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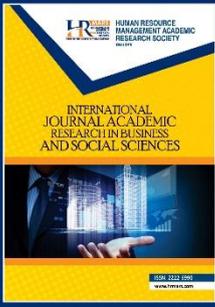
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## Development of Umum Al-Balwa Parameter for Pandemic Sop: The Fuzzy Delphi Approach

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### Abstract

This study sought consensus and expert opinions on the umum al-balwa parameter for a pandemic crisis, as well as to produce SOP recommendations. This study used the Fuzzy Delphi approach using a 7 Likert scale to collect comments from 7 experts in various

disciplines of education at Malaysian public universities and medical specialists at the Malaysian Ministry of Health. Experts were given a five-item questionnaire to evaluate. For data analysis, the Fuzzy Delphi approach was utilized. Data were evaluated using triangular fuzzy numbering (triangular fuzzy number), and each variable's location (ranking) was established using the 'defuzzication' procedure. The findings reveal that the response and expert consensus on the umum al-balwa criteria for a pandemic crisis and the development of SOP guidelines. The total expert consensus agreement findings exceed 97%, the overall value of the threshold ( $d$ ) 0.2, and  $a$ -cut exceeds 0.5. The priority guidelines aspects were prioritized and improved by adding and removing items as experts indicated.

**Keywords:** Parameter, Umum Al-Balwa, Pandemic, Model Development, Fuzzy Delphi

## Introduction

If you look at the definition of umum al-balwa, the scholars (as Al-Suyuti) purposefully do not explain it because the definition is dynamic rather than static. This is due to the fact that umum al-balwa applies to all issues concerning mukallaf, whether from the standpoint of worship or muamalah. The description of the application of umum al-balwa in Al-Ashbah wa al-Nazi'r shows that the majority of it is ra'yi (view), with only a few exceptions based on clear evidence. According to al-Zuhailiy, Umum al-balwa refers to the prevalence of a calamity that makes it difficult for humans to escape or avoid (Al-Zuhailiy, 1985). Since umum al-balwa is included in matters that lead to relief (murakkhis), the question arises as to what level of mashaqqah or challenges can be considered umum al-balwa. Some scholars divide the rates or levels of mashaqqah and are able to relate it to umum al-balwa. Consequently, when a pandemic such as COVID-19 swept the globe, it had a negative impact not only on people's health, but also on their economic, social, and religious behaviour. The government has taken preventative measures to reduce the infection rate among the population by implementing standard operating procedures (SOPs) in its daily operations. Early on, the shifting regulations and SOPs caused confusion and disagreements between the community and the responsible agencies. This can be addressed if there is a disaster management guideline that is pertinent to SOPs.

## Objective

This research will produce a model of parameters based on three objectives

- Finding umum al-balwa parameters in the context of the pandemic
- Examining the perspectives of academics and physicians in creating umum al-balwa parameters.
- Creating a umum al-balwa parameter model that can be used in SOP development.

## Methodology

Specifically, the Fuzzy Delphi Method is utilized in this study (FDM). This study was chosen because it offers a unique method to obtain professional approval for a particular decision. This study's questionnaire elements were developed in two phases, beginning with a literature review. In the first of two phases for the development of this study's questionnaire sections, the researcher conducts a literature review to determine the elements necessary for adopting DP. consult table 1.

In the second stage, the researcher prepares a 5-item expert questionnaire. This expert questionnaire is then distributed to seven experts with diverse areas of expertise and analyzed using the Fuzzy Delphi (FDM) technique. By reviewing the literature, the researchers

developed certain features or concepts that authorities can use while implementing DP. The following are the guidelines' components:

Table 1

*Umum al-balwa Parameter*

No	Construct	Guideline elements
1	<i>Umum al-balwa</i>	1) Public Unrest 2) Disturbance 3) Equal Difficulty 4) Look At the Current ' <i>Uruf</i> 5) Emergency

Sources: Workshop 3

*Research Sampling*

This study used purposeful sampling. This method is ideal when the researcher is attempting to get an agreement on a specific topic. According to Hasson, Keeney, and McKenna (2000), selective sampling is the best strategy for FDM. Meanwhile, 7 specialists were involved in this study. Table 2 lists the experts exactly as they are. These experts were picked for their knowledge and competence in their respective professions. If the experts involved in this study are all the same, then 5-10 specialists are required.

According to Sforza and Ortolano (1984), the sample for FDM is between 8 and 12 if the sample is homogeneous and sufficient, and Philip (2000) indicated that the sample of experts is between 7 and 12. However, due to the difficulty in obtaining a response from an expert and the time constraints that hampered the data collection process, the researcher used a total of seven experts in this study. 7 expert samples, on the other hand, are sufficient to get information and expert agreement.

