

Journal of Religion and Health

Funeral processions during the COVID-19 pandemic: perceptions among Islamic religious leaders in Indonesia

--Manuscript Draft--

Manuscript Number:	JORH-D-20-00660R4
Full Title:	Funeral processions during the COVID-19 pandemic: perceptions among Islamic religious leaders in Indonesia
Article Type:	Original Research
Keywords:	Funeral processions; COVID-19; Religious leaders; Perceptions
Corresponding Author:	Nurhayati Nurhayati Universitas Islam Negeri Sumatera Utara Medan Medan, North Sumatera INDONESIA
Corresponding Author Secondary Information:	
Corresponding Author's Institution:	Universitas Islam Negeri Sumatera Utara Medan
Corresponding Author's Secondary Institution:	
First Author:	Nurhayati Nurhayati
First Author Secondary Information:	
Order of Authors:	Nurhayati Nurhayati Tri Bayu Purnama
Order of Authors Secondary Information:	
Funding Information:	
Abstract:	<p>Controversies surrounding the handling of corpses have been amplified during the present COVID-19 pandemic. In Indonesia, scholars have observed that certain perspectives driving these controversies act against the successful implementation of health protocols issued by the government. This study aims to provide a comprehensive exploration of the diverse perceptions and responses of religious leaders around the management of COVID-19 funeral processes in Indonesia. Participants were six scholars/leaders from major Islamic religious organizations, two community leaders, and two families representing COVID-19 patients. Data analysis was conducted using content analysis. Religious leaders, all men aged over 50 years, were in support of the health directives targeted towards reducing high transmission risk. However, substantial disparities in corpse caring processions were found, potentially due to organisational beliefs around burial rites. Some religious leaders aligned their protocols with sacred beliefs. Conversely, families of the deceased insisted approved handling of corpses goes against their religious and cultural values. Socialization and coordination between government, religious leaders and the community is needed to decrease the prevailing misperceptions and misinformation that surround the new COVID-19 funeral protocols.</p>

Response to Reviewers Comments

Dear Editor-in-Chief Journal of Religion and Health

We are grateful to the **reviewers** for their insightful **comments** on our manuscript. We have been able to incorporate changes to reflect most of the suggestions provided by the **reviewers**. We have highlighted the changes within the manuscript as follow.

No	Reviewer comments	Author response
Editor 1		
1	Please correct the title 'online' and ensure the latest version of the abstract is also online.	We have modified the "online" version and the latest version
2	Your references are most definitely NOT to APA-7 standard. Please consult the APA-7 style guide and check every reference one by one.	We have edited the references with double check on reference managers (mendeley) and validated through https://apastyle.apa.org

In revising the paper, we have carefully considered your comments and suggestions, as well as those of the reviewers. After addressing the issues raised, we feel the quality of the paper is much improved and hope you agree.

We look forward to receiving your further communications.

Yours sincerely,

Nurhayati

1 May 2021

Lindsay Carey, MAppSc, PhD,
Editor-in-Chief
Journal of Religion and Health

Dear Dr Carey

Confirmation of copy-editing performed

I wish to confirm that I copy-edited the paper, *Funeral processions during the COVID-19 pandemic: perceptions among Islamic religious leaders in Indonesia*.

I am an academic editor with over 10 years' experience. You can find more about me at www.kate-the-editor.com, otherwise please do let me know should you require further details.

With best regards

Kate Rears

Academic Editor

Kate.rears1@gmail.com

www.kate-the-editor.com

Funeral processions during the COVID-19 pandemic: perceptions among Islamic religious leaders in Indonesia

Nurhayati¹, Tri Bayu Purnama^{1,2}

¹Faculty of Public Health, Universitas Islam Negeri Sumatera Utara, Medan, Indonesia

² Southeast Asian Ministers of Education Organization Regional Centre for Food and Nutrition/ Pusat Kajian Gizi Regional UI

Corresponding Author : Nurhayati, Faculty of Public Health, Universitas Islam Negeri Sumatera Utara, Medan, Indonesia. Address : Jl IAIN, Gaharu, Medan, Indonesia. E-mail address : nurhayati@uinsu.ac.id

Authors biography

DR Nurhayati as first author in this manuscript that affiliated on Universitas Islam Negeri Sumatera Utara is in charge as corresponding author. DR Nurhayati is expert on Islam jurisprudence (Fiqh), history of Islam in local tareqat (groups) and multidisciplinary research that dominantly on Public Health. Currently DR Nurhayati is Vice Dean of Faculty of Public Health in Universitas Islam Negeri Sumatera Utara Medan. The official e-mail address for DR Nurhayati is nurhayati@uinsu.ac.id. In this manuscript DR Nurhayati had initiated the idea, wrote the research proposal, analyzed the data and finalized the draft.

