

# Journal



# of P R research

## Middle East

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# **An Exploratory KAP Survey of the Pilgrims on the Issue of Thronging Mount Arafat: Toward Developing Messages for Crowd Management**

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# **An Exploratory KAP Survey of the Pilgrims on the Issue of Thronging Mount Arafat: Toward Developing Messages for Crowd Management**

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## **Acknowledgment:**

With the name of Allah, the most Gracious the Dispenser of Grace, may His eternal peace and blessings be upon Muhammad (PBUH), and the members of his household and on his companions, Aameen. All thanks are to Allah Subhanahu-Wa-Ta'la for His mercy, help and for bestowing us with the capacity to undertake and complete this study. This study was fully funded by the Institute of the Custodian Two Holy Mosques for Hajj and Omrah Research, Umm al-Qura University, Makkah al-Mukarramah, the Kingdom of Saudi Arabia. The authors gratefully acknowledge the institute's financial support and record their unreserved gratitude to the Institute's illustrious Dean, Dr. Mohammad Atif Asghar, and the members of the Research Committee for approving and supporting the project. We also thank our colleagues at the department and all the post-graduate students who contributed with their time, efforts and invaluable suggestions in various stages of this project. Without their help and support, this project would have been far from complete.



## **Abstract :**

This study reports findings of an exploratory KAP (knowledge, attitudes, & practices) survey of the pilgrims about visiting the *Jabal al-Rahmah* on the Hajj Day. The broad research question examined in the study was to determine what perceptions do the Hajj pilgrims hold about going to the *Jabal* area and why do they hold those perceptions. Data on this research question was collected from a non-probability sample of 500 pilgrims during the Hajj of 1435 (H). Descriptive statistical techniques involving the use of such summary measures like means, standard deviations, correlation coefficients, and factor analysis revealed that going to the *Jabal* on the Hajj day, far from being a simple monolithic concept, might well be a complex conceptual continuum. The intermediate portion of this polar conceptual continuum of going and not going may be taken up by perceptual dynamics of information and attitudes, and risk perceptions. The religious scholars, the Ulema, seem to play a critical role in influencing the perceptual dynamics that result in the Hajj Day behavioral outcome of going or not going. Based on this, broad recommendations are made about the nature of messages (message content) to be used in a communication campaign of crowd management in the *Jabal* area.

## **1: Introduction**

### **1.1: Significance & Rationale**

Crowd management in and around the Holy Places (Masha'er) has increasingly become a critical focus of interest for the Hajj management authorities in the Kingdom. Crowd management is done to prevent crowd congestions that can cause stampedes, physical harm, and inordinate emotional and physical discomfort to the pilgrims. In order to pre-empt crowd congestion, the pilgrims need to be educated and their congestion causing attitudes, values, cognitions, and behaviors need to be changed.

Nevertheless, the current communication efforts, in general, to inform and influence the pilgrims' attitudes and behaviors appear ineffective. Our Hajj season researches on communication ecology respectively of the Pakistani and the Egyptian pilgrims during the Hajj 1433 (H) & the Hajj 1434 (H) and our billboard research for Ramadan 1433 (H) & 1434 (H), for example, particularly seem to testify to the inadequacy of the communication efforts undertaken thus far. We characterize the current efforts to communicate with the pilgrims as inadequate because these do not originate in research evidence and in the known principles of communication campaigns found in communication research literature.

These efforts are not just inadequate but may largely be characterized as nothing more than "hit and miss" propositions. For example, in our 1433 (H) Hajj season study, we found that although interpersonal contacts with co-pilgrims and community resources, like the information counters within the pilgrims' housing units and the ethnic newspaper circulating in the neighborhood respectively, made top three spots in the communication ecology of the Pakistani pilgrims (Gazzaz, Iqbal, & Khan, 2014, pp. 24-25), yet we did not see any organized effort by the Hajj authorities to utilize those resources for communicating with the pilgrims. Interestingly, Dars sessions in the neighborhood mosques and the digital screens that ranked distant 7<sup>th</sup> and 8<sup>th</sup> on the pilgrims' ecology drew most attention of the authorities and were the choicest medium of communication with the pilgrims. This despite the fact that over 82 percent of the pilgrims never attended the Dars sessions and over 78 percent did not use digital screens in problem situations at all (Gazzaz, Iqbal, & Khan, 2014, p. 25).

Similarly our electronic billboards study of Ramadan 1433 (H), which examined the utility and effectiveness of the digital signage in terms of its capacity to engage the pilgrims' attention and to influence the recall of the messages, found that despite its potential for great utility and effectiveness the digital signage was found to be ineffective (Gazzaz, Khan, & Iqbal, 2014, p. 54). Limited effectiveness was instanced by such facts like merely 6% of the sample was able to recall one complete sentence and 50% of the sample was unable to recall a bit from the screens. The problem lay in wordy and fast changing text containing messages that had little practical utility for the pilgrims. In sum, the Hajj authorities communication approach with the pilgrims remains without any solid foundation in the scientific wisdom found in the vast literature on communication research. And as such the whole communication effort remains a hit and miss proposition at best.

Hence, for crowd management at Masha'er that involves informing, educating and persuading the pilgrims we propose a communication approach that stands well-grounded in scientific tradition and in the research wisdom available in the persuasion and the communication campaigns traditions of communication research.

## **1.2: Research Question**

With crowd congestion in and around Jabal al-Rahmah as a case in point and the persuasive communication and the communication campaign literature as our conceptual backdrop, the present study reports findings of an exploratory survey of the pilgrims' perceptions, attitudes, knowledge and practices, the KAP survey for short, on the issue of thronging the Jabal and its immediate vicinity on the Hajj Day. The broad research question, therefore, the survey aims at is: What are the pilgrims' perceptions and attitudes on visiting the Jabal on the Hajj Day and why do they hold those perceptions and attitudes? Information on this broad research question shall, hopefully, serve as useful inputs for message content and structure for any prospective crowd management campaign in the Jabal area.

## **2: Literature Review**

### **2.1: Conceptual Framework**

The information and communication campaign literature has unequivocally stressed the need for a KAP survey as a pre-campaign planning tool in order to distil and determine a message-mix. The message mix refers to substantive content of various messages (the message substance, the use of evidence, the appeals, the language) & and the structure of those messages (the message sidedness, the conclusion drawing, and the presentation order in the message) (Perloff, 2010; Allen, 1998; O'Keefe, 1999; Parrott, Silk, Dorgan, Condit, & Harris, 2005; Witte & Allen, 2000; Witte K. , 1998; Wong & Capella, 2009; O'Keefe, 1999; Rice & Atkin, 2009). Both these components of the campaign messages do find a good measure of support in research evidence generated by various theories of persuasive communication (Perloff, 2010). What should or should not be the substantive content of a campaign messages and what should or should not be the structure of those messages, it is assumed, is learned through a KAP survey. A well thought out KAP survey is a good direction pointer for developing messages that are likely to work in a persuasive communication campaign.

### **2.2: What is a KAP survey & why is it done?**

A KAP survey, which is an approach to collecting and using data on knowledge, attitudes and practices (KAP) on an advocacy, communication and social mobilization topic, is a representative study of a specific population on what is known, believed, and done relative to that topic (World Health Organization, 2008). A KAP data is often collected orally by trained interviewers with the help of structured interview schedules or questionnaires. Depending on the objectives of the study, the data can then be analysed by applying quantitative or qualitative methods of data analysis. For example, the present study has specifically designed this particular survey to gather information from a population of Hajj pilgrims on their attitudes and perceptions about visiting the *Jabal al-Rahmah* on the Hajj Day; i.e., the 9<sup>th</sup> of Dhul Hajjah.

KAP survey data are essential to help plan, implement and evaluate advocacy, communication and social mobilization work (World Health Organization, 2008, p. 6). The survey is particularly meant to find out gaps in knowledge on an issue, beliefs and behavioral patterns about it prevalent in a target

population. Information on these KAP aspects facilitates understanding of the motives, attitudes, and perceptions of the target population. It thus provides a deeper understanding of an issue and helps suggest remedial actions needed by a prospective change agent to bring about change in a target population. Through well-planned KAP surveys sometimes those factors get highlighted that might be driving a behavior but that might not be readily obvious even to a perceptive eye. Similarly, such surveys may help uncover communication processes and the sources that might be critical to creating effective messages. In short KAP data provide social campaign planners and people involved in social mobilization and in training, education and awareness (TEA) programs to establish baseline levels and benchmarks for post-campaign measurements and determination of the success of their social interventions and communication campaigns.

Although KAP surveys can be conducted at any point in time during a communication intervention campaign (World Health Organization, 2008, p.7), these are most useful when done prior to designing and creating a communication intervention program or conducted at post-intervention stage to evaluate the success of the program implementation. In social marketing campaigns the KAP surveys are done at both these stages. Exploratory KAP surveys are done by way of a formative research tool prior to planning a social marketing campaign. Social marketing campaigns are a process of “designing, implementing, and controlling programs to increase the acceptability of a pro-social idea among segments of consumers” (Dearing, et al., 1996, p. 345). Social marketing campaigns sell public interest ideas to a target population by using principles of product marketing.

