spirituality and religious practices, but changes have occurred in the external

characteristics, perceptions, and attitudes of visitors in the twentieth and twenty-first centuries (Collins-Kreiner, 2010). To clarify, while religious activities were historically the primary motive for pilgrims visiting pilgrimage sites, today there is a coexistence of diverse motivations and time allocation patterns among travelers. These individuals tend to merge elements of both pilgrimage and tourism into their journeys to a greater extent than in the past. In addition to Holy Places, the city has many historical and recreational sites, shopping malls, and other attractions, creating enormous potential to attract visitors, particularly during main holidays.

Policy Implications

This study highlights that stakeholders should not only consider pilgrims as a single group but also take into account the various types of pilgrims (Active, Tourist-Pilgrims, and Non-active / Passive). As a result, the study's findings have important implications for policymaking related to pilgrimage-tourism, urban management, marketeers, and service providers.

Firstly, the study revealed that Active Pilgrims comprise almost one-third of the participants and spend a significant amount of time engaging in religious activities, particularly visiting the holy shrine of Imam Reza. Therefore, pilgrimage management needs to focus on the times when pilgrims tend to visit the shrine more frequently (such as during the noon and evening calls to prayer) and improve their services and facilities. This can lead to optimised service delivery and higher satisfaction levels among pilgrims.

Secondly, our study revealed that Tourists-Pilgrims constitute a quarter of all pilgrims and are motivated by recreational activities. Therefore, tourism management should improve infrastructure, such as transportation systems, and provide more recreational and historical attractions for this group. Specifically, traffic congestion is a problem, particularly during peak tourist times like Nowruz. Suppose urban management is aware of the fact that a particular group of pilgrims tends to travel to different parts of the city during specific hours for leisure activities. In that case, they can develop appropriate and effective traffic management strategies. This can help balance these individuals' transportation demands with the available services, ultimately reducing traffic congestion and increasing the satisfaction of Tourist-Pilgrims.

Finally, the study found that Non-active / Passive Pilgrims constitute 42.7% of the visitors, indicating that they spend most of their time on necessities such as personal hygiene, sleeping, eating, taking care of others, and engaging in unpaid activities. Consequently, it is crucial for tourism management to provide secure and comfortable accommodation, healthcare services, quality food, and accessible amenities to cater to the needs of these pilgrim travellers. Additionally, since pilgrims have diverse demands, it is assumed that they are rational actors who need to make quick decisions while choosing from different types of goods and services with maximum desirability. This presents an opportunity for market segments to offer pilgrims quick access to information about their products and services with the basic standards of quality.

Directions for Future Research

Although this study provides valuable insight for stakeholders, two issues need to be more considered in future studies. First, this study focused on pilgrims at a specific point in time. Expanding the study to collect data from visitors throughout the year would provide a more comprehensive understanding of the diverse types of visitors and their time-use behaviour. Second, a lack of a standardised scale for activities is apparent in this study and the existing literature. This leads to diverse categorising from different authors, resulting in a low possibility of comparison between studies. Developing a standardised scale for activities would enable better comparisons between studies and improve the overall understanding of time use behaviour among pilgrims.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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