Tri Bayu Purnama, Head of Department of Biostatistic, Demography and Health Information, Faculty of Public Health, Universitas Islam Negeri Sumatera Utara, Indonesia. He is also affiliated as a researcher on Southeast Asian Ministers of Education Organization Regional Centre for Food and Nutrition. He was graduated from Department of Virology, School of Medicine, Tohoku University, Japan. Fiqh on health and medicine as a part of his research interest mainly on community health and adolescent study. He have contributed on this study with wrote and finalized the draft.

ABSTRACT

Controversies surrounding the handling of corpses have been amplified during the present COVID-19 pandemic. In Indonesia, scholars have observed that certain perspectives driving these controversies act against the successful implementation of health protocols issued by the government. This study aims to provide a comprehensive exploration of the diverse perceptions and responses of religious leaders around the management of COVID-19 funeral processes in Indonesia. Participants were six scholars/leaders from major Islamic religious organizations, two community leaders, and two families representing COVID-19 patients. Data analysis was conducted using content analysis. Religious leaders, all men aged over 50 years, were in support of the health directives targeted towards reducing high transmission risk. However, substantial disparities in corpse caring processions were found, potentially due to organisational beliefs around burial rites. Some religious leaders aligned their protocols with sacred beliefs. Conversely, families of the deceased insisted approved handling of corpses goes against their religious and cultural values. Socialization and coordination between government, religious leaders and the community is needed to decrease the prevailing misperceptions and misinformation that surround the new COVID-19 funeral protocols.

Keywords: Funeral processions, COVID-19, Religious leaders, Perceptions

Author declaration

The authors declare no competing interest is available on this study and compliance with ethical standard

Funeral processions during the COVID-19 pandemic: perceptions among Islamic religious leaders in Indonesia

ABSTRACT

Controversies surrounding the handling of corpses have been amplified during the present COVID-19 pandemic. In Indonesia, scholars have observed that certain perspectives driving these controversies act against the successful implementation of health protocols issued by the government. This study aims to provide a comprehensive exploration of the diverse perceptions and responses of religious leaders around the management of COVID-19 funeral processes in Indonesia. Participants were six scholars/leaders from major Islamic religious organizations, two community leaders, and two families representing COVID-19 patients. Data analysis was conducted using content analysis. Religious leaders, all men aged over 50 years, were in support of the health directives targeted towards reducing high transmission risk. However, substantial disparities in corpse caring processions were found, potentially due to organisational beliefs around burial rites. Some religious leaders aligned their protocols with sacred beliefs. Conversely, families of the deceased insisted approved handling of corpses goes against their religious and cultural values. Socialization and coordination between government, religious leaders and the community is needed to decrease the prevailing misperceptions and misinformation that surround the new COVID-19 funeral protocols.

Keywords: Funeral processions, COVID-19, Religious leaders, Perceptions

INTRODUCTION

The COVID-19 pandemic is a major global health challenge that requires comprehensive control to inhibit viral spread (WHO, 2020; Xinguang & Yu, 2020). The pandemic has brought into focus the development of animal-to-animal diseases (zoonosis) and their mutation to human-to-human transmission with exponentially rapid transmission rates (Gao et al., 2020; Weiss & Murdoch, 2020). Official reports on 12 April 2021 estimated the number of confirmed COVID-19 cases in Indonesia at 1,571,824, with 42,656 deaths (Indonesian COVID-19 Task Force, 2020a). The virus has had significant and dynamic geographic and social impacts in Indonesia. In response, the Indonesian government has prepared comprehensive COVID-19 directives.