Social marketing campaigns involve five phases: (i) the planning phase, (ii) the theory selection phase, (iii) the communication analysis phase, (iv) the program implementation phase, and (v) the evaluation and reorientation phase (Maibach, Kreps, & Bonaguro, 1993). The inputs from exploratory or formative and baseline KAP surveys get directly involved in phases (i), (iii), & (v); viz, the planning, the communication analysis, and the evaluation phases.

In the planning phase, campaigners make tough choices as they have to settle on campaign goals. The goals may have to do with creating new cognitions or changing the existing ones and whether to target attitudes or behaviors (Perloff,

2010, p. 331). These decisions cannot be made unless the nature of the prevalent attitudes, perceptions and behaviors are first understood. And this type of data is best gathered through formative or exploratory KAP surveys (Atkin & Freimuth, 2001).

In the communication analysis phase of social marketing, not only data on the communication processes on the issue within the target population are collected but entire communication ecology of the target population is analysed. The target audience perceptions about their communication sources are understood, messages are not only created but also pretested to determine whether these would be functional or dysfunctional for the goals of the program. In this phase, the theory and concepts, selected for achieving the goals of the program in the earlier phase, are applied to the context by way of a pretest. Similarly, channel analysis is also conducted to identify optimum channels for disseminating the messages.

In the final phase of the campaign, the campaigner discovers if the campaign worked through a repeat of the KAP survey. Projects are empirically assessed at the individual and the community levels and the benchmarks developed through the baseline KAP surveys are used to evaluate the success of the campaign.

The ideas described in the foregoing sections maybe summed up as follows:

1. To manage crowd congestion in the *Jabal al-Rahmah* area on the Hajj Day a social marketing communication campaign, aimed at shaping, changing, and or reinforcing the pilgrims' perceptions and attitudes, is a scientific requirement.
2. Formative research or exploratory KAP surveys constitute a critical component of a social marketing campaign in the planning and communication analysis stages or to establish baseline or benchmarks for the evaluation of a campaign's outcome in the evaluation and orientation stages.
3. The basic purpose of the present study is not to plan and design a communication campaign to dissuade pilgrims from thronging the *Jabal* on the Hajj Day.

4. Rather, and in line with the scientific approach of the campaign communication literature, the scope and purpose of the present study is to conduct an exploratory KAP survey of a segment of the pilgrims' population in order to assess their perceptions and attitudes on visiting the *Jabal* on the Hajj Day and thus deepen our understanding of the phenomenon.
5. Information from such an exploratory KAP survey may then serve as useful inputs for a prospective social marketing campaign against thronging the *Jabal* area on the Hajj Day.

### **2.3: Objectives of the Study**

The scope and purpose of the present study, therefore, is not to plan and design a social marketing campaign to manage crowd congestion in Masha'er. The present study, with a focus on crowd congestion around the *Jabal al-Rahmah* area on the Hajj Day, instead examines the perceptions and attitudes and behavioral preferences of the pilgrims about going to the *Jabal*. As such, the main objectives of the exploratory KAP survey of the present study may be stated as follows:

1. To statistically describe the pilgrims' perceptions, attitudes, behavioral preferences (intentions) about going to the *Jabal* on the Hajj Day.
2. To describe the relationship of these with the pilgrims' demographic origin and background.
3. To find out what latent constructs might account for these varied observed KAP variables on the issue of the pilgrims visiting the *Jabal*.
4. To find out as to how these latent constructs might relate with demographic variables.
5. To determine the role of the *ulema* (religious scholars) in the perceptions and attitudes that the pilgrims hold about going to the *Jabal* on the Hajj Day.

These five objectives taken together, we believe, shall generate data and thus create wisdom that would answer, and shine light on, the broad research question of the present study as stated in sections 1.1 & 2.2 above.

#### **2.4: Benefits:**

The data generated on the above objectives will be helpful to researchers, and communication campaign planners to develop message content and structure for a prospective communication campaign for crowd management on the *Jabal* and the area in its immediate vicinity on the Hajj Day.



### 3: Methods

#### 3.1: Research Instrument & Measurement of the Variables

Research instrument was developed in a number of focus group sessions with colleagues at the department of communication research and media affairs and with a group of post-graduate students who had an extensive experience of working with Hajj and Omrah pilgrims in connection with “*toi’yya wal-irshaad*”. Some 30 items were created that spanned perceptions, cognitions, and the attitudes on going and perceptions about thronging the *Jabal*; viz, how important going was, benefits and risks of going, perceptions of others positions on going, group’s influence, perceptions about the scholars position, perceived values and subjective norms, sources of information, and the most influential and trusted sources on the issue, perceived religious sanctity of going there on the Hajj Day, and the involvement or the strength of attitude on the issue. These items were asked on Likert-type 5-point scales ranging from 1=Strongly Disagree and 5=Strongly Agree with the statement. Some of the statements were negatively worded to check for response set type of answers.

The Arabic and the Urdu versions of the items were pretested on 50 pilgrims. After the pretest discussion sessions were again convened. Finally, 23 items were retained. Several items were dropped from the questionnaire for reasons of rendering overlapping information. A few were also dropped for reasons of inadequate variance with responses clustering around one or two points on just one end of the scale.

In addition, a filter question was decided to be added that identified the goers and/or those pilgrims who strongly intended to go and filtered out the non-goers. Socio-demographic questions included questions on: national origins (nominal item), age (age in years, a ratio level measure), education (an interval level 6-point item measuring educational level completed), marital status (dichotomous nominal scale), whether performing Hajj in the company of family (dichotomy), and whether performed Hajj before (dichotomy).

The finalized instrument was translated into the Arabic and the Urdu languages by experienced translators. The translated versions were carefully compared with the English version for determining the accuracy and precision of meaning. The English version of the questionnaire is attached as an appendix to the present manuscript.

### 3.2: Sample and Data Collection

Final data collection was done by ten trained graduate students. They were all fluent in the Arabic and the Urdu languages and had an extensive prior experience of data collection from the Arabic and the Urdu speaking adult males. Female pilgrims were not included in the sample due to a number of reasons. Particularly, the specialized circumstance of the Hajj context delimited not only the focus of the study but also greatly constrained the availability of trained female interviewers. Additionally, only those women are allowed for Hajj who are in the company of a husband or a mahrem (a male member other than a husband with whom a woman cannot ever marry; e.g., son, brother, son in law etc.). The everyday decision-making during the Hajj sojourn mainly lies with the husbands or the mahrems who experience the everyday situations and problems directly, and first hand, and as such are also responsible for seeking out and making communication contacts with sources for information and help. The women folk experience situations and develop their perceptions indirectly and vicariously through their accompanying male members and are particularly not likely to venture out on their own into such areas of high crowd congestion and density like the Hajj Day visit to the *Jabal* that are also not integral to the completion of the Hajj process.

Data collection started on the 9<sup>th</sup> Dhul Hajjah and was completed in the last week of that month. Since the basic purpose of the study was an exploratory one, generally a non-probability sampling strategy was resorted to. Still, considerable efforts were expended to make the sample as much representative of the pilgrim population under study as possible. Hence, not only, to use the probability sampling jargon, a large sample was selected but also a number of techniques were employed to ensure as much representativeness as was possible under the circumstances. These techniques included things like limiting the population to specific linguistic groups, the use of a filter question that delimited the pilgrims population to those that, in line with the purpose of the survey, did go or strongly intended to go to the *Jabal* on the Day of the Hajj but could not go for a reason or another. Also, through instructions to the interviewers and close supervision of the interviewing process a representative scatter in terms of the camp selection in Mina, days of the week and times of prayers was ensured.

In all 500 interviews were completed. Data collection happened on seven locations. Twelve percent of the data were collected from the *Jabal* area on the 9<sup>th</sup> of the Hajj month. Thirty-five percent of the interviews were completed from the randomly selected sub-continental and the Arab camps in Mina during the 3-day period of 10-12 Dhul Hajjah. The rest of the 53 percent of the interviews were

completed from five locations around the main entrances of al-Haram Mosque; viz, the King Abdul Aziz Gate (27.4%), the King Fahd Gate (10.2%), the area immediately outside the Saffaa wa Marwah side (10%), the Omrah Gate (4%) and the King Abdullah Gate (1.6%). The percentages were fixed considering the frequency of the pilgrims' movement from these areas during the post prayers' times.

The interviewers were instructed to structure data collection as per days of the week and all the seven days of the week were made to be reflected in the sample as were the five times of the prayers. Each day about 38 interviews were completed from the above five locations around the al-Al-Haram Mosque. The Arabic and the Urdu speaking pilgrims from around the Arab world and the Sub-Continental countries were part of the sample. The cases from the above two regions who agreed to be interviewed as per the filter question were included in the sample.