Table 2

*Expert List*

Expert list	Field of expertise	Institution
2 Medical specialist	Public Health/ Disease Control and Prevention	Malaysia Ministry of Health
2 Ass. Professor	Principles of Islamic jurisprudence/ intentions of Shariah	Public University
2 Senior lecturers	Principles of Islamic jurisprudence	Private University
1 Expertise field	Researcher JAKIM	Malaysia Ministry of Religion

*Expert Criteria*

Cantrill et al (1996) describe an expert as "someone who has competence or knowledge in a specific topic or issue." Expert selection becomes one of the most important variables to

consider in the Fuzzy Delphi investigation. According to Booker and Mc Namara, experts are informed individuals who have knowledge as a result of their education, practice, and experience 2004. Specialists are often recognized based on their credentials, education, job history, professional affiliations, and peer recognition (Nikolopoulos, 2004; Perera et al., 2012).

Issues such as the validity, and reliability of the analysis and findings can be contested if experts are chosen incorrectly and based on specific criteria (Mustapha & Darusalam, 2017). Essentially, the quality, accuracy, and credibility of the results obtained using the Delphi or Fuzzy Delphi method are determined by the selection of experts and the accuracy of the selection of experts. According to (Dalkey & Helmer, 1963; Linstone, 2002), in order to achieve the meaning, accuracy, and quality of Delphi results, research problems and survey questions must have continuity with the importance, knowledge with the experts involved. Furthermore, every expert involved in the study, according to Kaynak and Macauley (1984), must represent or be knowledgeable about the field or subject being studied. Based on very strict selection criteria, the researcher selects experts with 7 years of experience or more, as well as experts who are exactly right for their field of expertise and the study.

### Instrumentation

Based on the research literature, the Fuzzy Delphi research instrument was utilised. In the meantime, this research is analysing Fuzzy Delphi method elements using research highlights, expert interviews, and focus groups. In addition, Okoli and Pawlowski (2004) state that a literature review pertinent to the study's scope should precede the development of items and content elements. Therefore, to identify the components of DP, researchers consult the relevant literature. Using a seven-point scale, a series of expert questions is then formulated. The decision was made to use a 7-point scale because the more scales used, the more precise and accurate the results (Chen et al., 2011). In order to make it easier for specialists to respond to the questionnaire, the researcher replaced the fuzzy value for the following seven-point linguistic scale with a scale value ranging from 1 to 7.

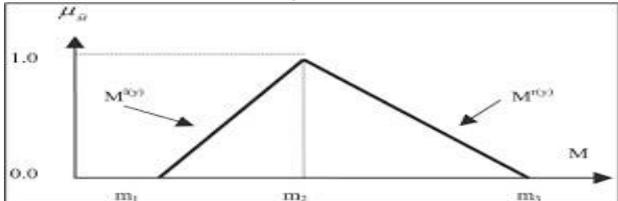
Table 3

#### *Fuzzy Scale*

Item	Fuzzy Number
Strongly Disagree	(0.0, 0.0, 0.1)
Disagree	(0.0, 0.1, 0.3)
Somewhat Disagree	(0.0, 0.3, 0.5)
Neither agree or disagree	(0.3, 0.5, 0.7)
Somewhat agree	(0.5, 0.7, 0.9)
Agree	(0.7, 0.9, 1.0)
Strongly agree	(0.9, 1.0, 1.0)

Table 4

*Steps In Implementing Fuzzy Delphi Method*

Step	Formulation
1. Expert selection	Seven professionals were employed for this analysis. The importance of the 5 items to be measured, as well as descriptions of any underlying principles that may exist in the item, were determined with the help of a panel of experts.
2. Determining Fuzzy scale	<p>First, we have to change the 5 UBPs into fuzzy triangle numbers (triangular fuzzy numbers). We also change a UBP with 5 elements at this point by adding fuzzy numbers (Hsieh, Lu and Tzeng, 2004). In a triangular fuzzy number, the following notation represents the values <math>m_1</math>, <math>m_2</math>, and <math>m_3</math>: <math>(m_1, m_2, m_3)</math>. Minimum (<math>m_1</math>) is the lowest value that can be used, reasonable (<math>m_2</math>) is the middle, and maximum (<math>m_3</math>) is the highest value that can be used. Using a Fuzzy Scale made from Triangular Fuzzy Numbers, the 5 elements of UBP are turned into fuzzy numbers. The number of groups on the fuzzy scale is not even. FIGURE 1: This is an example of</p>  <p>Figure 1: Triangular fuzzy number</p>
3. The Determination of DP Elements and Average Responses	Once the researcher has received feedback from the chosen expert, all likert scales must be changed to fuzzy scales. This strategy is also known as identifying the average answer of each fuzzy number (Benitez, Martin & Roman, 2007).
4. The determination of threshold value "d"	<p>The threshold value is critical when determining the degree of agreement among specialists (Thomaidis, Nikitakos &amp; Dounias, 2006). For each fuzzy number, <math>m = (m_1, m_2, m_3)</math> and <math>n = (n_1, n_2, n_3)</math>, the distances are determined using the following formula:</p> $d(\bar{m}, \bar{n}) = \sqrt{\frac{1}{3} [(m_1 - n_1)^2 + (m_2 - n_2)^2 + (m_3 - n_3)^2]}$