The Indonesian government has identified religious perspectives as critical to the COVID-19 response (Indonesian COVID-19 Task Force, 2020b), since religious leaders/scholars have played an important role in controlling the spread of the pandemic (Charzyńska, 2015; Hall et al., 2008). International literature has highlighted the importance of considering religious leader opinions in processes to inform health policy decisions. For example, in Saudi Arabia, *Hajj* and *Umrah* (pilgrims) are required to obtain certain vaccines to participate in holy activities (Ahmed et al., 2006; Memish et al., 2012; Pane et al., 2019). Other religious approaches have been adopted to promote behavioral change in relation to a

1 range of public health challenges, including HIV-AIDS (Cotton et al., 2006; Gray, 2004; Noden et al.,
2 2010; Zou et al., 2009), mental health (Koenig, 2009; Moreira-Almeida et al., 2006) and nutrition
3 (Persynaki et al., 2017; Trepanowski & Bloomer, 2010). The inclusion of religious approaches in public
4 health interventions appears to effectively increase public awareness through high profile religious
5 leaders (Cyphers et al., 2017; Rivera-Hernandez, 2014).

6 On 30 April 2020, the Indonesian government attributed 792 deaths in 34 provinces to COVID-19
7 (Indonesian COVID-19 Task Force, 2020b), and through the collaborative efforts of the Ministries of
8 Religion and Health, a detailed health protocol was established. There has subsequently been a
9 significant increase in community rejection of funerals conducted according to approved burial protocols
10 due to alleged incompatibility of the new burial requirements with long-held and important religious and
11 cultural values (Richards et al., 2015). The risk of new viral clusters is exacerbated by this rejection of
12 protocol-informed burials; in particular, Indonesia has seen independent practices of caring for corpses
13 whereby handling of bodies occurs without medical or health officer assistance. It is clear these
14 practices are influenced by misperceptions and misinformation (Purnama et al., 2020).

15 Based on Islamic traditions, the process of handling lifeless bodies occurs through bathing, shrouding,
16 praying, burying, and, finally, offering prayers (Ahaddour et al., 2017; Al-Shahri et al., 2007). In the
17 context of COVID-19, this process is strictly supervised by an expert team that includes medical and
18 health officers (Rewar & Mirdha, 2014; Tiffany et al., 2017), and consequently, the opportunities for
19 families to pay final respects and conduct specific religious rituals are limited. Forceful pickup (where
20 family members forcefully remove bodies from the funeral process) and community rejection of
21 government protocols have been observed in various regions across Indonesia. Activities that occur
22 after burials with large crowds, for example praying ceremonies, are thought to have triggered new
23 clusters of the virus (Tiffany et al., 2017). Despite government insistence on the COVID-19 directives,
24 certain religious leaders clearly support reclamation of those who died from COVID-19 and are known
25 to independently perform traditional caring processions without strict health supervision. Since COVID-
26 19 can be asymptomatic, there is a high potential to increase the virus spread during the conduct of
27 these independent rituals.

28 Various evidences about the rejection of COVID-19 patient burial rites has emerged in Indonesia.
29 Further, misinformation has been disseminated related to the implementation of these health rules in
30 communities, and religious leaders appear opposed to the government's disease control strategy. This
31 study, therefore, aims to investigate muslim leaders' perceptions of the proper handling of COVID-19
32 corpses. In doing so, it evaluates problems with current COVID-19 protocols from the perspective of

1 religious leaders along with community leaders and families of COVID-19 patients. The research shows
2 the potential impact on the prevention of new COVID-19 clusters related to the ritual of caring for
3 deceased bodies and therefore, has the potential to inform efforts to reduce transmission.

4 LITERATURE REVIEW

5 Religious Leaders: An Islamic Perspective

6 Religious leaders, otherwise called scholars, are derived from the Arabic word '*alima*', meaning 'to
7 know' (Ma'luf, 1977). The use of the word 'scholar' is not only attached to a person with morals, *hadith*,
8 *tawhid*, jurisprudence, or religious sciences, but also to those with understanding of natural and social
9 sciences, including economics, medicine, science, and technology. This is supported by the word of
10 Allah in the letter Fathir (35): 28: "just as people, living beings, and cattle are of various colors as well".
11 Therefore, a scholar is regarded as a role model and leader in the community, as achieved by Prophet
12 Muhammad SAW in leading Muslims. Islamic teachings see no need to separate scholars and the
13 government (*umara* '), as both are able to work mutually to build and actualize their peoples' benefit
14 and welfare. However, understanding of the perspectives of religious leaders is urgently required, to
15 provide insight into the dangers associated with further spread of COVID-19 as a result of spiritual and
16 religious activities.