In the final analysis we had 60 completed interviews from the *Jabal* area, 175 from the camps in Mina during the 3-day post-Hajj stay there, and another 265 post-Hajj interviews from around the Al-Haram mosque with data collected on structured days of the week and times of the five obligatory prayers.

## **4: Data Analysis and Results**

### **4.1: Statistical Procedures Chosen**

A number of statistical tools were employed to analyse data and achieve the above noted four objectives. Primarily, the study relies on descriptive statistics for data analysis. Specifically, such descriptive statistics like measures of central tendency and dispersion; viz., univariate means (M) and standard deviations (SD), and relevant group size (Ns) are used to find patterns in the data and meet the requirements of the first objective of the study. These descriptive statistics are also potentially usable for interval estimation if our sampling procedures are liberally interpreted as containing elements of simple random sampling procedures.

Zero-order Pearson product moment correlation coefficients were used for achieving the 2<sup>nd</sup> and the 4<sup>th</sup> objectives. Since the Spearman and the Pearson r values were similar and the sample sizes were quite large too, we decided to stick with the usual descriptive statistics of the Pearsonian r. We used the inferential statistics of significance testing and reported it, too; only by way of additional information and not for the basic purpose of inference drawing as our sample does not strictly result from the use of probability sampling procedures.

Data analysis strategy for the 3<sup>rd</sup> objective entailed use of exploratory factor analysis as a descriptive and data-reduction tool. After trying different factor analysis solutions that included principal component analysis (PCA) and principal axis factoring (PAF) both with orthogonal and non-orthogonal rotations (the varimax and the oblimin rotations to be precise), we finally settled for the principal axis factoring with oblique rotation. The choice was based on ease of interpretability, and on the theoretical possibility of non-independence among the extracted factors. Hence, we relied on reporting factor pattern and factor correlation matrices.

The 5<sup>th</sup> or final objective involved the use of the standard multiple regression procedures that measured the impact of a predictor with the effect of the rest of the predictors in the model controlled for. Significance testing, though not required given the nature of the sample and the limited exploratory purpose of the baseline survey, was nevertheless done by way of an auxiliary analysis to shine further light on the findings. Hence residual analysis the collinearity diagnostics and the Durbin-Watson statistics were looked at to highlight the stability of the partial regression coefficients.

#### **4.2: Results**

The first two tables, Tables 1 & 2, together report results of the analysis on the first objective of the study. Scale means, standard deviations and the number of cases who responded to each of the twenty-two Likert-type items are reported. Table 1 reports the responses for the full sample; i.e., the cases from the *Jabal* and the *non-Jabal* locations together, and Table 2 reports data only from the *non-Jabal* locations. The scales ranged from 1= strongly disagree to 5=strongly agree with the score of 3 indicating the midpoint of neither agree nor-disagree.

As per Table 1, the pilgrims on average tended to agree to the statements that: they would act as per the Saudi ulema's fatwa on not visiting the *Jabal*; would not go there if the ulema forbade; the crowd congestion in the *Jabal* area posed risk to Hajj *al-Mabroor*; they would spend time in dua and zikr than waste it in crowd congestion in the *Jabal* area; most people regard visiting as important; they would trust their own sources of information on visiting; they got most of their information on visiting the *Jabal* from the ulema; and the books; they felt no personal risk in visiting the *Jabal*; and regarded climbing the *Jabal* on the Hajj Day as an *afdhal* act.

Table 1 also shows that the pilgrims tended on average to disagree with the statements that: the ulema recommended going to *Jabal* on the Hajj Day; going to the *Jabal* was required for the acceptance of dua & zikr; they felt upset if unable to visit the *Jabal* on the Hajj Day; most of their information came from their Hajj group; they intended to climb the *Jabal* but could not do so; they favoured going regardless of personal risks to them; most of their information came from the Masjid in their neighborhood; going to the *Jabal* was required for Hajj *al-Mabroor*; they went because most of their group wanted to go; most of their information came from mass media/Internet; they went because their camp was near the *Jabal*. Most amount of disagreement was found for the statement that they favoured going regardless of harming others.

Table 2, which is a non-*Jabal* sample in terms of the place of interview, shows that on average the agreement-disagreement pattern essentially remained the same. For example, in the full sample (that included 60 cases inside the *Jabal* area) ten items comprised the average agreement items. The average agreement items are items that have a scale mean of  $> 3$ . In the non-*Jabal* sub-sample this number is reduced to nine items. That means only one item shifted its rank. Specifically, item 3 of Table 1 “crowd congestion in the *Jabal* area on the Hajj Day risks Hajj *al-Mabroor*” (Mean=3.57, SD=1.31) showing, on average, an agreement of the pilgrims, now belongs to the average disagreement set of 13 items (with a Mean=2.42, SD=1.26). The pattern for the rest of the items gets pretty much replicated in Table 2. This shows that the two samples do not differ much in the distribution of responses on the agreement-disagreement halves of the scales.

Table 3 reports zero-order correlation coefficients of the KAP items with five demographic variables in the study. These zero-order correlation coefficients give us an initial look at the role of the demographic variables of regional origin (1=Arabic speaking; 2=Urdu-speaking pilgrims), age (a ratio level measure), education (an interval level 6-point scale with 1=No formal schooling; 6=Master or higher degree completed), marital status (1=Married; 2=single), and whether performing Hajj in the company of the family members (1=Yes; 2=No).

Of the relationship of the dichotomous variable of regional origin (the Arabic speaking pilgrim & the Urdu-speaking pilgrims' category primarily from the countries of the sub-Continent) with the twenty-two KAP items, the following picture emerges. The two groups did not differ in terms of nine of the 22 items. Specifically, there was no difference between the groups in agreeing to the following statements: (1) “I would spend time in *dua/Zikr* than waste it in crowding in the *Jabal* area”; (2) “I think most people regard visiting the *Jabal* as important”; (3) “most of my info. on visiting comes from the *Ulema*”; (4) “Going

to the *Jabal* is required for the acceptance of the *dua/zikr*"; (5) "I will feel upset if could not go"; (6) "most of my information is from the Masjid in my area"; (7) "going to the *Jabal* is required for Hajj *al-Mabroor*"; (8) "most of my information on visiting is from the mass media/Internet"; (9) "I favor going to the *Jabal* regardless of harming the others".

The picture that emerges from the regional origin's relationship with the rest of the thirteen items is something like this: the Urdu-speaking group was more likely than the Arabic-speaking to (1) "act according to the fatwa of the Saudi Ulema on not visiting the *Jabal*"; (2) "regard climbing an '*afdhal*' act"; (3) "feel no risk in visiting the *Jabal* on the Hajj Day"; (4) "think the Ulema recommended visiting the *Jabal*"; (5) "agree that it intended to climb the *Jabal* but could not do so"; (6) "favour going regardless of personal risks"; (7) "agree that crowd congestion on the Hajj Day risked Hajj *al-Mabroor*"; (8) "get most of its information from the books"; (9) "trust own sources of information on visiting"; (10) "get most of its information from the *own* Hajj group"; (11) "not to go if the Ulema forbade going". The Arabic speaking, on the other hand, were more likely to (12) "go under the group pressure"; and because the (13) "camp was near the *Jabal* area".

Of all the relationships with the regional origin, the strongest positive relationships were with "climbing the *Jabal* an *afdhal* act" ( $r = .41$ ); "feel no risk in visiting on the Hajj Day" ( $r = .37$ ); "shall act as per the Saudi Ulema *Fatwa*" ( $r = .36$ ); and with "I think Ulema recommend visiting the *Jabal*" ( $r = .29$ ).

As shown in Table 3, age had significant relationships with eleven of the 22 KAP items. The biggest coefficients were for "I favor going regardless of personal and physical risks" ( $r = -.24$ ); "most of my information about going is from the Ulema" ( $r = .22$ ); "I will feel upset if unable to visit the *Jabal* on the Hajj Day" ( $r = -.20$ ); "I went because my camp was near the *Jabal*" ( $r = .19$ ); "I feel no risk in visiting the *Jabal*" ( $r = -.15$ ); and "I think Ulema recommend visiting" ( $r = -.15$ ).

The composite picture that emerges on the relationship of age with the KAP items is something like this: the older pilgrims tended to (1) get their information from the Ulema ( $r = .22$ ), (2) from the Masjid in the neighborhood ( $r = .14$ ), and (3) from mass media/Internet ( $r = .14$ ). The older pilgrims also were more likely than the younger to agree with the statement that (4) they went to the *Jabal*: because the camp was near the *Jabal* area ( $r = .19$ ). The younger pilgrims were more likely to: (5) favor going to the *Jabal* regardless of personal and physical risks ( $r = -.24$ ); (6) feel upset if unable to go ( $r = -.20$ ); (7) feel no risk in visiting ( $r = -.15$ ); (8) agree that Ulema recommend visiting ( $r = -.15$ ); (9) agree that going is

required for the acceptance of *dua/Zikr* ( $r = -.13$ ); (10) get most of their information from their Hajj groups ( $r = -.13$ ); and, agree that (11) climbing the *Jabal* on the Hajj Day is an '*afdhal*' act ( $r = -.10$ ).