5. Identify the alpha cut aggregate level of fuzzy assessment	Once a fuzzy number for each object has been assigned and an expert consensus has been established (Ridhuan, 2013). To calculate and determine fuzzy values, use the following formula: $A_{max} = (1) / 4 (m_1 + 2m_2 + m_3)$
6. Difuzzication process	<p>The equation <math>A_{max} = (1) / 4 (a_1 + 2a_m + a_3)</math> is used in this operation. If the researcher uses average or fuzzy averages, the resulting score will be between 0 and 1 (Ridhuan et al. 2014). This procedure employs three formulas:</p> <ul style="list-style-type: none"> <li>i. <math>A = 1/3 * (m_1 + m_2 + m_3)</math>, or</li> <li>ii. <math>A = 1/4 * (m_1 + 2m_2 + m_3)</math>, or</li> <li>iii. <math>A = 1/6 * (m_1 + 4m_2 + m_3)</math>.</li> </ul> <p>A-cut value is the median value between "0" and "1," and <math>\alpha</math>-cut is equal to <math>(0 + 1) / 2 = 0.5</math>. The item will be discarded if the resulting A value is less than the <math>\alpha</math>-cut value = 0.5 since it does not reflect expert agreement. Bojdanova (2006) believes that the alpha cut value ought to be larger than 0.5. Tang &amp; Wu (2010), who indicated that the <math>\alpha</math>-cut value should be bigger than 0.5, backed up their claim.</p>
7. Ranking process	The positioning of elements is determined by defuzzication values that have been agreed upon by experts, with the element with the highest value being placed in the position of most importance (Fortemps & Roubens, 1996)

## Finding

Table 5

### Finding Of Expert Consensus Of The UBP Elements

Results	Item1	Item2	Item3	Item4	Item5
Expert1	0.05774	0.06598	0.06598	0.07423	0.05774
Expert2	0	0.00825	0.00825	0.0165	0
Expert3	0	0.00825	0.06598	0.0165	0
Expert4	0	0.06598	0.00825	0.0165	0
Expert5	0.11547	0.10722	0.10722	0.0165	0.11547
Expert6	0.05774	0.06598	0.06598	0.07423	0.05774
Expert7	0	0.10722	0.10722	0.21444	0

Statistics	Item1	Item2	Item3	Item4	Item5
Value of the item	0.03299	0.06127	0.06127	0.06127	0.03299
Value of the construct					0.04996
Item < 0.2	7	7	7	6	7
% of item < 0.2	100%	100%	100%	85%	100%

<b>Average of % consensus</b>					<b>97</b>
<b>Defuzzification</b>	<b>0.9</b>	<b>0.88571</b>	<b>0.88571</b>	<b>0.87143</b>	<b>0.9</b>
<b>Ranking</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>
<b>Status</b>	<b>Accept</b>	<b>Accept</b>	<b>Accept</b>	<b>Accept</b>	<b>Accept</b>

Analysis of the data revealed that the threshold value was greater than the threshold value of 0.5. (see table 5). This suggests that there are professionals with similar perspectives or even consensus on some issues. The mean value of all UBP components exceeds the threshold (d). The total level of expert agreement, which is greater than (>75%) and equal to (100%) percent, satisfies the expert agreement requirements for this item. In addition, all Alpha-Cut defuzzification values (mean of fuzzy response) are greater than  $\alpha$ -cut  $\Rightarrow$  0.5. The alpha cut value must be greater than 0.5; otherwise, it must be discarded (Tang & Wu, 2010; Bojdanova, 2006). The results of this analysis indicate that there is substantial agreement among experts regarding the UBP elements. According to priority (ranking), the items selected by consensus of the experts are listed in Table 6.