18 Caring for the corpse in Islam

19 The care for corpses in Islam has its own concepts and values. Muslims understand sufficient caring
20 and following Islamic sharia is part of human respect and honor, and therefore, is crucial (Al-Shahri et
21 al., 2007). The community recognizes the bathing stage to burial has been regulated in Islamic
22 teachings to reflect respect for the corpse (Richards et al., 2015).

23 This process commences with washing, which is *farḍu kifayah* (mandatory for Muslims), and is
24 performed by the deceased's closest family. This is followed by wrapping the body with a long, white
25 cloth, based on the rules by Prophet Muhammad in his *hadith* "If one of you covers his brother, then let
26 him shroud it properly" (Narrated by Ahmad, Muslim, and Abu Daud of Jabir). Subsequent phases
27 involve offering prayers to the dead. Burial is the last procession of caring for the body as the *hadith*
28 states the legal basis is "whoever witnesses the body until it is converted to prayer, then he gets the
29 reward of one *qirath*. And whoever witnesses it until it is buried, then he will be rewarded with two
30 *qiraths*. Asked: 'What are the two *qiraths*?' The Prophet replied: 'Like two big hills'" (Narrated by al-
31 Bukhari and Muslim, from Abu Hurairah) (Al-Zubaydi, n.d.). Each series of the caring process contains
32 a deep message and value for Muslims. Ultimately, social responsibility for Muslims is critical to the
33 caring process, as this ritual has become a cultural activity in Indonesian Muslim society.

Caring for the corpse in Islam in emergency conditions

Under normal conditions, corpse handling is conducted in line with the teachings exemplified by Prophet Muhammad. In emergency cases (e.g., natural disasters, disease outbreaks, and other similar conditions), the caring process should minimize the adverse effect on humans, equating to martyrdom (Ahmed Al-Dawoody & Oran Finegan, 2020). However, several exceptions to the prevailing situation exist, including the COVID-19 crisis. These exceptions are determined on the basis of scholarly opinions. For example, bathing of corpses is performed in *tayammum* by considering aspects of sharia, and also involves cleaning. However, based on medical considerations concerning safety and possible transmission in the context of the COVID-19 pandemic, the body is not allowed to be bathed or *tayammum*, as reported by *dharurat syar'iyah* (Sukaina Hirji, 2020; Safe burial for COVID-19 cases (Protokol Pengurusan Jenazah Pasien COVID-19), 2020).

Briefly, the procedure for burying COVID-19 corpses must occur follows: after the body is washed or *tayammum*, or because the *dharurah syar'iyah* is not bathed or *tayammum*, the corpse is then covered with a cloth. This is then placed in a safe and impermeable bag to safeguard and prevent viral spread (Safe burial for COVID-19 cases (Protokol Pengurusan Jenazah Pasien COVID-19), 2020). Subsequently, the corpse is placed into a waterproof and air-repellent coffin tilted to the right, and is expected to face *Qibla* when buried.

The law in funeral prayer is *farḍu kifayah* and is applied immediately to the deceased after being covered, due to *sunnah*. This practice is performed in a safe place by at least one person, to avoid further spread. In the absence of these conditions, the corpse is prayed for before or after burial, and where this is impossible, a recitation from afar, called "*ghaib* prayer", is observed. The person or party performing the funeral prayers are required to be vigilant and guard against possible virus transmission by observing government-established health protocols.

The procedure for burying a COVID-19 corpse has been regulated in the MUI (Indonesian Ulama Council) Fatwa Number 18 of 2020 and the circular of the Directorate General of Islamic Community. Based on the MUI Fatwa, the funeral is conducted following the provisions of Sharia and medical protocols. The corpse, previously subjected to medical regulations, is immediately placed in a coffin and lowered into the grave without having to open the chest, plastic, or shrouds. Placing multiple bodies in one grave is allowed, according to the provisions of *aldharurah al-syar'iyah* or an emergency condition (Fatwa Majelis Ulama Indonesia No 14 Tahun 2020 tentang Penyelenggaraan Ibadah Dalam Situasi Terjadi Wabah COVID-19, 2020). Cremation is unnecessary, as burying the body according to the established procedure does not endanger residents (The Republic of Indonesia Ministry of Religious Affairs, 2020).

METHODS

Study setting

This study used a qualitative case study to determine the perceptions and responses of religious leaders with regard to the issue of caring for COVID-19 corpses in North Sumatra province, between June to September 2020. The research explores religious leaders'/scholars' perspectives in various regional Islamic community organizations, including *Nahdatul Ulama*, *Muhammadiyah*, *Al-Washliyah*, *Al-Ittihadiyah*, and the Indonesian Ulema Council. Participants were asked to describe the concept of corpse management in line with their organizational positions, and to propose responses to community resistance to government protocols.