Level of education had significant relationship with 14 of the KAP items. As shown in Table 3, these relationships range from very weak of  $r = .11$  to moderately strong of  $r = -.28$ . The following composite picture maybe said to emerge from the table. The better educated are likely: (1) "not to go to the *Jabal* if the Ulema forbade ( $r = .17$ )"; (2) "to think the crowd congestion on the Hajj Day risks Hajj al-Mabroor ( $r = .15$ )"; (3) "to get most of their information about going from the Ulema ( $r = .14$ ), (4) the books ( $r = .11$ ), & (5) the mass media/Internet ( $r = .11$ )"; (6) "not to feel upset if could not go ( $r = -.28$ )"; (7) "not to favor going regardless of personal and physical risks" ( $r = -.25$ ); (8) "not to think that most people regard visiting important ( $r = -.12$ )". The better educated are also likely to disagree that (9) "going to the *Jabal* on the Hajj Day is free of risk ( $r = -.19$ ), that (10) "most of their information comes from their Hajj group ( $r = -.12$ ), that (11) "going to the *Jabal* is required for Hajj al-Mabroor ( $r = -.17$ )", that (12) "going to the *Jabal* on the Hajj Day is an '*afdhal*' act ( $r = -.20$ )", that (13) "going is required for the acceptance of *dua/Zikr* ( $r = -.20$ )", & that they (14) "favor going regardless of harming the other pilgrims ( $r = -.16$ ).

Table 3 also shows that marital status (1=married; 2=single) has very weak ( $r = .10$ ) to moderately strong ( $r = .25$ ) relationship with 12 of the 22 KAP items and no relationship with the rest of the ten items. Specifically, relative to the unmarried pilgrims, the married pilgrims tended to get most of their information about visiting the *Jabal* on the Hajj Day from (1) the Ulema ( $r = -.23$ ); (2) the masjid in the neighborhood ( $r = -.14$ ); and from (3) the mass media/Internet ( $r = -.12$ ). The married pilgrims, relative to the unmarried ones, (4) did not think that most people regard visiting important ( $r = .10$ ); (5) felt risk in visiting the *Jabal* ( $r = .13$ ); (6) did not regard climbing the *Jabal* an '*afdhal*' act ( $r = .12$ ); (7) did not think the Ulema recommend visiting the *Jabal* ( $r = .18$ ) (8) did not think going was required for the acceptance of *dua/Zikr* ( $r = .25$ ); (9) would not feel upset if could not go to the *Jabal* ( $r = .13$ ); (10) disagreed that they intended to climb the *Jabal* but could not do so ( $r = .11$ ); (11) disagreed that most of their information on going came from their own Hajj group ( $r = .15$ ); and (12) did not favor going regardless of personal & physical risks ( $r = .25$ ).

Table 3 also shows the relationship of the KAP items with the dichotomous variable of whether the pilgrims performed Hajj singly or in the company of family members (1=yes; 2=no). Nevertheless only weak relationships of this variable were found for eight of the 22 KAP items. Relative to the pilgrims without

accompanying family members, the pilgrims with accompanying family members (1) were more likely to act according to the fatwa of the Saudi Ulema ( $r = -.19$ ); (2) did not think most people regarded visiting important ( $r = .12$ ); (3) got most of their information about going from the Ulema ( $r = -.19$ ); (4) disagreed going was required for the acceptance of *dua/Zikr* ( $r = .10$ ); (5) did not feel upset if could not visit the *Jabal* ( $r = .19$ ); (6) disagreed that they got most of their information from their Hajj group ( $r = .10$ ); (7) did not favor going regardless of personal and physical risks ( $r = .19$ ); and they (8) got most of their information from the mass media/Internet ( $r = -.12$ ).

Tables 4 through 7 report the findings on the study's 3<sup>rd</sup> objective. The 3<sup>rd</sup> objective entailed identifying the latent factors behind the 22 KAP items that were measured in the study. As noted earlier factor analyses were carried out to identify the factors and a number of factor analysis solutions were tried to achieve interpretable latent factors. Principal analysis factoring (PAF) with oblique rotation threw up five interpretable factors. Table 4 summarizes the results from the rotated factor pattern matrix.

Five items from the original list had to be dropped from the analysis for factorability reasons as determined by individual and average values of Kaiser-Meyer-Olkin (KMO) measures of sampling adequacy and the Bartlett's Test of Sphericity, the determinant value for the matrix, and the reproducibility of the observed correlation matrix from the model.

The individual level KMO ranged from a low of .59 (for: act according to the Saudi Ulema's fatwa on not visiting the Jabal) to a high of .86 (for: regards climbing the Jabal an *afdhal* act) with an average KMO of .78. The average KMO of .78 being closer to 1 shows that the pattern of correlations in the matrix is not diffused but somewhat compact and hence the possibility of finding distinct factors is real. The Bartlett's Test of sphericity was significant at  $p < .001$  with a Chi-Square value of 1365.19; &  $df = 136$ . The significant value for the Bartlett's Test means that our matrix is not an identity matrix. That is, the variables are not totally independent of one another but the correlations between the items are likely to sufficiently large. The determinant value for the matrix was .039, which is  $> .00001$  implying that our correlation matrix is not a singularity as well. Singularity stands for extreme multicollinearity that again negates factorability of a matrix. Moreover, percent of non-redundant residuals with absolute value  $> .05$  between the observed and the reproduced correlation matrices stood at 11.0% that is much lower than the 50 % benchmark of the allowable residuals (Field, 2009, p.664).



Although the Scree plot and the eigenvalue criterion indicated that probably there might be six factors but the sixth factor in all the solutions was a one-item factor, hence the number of factors for extraction was fixed at 5. These five factors accounted for about 56% of all the variance in the items, the cumulative common variance due to these factors was about 37%.

Table 4 shows factor loadings from the factor pattern matrix after rotation. Factor loadings of less than .30 that do not form part of a compact cluster on a factor are not shown in the table for being insignificant part of that factor. The items that compactly cluster on the same factors suggest that factor 1 represents the **Likely goers (those who perceive going as salient)**; factor 2 represents the **Ulema compliant non-goers**; factor 3 represents the **Diehard goers**; factor 4 represents the **Ulema reliant**; and factor 5 represents the **Risk conscious non-goers**.

Table 5 gives the zero-order factor correlation matrix of the extracted factors. This matrix is provided here to provide additional support to our factor analysis solution. For example, Table 5 shows that our decision to use non-orthogonal rotation method of oblique rotation was justified because we see that the extracted factors are indeed correlated. Had there been no correlation between the extracted factors the oblique rotation solution would still have captured that fact. The orthogonal rotation would have produced an artificial factor solution.

Moreover, the pattern in the directions of coefficients seems to logically confirm the factor-naming that we have used in the study. For example, the factor of the **Diehard goers** positively correlates with the **Salience perceiving Likely goers** and negatively correlates with the **Ulema compliant non-goers**. Similarly, the **Salience perceiving likely goers** has a negative relationship with the **Risk-conscious non-goers** whereas the latter factor also negatively correlates with the **Diehard goers**. The correlation of the **Ulema reliant** with the **Ulema compliant non-goers** is negative implying that reliance on the Ulema for information may conceptually be different from the compliance of the Ulema for non-going. The negative correlation of the two is explainable on the basis of the rampant perception in the sample that the ulema recommend visiting (cf. relatively high mean for the item “I think the Ulema recommend visiting the *Jabal* on the Hajj Day”,  $M=2.97$ ) and the fact that the **Ulema reliant** positively correlates with **Diehard goers** and the **Salience perceiving likely goers**. In sum, the overall pattern of correlation in Table 5 seems to give logical support to our naming of the five latent factors.

Tables 6 & 7, respectively, report the factor pattern matrix and factor correlation matrix of the PAF factor analysis with oblique rotation of the non-Jabal

sub-sample. These analyses were done in order to determine the stability of the just described factor analysis solution for the full sample. So these two tables are reported to show that our full sample findings essentially get replicated. The only difference here being that the number of factors extracted were set equal to the default criterion of the eigenvalue  $> 1$ . This was done because our five factor solution did not converge in 25 iterations.

These two tables essentially replicate our original solution with full sample. Specifically, as Table 6 shows, the solution extracts all the previous five factors; viz., the **Saliency perceiving likely goers**; the **Ulema compliant non-goers**; the **Diehard goers**; the **Ulema-reliant**; & the **Risk-conscious non-goers**. Nevertheless, the use of the default criterion this time threw up an additional factor as well. This factor, factor 2 in Table 6, to be precise, represents the **Risk conscious source trusting** dimension.