Table 6

Final *Umum al-balwa* Parameter (UBP) Guideline Based On Expert Consensus

New rank	Previous rank	Guideline of <i>Umum al-balwa</i> Parameter based on expert consensus and Item rank (see the table 5 result)
1	1	Public Unrest
	5	Emergency
2	2	Disturbance
	3	Equal Difficulty
3	4	Look At the Current ' <i>Uruf</i>

### Discussion & Conclusion

The COVID-19 pandemic outbreak is a serious issue with far-reaching consequences for everyday life. Researchers are working to develop standard operating procedures (SOPs) that can be implemented to make daily life easier in the event of a pandemic. Although standard operating procedures (SOPs) have been in place since the outbreak, some communities prefer the old practices and thus feel compelled to adopt SOPs as the new norm. However, the established SOP has raised concerns about its necessity, usefulness, and consistency. Changes in regulations and SOPs cause confusion and disagreements among members of the community and relevant agencies. This issue can be addressed if there is a disease disaster management guideline, particularly one related to SOP. As a result, this study established a solid support model for government agencies, particularly in terms of developing clearer and more efficient rules and SOPs. Furthermore, private agencies and the community can be assisted in acting effectively and with clarity in the face of impending challenges.

Formulate *umum al-balwa* parameter guidelines that the authority can use based on table 6 and expert consensus. Understanding each element of the *umum al-balwa* parameters in relation to the stages of the study results is a critical aspect of putting this SOP model into action. The first component of dhaar is lethal. As a result, when determining the priority of SOP actions, consider the factors that endanger human life first. The factors that can affect

public health are the second component of *umum al-balwa*. The third component of *umum al-balwa* is made up of four variables, the first of which causes the patient's recovery to be delayed. Infectious diseases, outbreaks, and viruses comprise the second factor. The psychological and emotional issues are the third factor. The fourth factor is the infectiousness of viruses and illnesses. Individual income loss is the fourth aspect of *umum al-balwa*. Worry or fear is the fifth component of *umum al-balwa*. The economic recession is the sixth component of *umum al-balwa*. The seventh factor of need is a lack of facilities and energy in the health industry.

Create a comprehensive guideline based on the five parameters of *umum al-balwa*. Using information, an *umum al-balwa* parameter model for SOP development during a pandemic can be created. At this point, the five levels of control established to prevent the spread of the 2019 Coronavirus illness (COVID-19) for the benefit of the public can be used as a reference by authoritative parties such as the government and commercial agencies when developing rules or SOPs. Orders that must be followed include Movement Control Orders (MCO), Enhanced Movement Control Orders (EMCO), Targeted Enhanced Movement Control Orders (TEMCO), Conditional Movement Control Orders (CMCO), and Recovery Movement Control Orders (RMCO). All of these *umum al-balwa* parameter components are required for the development of rules and SOPs.

In particular, this study is necessary for harmonising the ideas and legal approaches of Islamic scholars by establishing the general parameters of *umum al-balwa*, which will serve as a general guide. The community, and Muslims in particular, can be more confident in the government's ability to implement all of its policies in the face of a pandemic if those policies are coordinated and worked out in advance. It can also help the community avoid confusion by bringing the heart and the action together. When some parties are at liberty to discuss rules and regulations and give opinions that contrast with the government's official position, the public will be confused and libel may result. It casts doubt on the authority of the state religion, for sure.

This is also an impediment to Malaysian state religious authorities' uniformity efforts. For instance, in the Federation Provinces, donning a face mask during prayer is no longer required, whereas in the state of Selangor, the practise is still followed. Although the distance between individuals in the prayer queue during congregational prayer has been eliminated, the use of individual prayer mats when prayer is still required causes rows of prayer to have a breach, which is contrary to Islamic law. As a result, this lack of uniformity will generate numerous contradictions while encouraging each individual to practise and act in accordance with his or her own moral compass.

The findings of this study will make a significant contribution to both the government and the general public, with a particular emphasis on Muslims. In order to construct standard operating procedures (SOPs) that are in accordance with sharia, it offers parameter guidelines for reference authorities and authoritative parties. This not only makes it simpler for authorities to create rules in things pertaining to worship, but it also has the potential to lessen the amount of conflict that might result from the diversity of religious ideas. As a result, it is essential for people to be aware of and have an understanding of the general characteristics of *umum al-balwa*. This has the potential to bring order out of chaos and uniformity to the acts taken by the government. It can also benefit society in general.

### Guideline For Future Research

The majority of this analysis was based on highlights from the literature and expert consensus on *umum al-balwa* criteria. As a result, future researchers may be able to assess and investigate further using expert interviews in the field related to *umum al-balwa* and this SOP, allowing the SOP components to be improved. A qualitative or exploratory technique may be used in the future. This study also focuses on the highlights of the literature as study respondents. Future studies may be able to use different methodologies by including more participants and larger study contexts, as well as improvements across multiple domains. Future studies may form specific modules based on the findings of this research. Perhaps, with the development of a specific module, it can become a specific reference manual for policymakers in the public and private sectors.

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