Participants

The participants were religious leaders in several related organizations who are known scholars with significant leadership roles. A total of six scholars/religious leaders aged 40–70 years participated, each from different religious organizations. All participants were male, with education including masters in religion, doctorates in *fiqh* and philosophy *aqidah*; some were professors in *da'wah* and education fields. This study also interviewed two traditional/community leaders in North Sumatra province with a master's and doctoral background in sociology/anthropology. Two families of COVID-19 death cases were also involved. These in-depth interviews accommodated extensive valid data collection opportunities compared to what could have been achieved via a questionnaire, where questions tend to be closed and answers predetermined.

Data collection

We applied for permission to religious/community organizations to approve participants, by assigning respective leaders from each unit. The study also received participant consent from the families interviewed. Data collection was conducted using in-depth interviews via telephone calls that lasted for about 30-45 minutes. All interviews were digitally recorded via mobile phone. Trustworthiness was achieved by triangulating data from scholars, community members, and specified leaders.

Research Instruments

A structured interview guide for religious leaders was applied and organized into three sections. The first related to demographics, including age, gender, latest education, and Islamic organizations, while the second section captured the perceptions around monitoring corpses under emergency situations and the information sources acquired from the community around handling dead bodies. These observations examined were the views and fatwas of scholars in terms of COVID-19 burial protocol (for example, main question: "*what is your opinion about COVID-19 burial protocol*", probing: if the answer is in line with COVID-19 burial protocol, "*why do you think COVID-19 burial protocol can interrupt the*

1 *disease*”, if the answer is not in line with COVID-19 burial protocol “*why do you think that COVID-19*
2 *burial protocol reduce sacred of Islam burial rites*”). Meanwhile, the third section explored potential
3 responses and solutions to reduce complexities of scholars’ responses for the community, in terms of
4 adapting the COVID-19 procedure with local religious, social, and cultural values.

5 A structured interview guide for community leaders was also employed, in a bid to reinforce field
6 findings. The questions posed to traditional/community leaders related to the socio-religious aspects of
7 corpse monitoring. Furthermore, information from families of COVID-19 patients was extracted to
8 ascertain their attitudes and experiences by using a different interview schedule.

9 **Data Analysis**

10 In-depth telephone interviews were digitally recorded and transcribed. Data were subsequently
11 grouped, based on manual coding, and adjusted to existing themes. Interview transcripts and
12 interviewer notes were subjected to open coding. The codes, which the research team developed to be
13 interpreted substantively prior to analysis, contained certain important participant information and
14 subsequently described the themes. In the next stage, results relating to the main theme were
15 described with the aims of identifying and validating any conflicting answers. In this study, we
16 categorized three themes: rejection and lack of religious leader assistance, differences in the
17 knowledge about the funeral process and perceptions of religious leader. Content analysis was used to
18 understand the perceptions and responses provided by informants and to deepen the existing material,
19 due to the high variation in answers from each informant/religious organization, which followed a
20 distinct pattern.

21 **Ethical concerns and flexibility**

22 This study received ethical approval from the Health Research Ethics Committee of the Faculty of
23 Medicine, Islamic University of North Sumatra. All participants consented to participate in this research
24 prior to the interview process and were offered an explanation of the research information and permits,
25 with local government approval.

26 **RESULTS**

27 This section describes the three central themes (Table 1) related to funeral processions for COVID-19
28 patients and Islamic religious leaders’ perceptions: (i) rejection and lack of religious leader assistance,
29 (ii) differences in the knowledge about the funeral process, and (iii) perceptions of religious leaders.
30 Selected quotations from the participants’ interview appear in italics with participants’ identity numbers
31 to preserve confidentiality.