Additionally, the pattern of correlations between the factors as shown in Table 7 further logically replicates our original full-sample solution and the naming of the latent factors identified.

Table 8 describes the findings on the study's 4<sup>th</sup> objective. This particular objective aims at relating the just identified latent factors to demographic variables of the pilgrims' regional origin, age in years, the level of education completed, their marital status, and whether the Hajj is performed in the company family members. For this, zero-order correlations were calculated between the observed scores on the demographic variables and the factor scores for each of the latent factors.

As per Table 8, regional origin had significant relationships with three of the factors; viz., the salience perceiving likely goers; the ulema-compliant non-goers, and the risk-conscious non-goers. Regional origin had no relationship with the ulema reliant and the diehard goers. More specifically, the Urdu-speaking pilgrims relative to their Arabic-speaking counterparts were more likely to be salience-perceiving likely goers ( $r = .26$ ), and the ulema-compliant non-goers ( $r = .35$ ) The Arabic-speaking pilgrims, by comparison, tended to be more risk-conscious non-goers ( $r = -.41$ ).

In terms of age, the younger pilgrims unlike their older counterparts tended to be salience-perceiving likely goers ( $r = -.18$ ). The older the pilgrim, the more likely he was to be the Ulema reliant ( $r = .16$ ), and the risk-conscious non-goer ( $r = .23$ ). The age had no relationship with the Ulema-compliant non-going and the diehard going (cf. Table 8).

As shown in Table 8, the level of education had significant relationship with four of the five latent constructs; viz., the salience-perceiving likely going, the Ulema-compliant non-going, the risk-conscious going and the diehard going. Specifically, the higher the level of education, the lower the level of salience-perceiving likely going ( $r = -.13$ ). The higher the level of education, the higher the level of the Ulema-compliant non-going ( $r = .20$ ), and the risk-conscious non-going ( $r = .28$ ). The level of education correlated negatively with diehard-going ( $r = -.27$ ).

Tables 9 and 10 together report the findings on the 5<sup>th</sup> objective of the study. This particular objective aimed at determining the role of the ulema in the pilgrims' attitudes, perceptions, and behaviors of visiting the *Jabal* on the Hajj Day. The role of the Ulema in the present study are indexed by the factor scores on the latent dimensions of the pilgrims' reliance on the Ulema for information and their compliance with the fatwa on non-going to the *Jabal* on the Hajj Day. Tables 9 and 10 together report results of the standard multiple regression procedures wherein the factor scores on the three criterion dimensions; viz., the salience-perceiving likely going, the risk-conscious non-going, and the diehard going are simultaneously regressed on five demographic predictors and one predictor apiece of the pilgrims' reliance on the Ulema for information (Table 9) and their compliance with the Ulema's fatwa (Table 10).

Table 9 summarizes results of standard multiple regression procedures wherein the three criterion variables apiece were regressed on the demographic variables of regional origin, the level of education, age, marital status, whether performing Hajj with family members, and the factor scores for the pilgrims' reliance on the Ulema for information. For example, for the phenomenon of salience-based likely going in this 6-predictor model, regional origin and reliance on the Ulema for information are equally and strongly impactful after the effect of the other predictors are accounted for (cf. the beta values of .22 for each predictor). The impact is positive. For the risk-conscious non-going, reliance on the Ulema is the 3<sup>rd</sup> strongest influence (with the beta coefficient of  $-.15$ ) after the impact of the regional origin (beta coefficient of  $-.38$ ) and the educational level (beta =  $.20$ ). For the phenomenon of diehard going, the reliance on the Ulema for information wields the strongest positive influence (beta =  $.33$ ) after the effect of the rest of the five predictors is partialled out.

Table 10 describes the role of the Ulema in terms of the pilgrims' compliance with the Ulema's fatwa against going to the *Jabal* on the Hajj Day. Again in the three multiple regressions, we see that the compliance produces impact on risk-conscious non-going. Beta value of  $.24$  is the second highest beta

after the regional origin beta of -.46. This value says that one standard deviation unit increase in compliance amounts to .24 standard deviation units' increase in risk-conscious non-going. The impact on diehard going is the strongest with a beta value of -.44. Compliance with the Ulema's Fatwa is antithetical to diehard going.

An analysis of the standardized residuals indicated no noticeable departure from the linearity, multiple normality, and homoscedasticity assumptions. Less than one percent of the standardized residuals had values more than 2.58. The Cook's distance statistics and the leverage values were less than one and close to zeros. Hence the models fitted the data quite well. As for the generalizability of the models, the adjusted  $R^2$  values were compared with the  $R^2$  values for shrinkage. The adjusted  $R^2$  values minimally differed from the unadjusted  $R^2$ . The values of the Durbin-Watson statistics for all the models were within acceptable limits of 1 and 3 and thus supportive of the independence of errors assumption as well. The VIF values ranged between 1 and 2 and all were well below 2 and hence did not give any cause for concern for multicollinearity. In sum all these parameters indicated that the multiple regression models not only fitted the observed data well but also were safely generalizable to other samples from the same population.

## 5: Conclusion

### 5.1: Summary of the Main Findings

Given the study's broad research question that essentially involved examining the nature of the pilgrims' attitudes, perceptions, and behavior of visiting the *Jabal* on the Hajj Day and the above analysis of our data, our conclusion in broad maybe summarized as follows:

The phenomenon of the pilgrims' Hajj Day visit to the *Jabal* is not a monolithic construct. Rather, it is a complex phenomenon that may not be adequately accounted for by a single characteristic or trait may. Relative to this phenomenon, five broad categories of the pilgrims are identifiable in our sample. Firstly, there are those pilgrims that may be described as the diehard goers; i.e., those committed to going at all costs. These are those pilgrims who predominantly regard going as obligatory for a Hajj *al-Mabroor*, and for the acceptance of Zikr & dua, and would go there even at the cost of harming other pilgrims. These pilgrims are likely to be found among both the Arabic-speaking pilgrims from the Arab world and the Urdu-speaking pilgrims of the sub-continental origin. However, such pilgrims are somewhat more likely to be found among the Urdu-speaking sub-continental category of the pilgrims ( $r = .09$ ). This diehard category tends to be younger in age, less-educated and unmarried or single.

Secondly, there is a category of the pilgrims that we have described as a category of salience-perceiving likely or potential goers. These are those pilgrims who think that the Ulema recommend going to the *Jabal* on the Hajj Day and that most other people around them regard going as important. They get most of their information from their Hajj group and trust them as well. They feel upset about not being able to go as they regard climbing as an “afdhal” act. Like the diehard category, these pilgrims are more likely to be of the sub-continental origin, younger, less educated and single by marital status. Additionally, however, these pilgrims are likely to be performing Hajj unaccompanied by other members of the family.

Thirdly, our analysis identified a category of pilgrims we have labelled as the Ulema-reliant. These pilgrims get most of their information about going to the *Jabal* from their Ulema and from the neighborhood mosques. They are equally found in the two categories of the regional origin and across the well and the less educated categories. These pilgrims are more likely to be married and performing Hajj in the company of other family members. Additionally, these Ulema-reliant pilgrims may tend to think that going is important and is required for Hajj *al-Mabroor* (cf. Table 9).

Fourthly, our analysis has identified a category of pilgrims, we describe as the Ulema-compliant non-goers. This category comprises those pilgrims who believe that they will not go to the *Jabal* if the Ulema forbid going there for some reason, and who are willing to act according to the Fatwa of the Saudi Ulema on not going. These pilgrims prefer to spend time in dua/zikr than waste it in crowd congestion in the *Jabal* area. They also think that crowding on the Hajj Day poses a threat to Hajj *al-Mabroor*. The Ulema-compliant non-goers are predominantly of the sub-continental origin, and are likely to be better educated and are likely to be performing Hajj in the company of other family members. The Ulema-compliant category tends to be risk-conscious non-goers and is seldom characterized by diehard going.

Fifthly, among the pilgrims in our sample, we found a category that our study labels as risk-conscious non-goers category. These pilgrims are cautious and do not want to take physical or personal risks and thus put their Hajj in jeopardy. These pilgrims feel that crowd congestion in the *Jabal* area poses physical and personal risk to them and hence they are not in favor of going there. This category tends to be older, better educated, and married. These pilgrims are likely to be performing Hajj in the company of other family members and they predominantly belong to the Arabic-speaking region.

## 5.2: Recommendations

Now what does this tell us about the construct “going to the *Jabal* on the Hajj Day” examined in the present study. Clearly, the phenomenon is not an either or proposition but rather a complex conceptual continuum. The two ends of the continuum may be considered as two clear-cut behavioral outcomes of going and not going; viz., the diehard going pole and the other the non-going pole. The diehard going end is based on total disregard for any kind of risk and views going as part of Hajj *al-Mabroor* to be achieved perhaps at all costs. The opposite, the non-going, end of the continuum gives precedence to risk, both, the physical and the personal that can jeopardize the objectives of the Hajj itself. The space of the continuum between these two behavioral outcomes or poles of going may be said to be taken up by the pilgrims’ perceptions, information, attitudes, perceived risks and behavioral intentions.

It is this intermediate space of the pilgrims’ perceptions (attitudes and knowledge) that an information and communication campaign for crowd management would need to target. As per the results of our KAP survey, the role of the Ulema seems to be very critical here. It is the Ulema that impart information, create salience and seem to have the ability to produce compliance. The Ulema, as per our study have the ability to produce compliance in both the directions. By emphasizing salience they can influence going or by emphasizing risks in going they may influence non-going. In sum the components in the role of the Ulema that seem to matter most are: the use of correct information about the salience or non-salience of going, and the potential risks of going during crowd congestion and potential benefits in not going during crowd congestion.

The findings of the present study underscore that the messages for crowd management would need to rely to a great degree on the use of credible sources like Al-Quran, and the saying of the Prophet (PBUH) and the Ulema, on the use of informative or cognitive content from these sources, and on the affective or fear arousing appeals.

On the basis of the foregoing, and in view of the specific nature of our target audience, we propose the following about the kind of messages and the message structure and content for managing crowd congestion in the *Jabal* area on the Hajj Day:

1. An ambient communication approach should be used employing element of the physical environment (available physical surfaces) to convey very short messages.
2. The messages should utilize, as much as possible, the incentive for, and threats (risks) to Hajj *al-Mabroor*. And it should be made a core theme of the messaging strategy.
3. Individual messages should not be many, and long and differentiated but should be short, repetitive, and overlapping.
4. The messages should employ cognitive and affective appeals and employ credible sources like lines from Al-Quran, short sayings of the Prophet (PBUH), and “fatwas” of credible Saudi and non-Saudi Ulema.
5. Mere reproduction of verses from Al-Quran and the sayings of the Prophet (PBUH) are not enough. Rather these should be tied to the issue of visiting or not visiting.
6. The following one-liners may be taken as a direction pointer for developing main message-types containing cognitive (informative content) and affective (fear) appeals.
  - a. Make the most of your opportunity for *waqoof*. Spend time in Zikr/dua near your camps than waste it in crowd congestion. (Ulema).
  - b. Climbing the *Jabal* is not obligatory for Hajj *al-Mabroor* (Fatwa of the Ulema on crowding).
  - c. Crowd congestion in the *Jabal* area will harm you and risk your Hajj. Avoid going there. (Ulema).
  - d. The *Jabal* area is very crowded now. Do not go there. Be safe by staying close to your camps (Police).

(Note: Messages a, & b make cognitive/informative appeal & identify Ulema as a source; c, & d give examples of affective appeals. Messages c & d use fear/threat appeals, provide solution, and identify the Ulema & police as credible sources).

### **5.3: Future Research**

The one-liners proposed above are suggestible from the present study. A thoroughly scientific approach to any strategy of crowd management requires that these and other messages should first be tested for their prospective efficacy. Hence, we propose that another study be conducted utilizing pretest post-test control group design during forthcoming Hajj season. On the basis of the findings of that study a decision can be reached on the exact message content and structure for use in information and communication campaigns for crowd management in Arafaat. Additionally, other KAP surveys using the present study's design may be conducted for developing campaign strategies for other locations as well.

### **5.4: Beneficiary Agencies**

Potential beneficiaries may comprise agencies interested in crowd management. Such agencies might include:

1. Civil Defence Administration
2. Peace & Security Administration
3. Unit on Ordering Virtue and Forbidding Evil.

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**Table 1**

**Means and Standard Deviations of the Pilgrims' Perceptions & Attitudes on Visiting  
Jabal al-Rahmah on the Hajj Day, Full Sample**  
(Scale: 1=Strongly Disagree to 5=Strongly Agree)

Variables	Means (N)	S.D
1. I shall act as per the Saudi ulema fatwa on not going.	3.81 (490)	1.24
2. I shall not go to the <i>Jabal</i> area if the ulema forbid.	3.76 (495)	1.21
3. Crowd congestion on the Hajj Day risks Hall <i>al-Mabroor</i> .	3.57 (496)	1.31
4. I would spend time in <i>dua/zikr</i> than waste in crowd congestion.	3.56 (500)	1.31
5. I think most people regard visiting important.	3.51 (494)	1.25
6. I trust own sources of info on visiting the <i>Jabal</i> .	3.33 (493)	1.12
7. Most of my info on visiting is from the Ulema.	3.29 (498)	1.28
8. Most of my info on visiting comes from books.	3.29 (499)	1.28
9. I feel no risk in visiting the <i>Jabal</i> on Hajj day.	3.19 (490)	1.29
10. Climbing the <i>Jabal</i> on Hajj day is an " <i>afdhal</i> " act.	3.19 (493)	1.44
11. I think ulema recommend visiting the <i>Jabal</i> on Hajj day.	2.97 (491)	1.31
12. Going to <i>Jabal</i> is required for <i>dua/zikr</i> acceptance	2.82 (494)	1.38
13. I will feel upset if unable to visit the <i>Jabal</i> on Hajj day.	2.81 (494)	1.29
14. Most of my info on visiting <i>Jabal</i> is from my group.	2.79 (496)	1.22
15. I intended to climb the <i>Jabal</i> but could not.	2.78 (499)	1.44
16. I favor going regardless of personal & physical risks.	2.56 (496)	1.35
17. Most of my info is from the Masjid in my area.	2.54 (495)	1.17
18. Going to <i>Jabal</i> is required for Hajj <i>al-Mabroor</i> .	2.52 (492)	1.33
19. I went to the <i>Jabal</i> because my group wanted to go.	2.49 (491)	1.28
20. Most of my info on visiting is from mass media/Internet	2.34 (495)	1.16
21. I went to <i>Jabal</i> because my camp was near the <i>Jabal</i> .	2.16 (493)	1.07
22. I favor going to <i>Jabal</i> regardless of harming others.	1.74 (498)	.90

**Means and Standard Deviations of the Pilgrims' Perceptions & Attitudes on Visiting Jabal al-Mabroor on the Hajj Day, Fall Sample**  
(Scale: 1=Strongly Disagree to 5=Strongly Agree)

Variables	Means (N)	S.D
1. I shall act as per the Saudi ulema fatwa on not going.	3.81 (490)	1.24
2. I shall not go to the <i>Jabal</i> area if the ulema forbid.	3.76 (495)	1.21
3. Crowd congestion on the Hajj Day risks Hall <i>al-Mabroor</i> .	3.57 (496)	1.31
4. I would spend time in <i>dua/zikr</i> than waste in crowd congestion.	3.56 (500)	1.31
5. I think most people regard visiting important.	3.51 (494)	1.25
6. I trust own sources of info on visiting the <i>Jabal</i> .	3.33 (493)	1.12
7. Most of my info on visiting is from the Ulema.	3.29 (498)	1.28
8. Most of my info on visiting comes from books.	3.29 (499)	1.28
9. I feel no risk in visiting the <i>Jabal</i> on Hajj day.	3.19 (490)	1.29
10. Climbing the <i>Jabal</i> on Hajj day is an " <i>afdhal</i> " act.	3.19 (493)	1.44
11. I think ulema recommend visiting the <i>Jabal</i> on Hajj day.	2.97 (491)	1.31
12. Going to <i>Jabal</i> is required for <i>dua/zikr</i> acceptance	2.82 (494)	1.38
13. I will feel upset if unable to visit the <i>Jabal</i> on Hajj day.	2.81 (494)	1.29
14. Most of my info on visiting <i>Jabal</i> is from my group.	2.79 (496)	1.22
15. I intended to climb the <i>Jabal</i> but could not.	2.78 (499)	1.44
16. I favor going regardless of personal & physical risks.	2.56 (496)	1.35
17. Most of my info is from the Masjid in my area.	2.54 (495)	1.17
18. Going to <i>Jabal</i> is required for Hajj <i>al-Mabroor</i> .	2.52 (492)	1.33
19. I went to the <i>Jabal</i> because my group wanted to go.	2.49 (491)	1.28
20. Most of my info on visiting is from mass media/Internet	2.34 (495)	1.16
21. I went to <i>Jabal</i> because my camp was near the <i>Jabal</i> .	2.16 (493)	1.07
22. I favor going to <i>Jabal</i> regardless of harming others.	1.74 (498)	.90

Variables		Means (N)	S.D
1.	I shall act as per the Saudi ulema fatwa on not going.	3.86 (431)	1.17
<b>Zero-order Correlations of KAP items on Visiting the <i>Jabal</i> on Hajj Day with Demographic Variables,</b>			
2.	I shall not go to the <i>Jabal</i> area if the ulema forbid.	3.74 (437)	1.19
3.	I would spend time in <i>dua/zikr</i> than waste in crowd congestion.	3.52 (441)	1.29
4.	I think most people regard visiting important.	3.50 (435)	1.26
5.	I trust own sources of info on visiting the <i>Jabal</i> .	3.30 (434)	1.13
6.	Most of my info on visiting is from the Ulema.	3.36 (439)	1.28
7.	Most of my info on visiting comes from books.	3.34 (440)	1.21
8.	Climbing the <i>Jabal</i> on Hajj day is an " <i>afdhal</i> " act.	3.16 (434)	1.42
9.	I feel no risk in visiting the <i>Jabal</i> on Hajj day.	3.11 (432)	1.26
10.	I think ulema recommend visiting the <i>Jabal</i> on Hajj day.	2.93 (433)	1.48
11.	I will feel upset if unable to visit the <i>Jabal</i> on Hajj day.	2.75 (435)	1.28
12.	Most of my info on visiting <i>Jabal</i> is from my group.	2.74 (437)	1.18
13.	I intended to climb the <i>Jabal</i> but could not.	2.69 (440)	1.38
14.	Going to <i>Jabal</i> is required for <i>Dua/Zikr</i> acceptance.	2.66 (435)	1.31
15.	I favor going regardless of personal & physical risks.	2.45 (437)	1.30
16.	Most of my info is from the <i>Masjid</i> in my area.	2.59 (436)	1.17
17.	I went to the <i>Jabal</i> because my group wanted to go.	2.52 (432)	1.26
18.	Going to <i>Jabal</i> is required for Hajj <i>al-Mabroor</i> .	2.42 (434)	1.26
19.	Crowd congestion on the Hajj Day risks Hajj <i>al-Mabroor</i> .	2.42 (434)	1.26
20.	Most of my info on visiting is from mass media/Internet	2.36 (436)	1.13
21.	I went to <i>Jabal</i> because my camp was near the <i>Jabal</i> .	2.22 (434)	1.10
22.	I favor going to <i>Jabal</i> regardless of harming others.	1.75 (439)	.89

**Table 4**  
**Summary of Factor Analysis Results for the Pilgrims' Attitudes & Perceptions on Visiting the**  
**Jabal al-Rahmah on the Hajj Day**

Item	Demographic Variables				
	Regional Origin	Age	Educ.	Marital Status	with Fam.
1. I shall act as per the Saudi ulema fatwa on not going.	.36	-.01	-.01	.02	-.19
2. I shall not go to the <i>Jabal</i> area if the ulema forbid.	.13	-.02	.17	.06	-.07
3. Crowd congestion on Hajj day risks Hajj al-Mabroor.	.19	.05	.15	.02	-.06
4. I would spend time in <i>dua/zikr</i> than waste in crowding.	.17	-.02	.09	.01	-.07
5. I think most people regard visiting important.	-.07	-.06	-.12	.10	.12
6. I trust own sources of info on visiting the <i>Jabal</i> .	.16	-.03	-.02	.02	.00
7. Most of my info on visiting is from the Ulema.	.00	.22	.14	-.23	-.19
8. Most of my info on visiting comes from books.	.16	.08	.11	-.09	-.08
9. I feel no risk in visiting the <i>Jabal</i> on Hajj day.	.37	-.15	-.19	.13	.09
10. Climbing the <i>Jabal</i> on Hajj day is an " <i>afdhal</i> " act.	.41	-.10	-.20	.12	-.05
11. I think ulema recommend visiting the <i>Jabal</i> on Hajj day.	.29	-.15	-.07	.18	.04
12. Going to <i>Jabal</i> is required for <i>dua/zikr</i> acceptance	.06	-.13	-.20	.25	.10
13. I will feel upset if unable to visit the <i>Jabal</i> on Hajj day.	-.01	-.20	-.28	.13	.19
14. Most of my info on visiting <i>Jabal</i> is from my group.	.15	-.13	-.12	.15	.10
15. I intended to climb the <i>Jabal</i> but could not do so.	.23	-.04	-.04	.11	-.05
16. I favor going regardless of personal & physical risks.	.22	-.24	-.25	.25	.19
17. Most of my info is from the Masjid in my area.	-.08	.14	-.07	-.14	.01
18. Going to <i>Jabal</i> is required for Hajj al-Mabroor.	.06	.01	-.17	.06	-.02
19. I went to the <i>Jabal</i> because my group wanted to go.	-.14	.05	-.09	.04	-.02
20. Most of my info on visiting is from mass media/Internet	.07	.14	.11	-.12	-.12
21. I went to <i>Jabal</i> because my camp was near the <i>Jabal</i> .	-.13	.19	.01	-.09	-.07
22. I favor going to <i>Jabal</i> regardless of harming others.	-.07	.06	-.16	.00	.06

Note: Coefficients  $\geq .10$  are significant at  $p < .05$  (2-tailed).

Items	F1	F2	F3	F4	F5
1. I think ulema recommend visiting the <i>Jabal</i> on Hajj day.	.57				
2. I think most people regard visiting important.	.52				
3. Most of my info on visiting <i>Jabal</i> is from the Ulema.	.50				
4. I trust own sources of info on visiting the <i>Jabal</i> .	.50				
5. I will feel upset if unable to visit the <i>Jabal</i> on Hajj day.	.44				
6. Climbing the <i>Jabal</i> on Hajj day is an “ <i>afdhal</i> ” act.	.39				
7. I shall not go to the <i>Jabal</i> area if the ulema forbid.		.58			
8. I shall act as per the Saudi ulema fatwa on not going.		.53			
9. I would spend time in <i>dua/zikr</i> than waste in congestion.		.35			
10. Crowd congestion on the Hajj day risks Hajj al-Mabroor.		.30			
11. Going to <i>Jabal</i> is required for Hajj al-Mabroor.			.82		
12. Going to <i>Jabal</i> is required for <i>dua/zikr</i> acceptance.	.30		.60		
13. I favor going to <i>Jabal</i> regardless of harming others.			.27		
14. Most of my info on visiting is from the Ulema.				.57	
15. Most of my info is from the Masjid in my area.				.51	
16. I feel no risk in visiting the <i>Jabal</i> on Hajj day.					-.55
17. I favor going regardless of personal & physical risks.			.34		-.52
<b>Eigenvalues (after extraction)</b>	3.13	1.24	0.72	0.65	0.49
<b>% of Explained Variance (after extraction)</b>	<b>18.43</b>	<b>7.32</b>	<b>4.21</b>	<b>3.82</b>	<b>2.90</b>

Note: Factor loadings of < .30 are not shown for being insignificant contributors to the Factors. F1: Salience Perceivers (likely goers) ; F2: Ulema compliant non-goers; F3: Diehard goers; F4: Ulema reliant; F5: Risk Conscious non-goers.

Factors →	1	2	3	4	5
↓					
<b>1. Saliency Perceivers/Likely Goers</b>	<b>1</b>				
<b>2. Ulema-compliant Non- goers</b>	<b>.03</b>	<b>1</b>			
<b>3. Diehard Goers</b>	<b>.30</b>	<b>-.32</b>	<b>1</b>		
<b>4. Ulema Reliant</b>	<b>.09</b>	<b>-.20</b>	<b>.19</b>	<b>1</b>	
<b>5. Risk-conscious Non- goers</b>	<b>-.20</b>	<b>.05</b>	<b>-.29</b>	<b>-.07</b>	<b>1</b>

**Table 6**  
**Summary of Factor Analysis Results for the Pilgrims' Attitudes & Perceptions on Visiting the**  
***Jabal al-Rahmah* on the Hajj Day**

<b>Factor Pattern Matrix (N=392, non-Jabal sub-sample)</b>							
<b>Items</b>		<b>F1</b>	<b>F2</b>	<b>F3</b>	<b>F4</b>	<b>F5</b>	<b>F6</b>
1.	I think most people regard visiting important.	.78					
2.	I think ulema recommend visiting the <i>Jabal</i> on Hajj day.	.46					
3.	I will feel upset if unable to visit the <i>Jabal</i> on Hajj day.	.44					
4.	I would rather spend time in <i>dua/zikr</i> than waste it in crowd congestion in the <i>Jabal</i> area.	-.39					
5.	Climbing the <i>Jabal</i> on Hajj day is an " <i>afdhal</i> " act.	.36					
6.	Most of my info on visiting <i>Jabal</i> is from my group.	.34					
7.	Crowd congestion on the Hajj day risks Hajj al-Mabroor.		.71				
8.	I trust own sources of info on visiting the <i>Jabal</i> .		.46				
9.	Most of my info on visiting is from the Ulema.			.67			
10.	Most of my info is from the Masjid in my area.			.49			
11.	I shall act as per the Saudi ulema fatwa on not going.				.63		
12.	I shall not go to the <i>Jabal</i> area if the ulema forbid.				.62		
13.	I feel no risk in visiting the <i>Jabal</i> on Hajj day.					-.58	
14.	I favor going regardless of personal & physical risks.					-.52	
15.	Going to <i>Jabal</i> is required for Hajj al-Mabroor.						.74
16.	Going to <i>Jabal</i> is required for <i>dua/zikr</i> acceptance						.61
17.	I favor going to <i>Jabal</i> regardless of harming others						.41
<b>Eigenvalues (after extraction)</b>		<b>3.34</b>	<b>1.32</b>	<b>0.72</b>	<b>0.68</b>	<b>0.62</b>	<b>0.57</b>
<b>% of Explained Variance (after extraction)</b>		<b>19.65</b>	<b>7.77</b>	<b>4.25</b>	<b>4.00</b>	<b>3.67</b>	<b>3.35</b>

Note: Factor loadings of < .30 are not shown for being insignificant contributors to the Factors. F1: Saliency Perceivers (likely goers) ; F2: Source-trusting risk-conscious; F3: Ulema reliant; F4: Ulema compliant non-goers; F5: Risk Conscious non-goers; F6 Diehard goers



**Table 7**  
**Factor Correlation Matrix**  
**(Non-Jabal sub-sample, N= 392)**

Factors → ↓	1	2	3	4	5	6
1. Salience Perceivers/Likely Goers	.1					
2. Source-trusting Risk-conscious	.13	1				
3. Ulema-reliant	-.27	-.02	1			
4. Ulema-compliant Non-goers	-.05	.21	.03	1		
5. Risk-conscious Non-goers	-.31	-.06	-.14	.07	1	
6. Diehard Goers	.32	-.08	.14	-.22	-.27	1

**Table 8**  
**Zero-order Correlations of Types of Pilgrims in Terms of Attitudes about Visiting the**  
***Jabal* on Hajj Day with Demographic Variables, (N= 439)**

Factors ↓	Demographic Variables				
	Regional Origin	Age	Educ.	Marital Status	Hajj with Family
1. Saliency Perceivers/Likely Goers	.26	-.18	-.13	.20	-.13
2. Ulema-reliant	-.02	.16	-.05	-.19	-.11
3. Ulema-compliant Non-goers	.35	.03	.20	.00	-.20
4. Risk-conscious Non-goers	-.41	.23	.28	-.21	-.13
5. Diehard Goers	.09	-.09	-.27	.17	.07

Note:  
 Coefficient value of .11 is significant at  $p < .05$ ; and values of .13 are significant at  $p < .01$ .

**Table 9**

**Impact of the Demographic Predictors & the Reliance on Ulema for Information on the Criterion Sub-dimensions of Going to *Jabal al-Rahmah* on the Hajj Day (N=439)**

Predictors	Criterion Variables		
	Likely Goers	Risk Conscious Non-goers	Diehard Goers
	$\beta$	$\beta$	$\beta$
1. Regional Origin (1=Arabs, 2= Non-Arabs).	.22**	-.38**	.03
2. Education Completed	-.13**	.20**	-.21**
3. Age in Years	-.09	.12*	-.00
4. Marital Status (1=Married, 2=Single).	.13*	-.02	.18**
5. Performing Hajj with Family.	-.10*	-.13**	.04
6. Reliance on Ulema for Information on Visiting the <i>Jabal</i> on the Hajj Day.	.22**	-.15**	.33**
<b>R<sup>2</sup> %</b>	18.0	27.0	20.0

\*  $p < .05$ ; \*\*  $p < .01$

Table 10

**Impact of the Demographic Predictors & the Compliance of the Ulema's Fatwa on the Criterion Sub-dimensions of Going to *Jabal al-Rahmah* on the Hajj Day (N=439)**

Predictors	Criterion Variables		
	Likely Goers	Risk Conscious Non-goers	Diehard Goers
	$\beta$	$\beta$	$\beta$
1. Regional Origin (1=Arabs, 2= Non-Arabs).	.24**	-.46**	.19**
2. Education Completed	-.13**	.15**	-.13**
3. Age in Years	-.08	.09	.04
4. Marital Status (1=Married, 2=Single).	.09	-.00	.15**
5. Performing Hajj with Family.	.08	-.10*	-.03
6. Compliance of the Ulema's Fatwa on not Visiting the <i>Jabal</i> on the Hajj Day.	-.06	.24**	-.44**
<b>R<sup>2</sup> %</b>	14.0	30.0	25.0

\*  $P < .05$ ; \*\*  $p < .01$

## Appendix



**Questionnaire:**

**Crowd Management in the *Jabal al-Rahmah* Area in Arafaat: A KAP Survey**

- 1. CASE NUMBER ( )
- 2. INTERVIEWER NUMBER ( )
- 3. DATE OF THE INTERVIEW ( )
- 4. Place of Interview (1. Jabal al-Rahmah 2. Mina Area 3. Bob Abdul Aziz Area  
4. Bob Fahd Area 5. Bob Omrah Area 6. Bob Abdullah Area  
7. Safaa/Marwa side)

**Filter Question**

- 5. On the Hajj Day, did you visit or intend to visit *Jabal al-Rahmah* or the area around it?
  - 1. Yes
  - 2. No

**(Continue if the answer is yes otherwise look for another case.)**

- 6. Did you climb the *Jabal al-Rahmah* on the Hajj Day?
  - 1. Yes
  - 2. No
- 7. What is your nationality? \_\_\_\_\_
- 8. How old are you? ( ) Years Old
- 9. Your Marital Status?
  - 1. Married
  - 2. Unmarried
- 10. Are any of your family members performing hajj with you?
  - 1. Yes
  - 2. No
- 11. Have you performed Hajj before?
  - 1. Yes
  - 2. No
- 12. Education Completed
  - 1. Religious Education only
  - 2. No Formal Schooling
  - 3. Secondary School
  - 4. Higher Secondary

5. Bachelor
6. Master or above
7. Any other degree
9. Do not know

13. Now I will read a few opinion statements before you. Tell me how much do you agree or disagree with each of the opinion. Do you strongly disagree, disagree, feel neutral, agree or strongly agree with each of these. (There is no right or wrong answer; I only need to know your degree of agreement with each).

		Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5	Don't Know 9
1	I intended to climb the Mount on the Hajj Day but could not do so.						
2	I think it is better to spend time in dua/Zikr rather than waste time in heavy crowd in the Mount Arafat area on the Hajj Day.						
3	I think going to Mount Arafat on the Hajj Day is not required for a Hajj al-Mabroor.						
4	I went to the Mount on the Hajj Day because my group or friends wanted to go there.						
5	I went to the Mount Arafat on the Hajj Day because my camp was very close to it.						
6	I am in favor of going to the Mount Ararat on the Hajj Day despite personal & physical risks to me.						
7	I am in favor of visiting the Mount Arafat on the Hajj Day even if I risk harming other pilgrims in crowd congestion.						



8	I will not go to <i>Mount Arafat</i> or the area around it on the Hajj day if the Ulema forbid going there for some reason.						
		<b>Strongly Disagree</b> <b>1</b>	<b>Disagree</b> <b>2</b>	<b>Feel Neutral</b> <b>3</b>	<b>Agree</b> <b>4</b>	<b>Strongly Agree</b> <b>5</b>	<b>Don't Know</b> <b>9</b>
9	If I could not go to <i>Mount Arafat</i> on the Hajj Day, I will be upset.						
10	I do not feel any physical or religious risk in climbing <i>Mount Arafat</i> on the Hajj Day.						
11	I think climbing the Mount on the Hajj day is an <i>Afdhal</i> act.						
12	I trust the sources of my information on visiting Mount Arafat on the Hajj Day						
13	Most people around me think going to Mount Arafat on the Hajj Day is important.						
14	Our religious scholars recommend going to Mount Arafat on the Hajj Day.						
15	I think digital screens are not a good means of informing the pilgrims on the Hajj Day about crowd congestion in the Mount Arafat area.						
16	Most of my info on visiting Jabal on Hajj Day comes from discussions in my Hajj group.						
17	Most of my info. on visiting Mount Arafat on the Hajj Day comes from our religious scholars.						
18	Most of my information on visiting Mount Arafat on the Hajj Day comes from the mass media (TV, radio, newspapers, Internet etc.).						



19	Most of my information on visiting Mount Arafat on the Hajj Day comes from the Masjid in my area.						
20	If Saudi Ulema tell me not to visit Mount Arafat for some reason, I shall act accordingly.						
		<b>Strongly Disagree</b> <b>1</b>	<b>Disagree</b> <b>2</b>	<b>Feel Neutral</b> <b>3</b>	<b>Agree</b> <b>4</b>	<b>Strongly Agree</b> <b>5</b>	<b>Don't Know</b> <b>9</b>
21	Most of my info. about visiting the Mount Arafat on the Hajj Day comes from the books I have read.						
22	I think my going to Mount Arafat on the Hajj Day is required for the acceptance of Zikr & duas.						
23	I think places of crowd congestion on Hajj Day in Arafat can be risky for the attainment of Hajj al-Mabroor.						

**Thank You & Hajj Mubarak to you**