1 Table 1. Themes and categories based on responses from religious leaders, community leaders and
 2 families

Themes	Categories
Rejection of COVID-19 patients and lack of religious leader support for the families	<ul style="list-style-type: none"> Families of COVID-19 patients refuse medical diagnosis Society rejects the burial process due to lack of COVID-19 knowledge
Differences in the knowledge of religious leader about the funeral process during COVID-19	<ul style="list-style-type: none"> Religious leaders have different knowledge about funeral processes due to diverse opinions among health experts and variety of disseminated information
Perceptions of religious leaders around COVID-19 deaths	<ul style="list-style-type: none"> Government and religious leaders intend to take responsibility

3

4 **Rejection of COVID-19 patients and lack of religious leader support for their families**

5 Six religious leaders, aged 47–70 years, from different religious organizations including Nahdatul
 6 Ulama, Muhammadiyah, Al-Wasliyah, and also the Provincial Indonesian Ulema Council, participated in
 7 this study. Two community leaders had obtained sociology and cultural education degrees. Family
 8 members of COVID-19 patients were all female, aged younger than 50 years, and were working as
 9 household mothers. Data saturation was reached following the interview of these six participants;
 10 therefore, the researcher stopped the recruitment of further participants.

11 Table 2. Demographics of study participants

Religious leader	N	%	Community leader	N	%	Family member	N	%
Sex								
Male	6	100	Male	2	100	Male	0	0
Female	0	0	Female	0	0	Female	2	100
Age								
< 50 y.o	1	16,7	< 50 y.o	0	0	< 50 y.o	2	100
≥ 50 y.o	5	83,3	≥ 50 y.o	2	100	≥ 50 y.o	0	0
Occupation								
Public servant	4	66,7	Public servant	1	50	Household mother	2	100

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

Non-government organization	2	33,3	Non-government organization	1	50	Private sector	0	0	
Education									
Bachelor	0	0	Bachelor	0	0	Elementary school	0	0	
Master	2	33,3	Master	1	50	Junior high school	0	0	
Doctor	3	50,0	Doctor	1	50	Senior high school	2	100	
Professor	1	16,7	Professor	0	0	University	0	0	

This study revealed families did not receive education and counseling from religious leaders, and therefore, refused to acknowledge COVID-19 protocols. For these participants, a very significant change had occurred in the implementation of corpse caring in the context of COVID-19 compared to normal conditions, in that neither families nor community could no longer be involved.

"Sad and hurt, because we ordinary people also cannot express our sadness and the funeral is also not attended by the family even as if it is kept secret because the family cannot come and see, that's what makes the family sad" (Family of Patient 1, Female, 47 Years Old Family)

"Cannot see the family directly and bury him directly. Because corpses cannot be brought home directly" (Family of Patient 2, Female, 34 Years).

The rejection of COVID-19 protocols observed in the community was influenced by a negative stigma attached to corpse management. Participants understood that the deceased's relatives are expected to pay final respects, as is appropriate in Islam, despite contrasting protocol requirements.

"Government policy is to isolate burial places far from family residences, be considered dishonorable and respond to rejection in the family" (Community Leader 2, Male, 52 years)

"Because, my brother is not Covid and why should be Covid buried. Then, they told the family to go home. And the patient was secretly brought and buried by covid" (Family of Patient 1, Female, 47 Years)

The origin of this rejection was due to the inability of families to fully accept medical diagnoses, which ultimately influenced the opinions of community and religious leaders. Family members indicated they

1 had not had any involvement from religious leaders during their experience of their loved one's
2 funeral/burial.

3 *"I have never heard of a scholar, I don't know what the scholar think. I have never
4 consulted and heard from a scholar"* (Family of Patient 2, Female, 34 Years).

5 Families tended to only acknowledge COVID-19 procedures under the provision of a spiritual corpse
6 caring service, rightly in accordance with the rules of *fiqh*. Awareness of government regulations seems
7 to have formed initial capital in building public trust. Community leaders realized that religious leaders
8 have not been able to offer, formally or informally, support for corpse caring according to the health
9 protocols. Diverse religious views and dynamic socio-religious conditions require comprehensive
10 education and understanding among all involved.

11 *"Families can follow the procedure because it has been regulated by the government"*
12 *(Family of Patient 1, Female, 47 Years)*

13 *"Through informal channels, we still convey it to religious leaders, community leaders, and
14 traditional leaders"* (Community Leader 1, Male, 62 years)

15 Spiritual services for corpse caring processions and effective educational models in the
16 community appear very useful to the implementation of COVID-19 directives. Religious leaders
17 are responsible for ensuring community members comply with government regulations, using an
18 active-persuasive approach.

19 **Differences in the knowledge of religious leaders about the funeral process of COVID-19**

20 This study highlighted disparities in the experience of religious leaders in relation to corpse caring
21 processions. Scholars understand the COVID-19 procedure was designed to reduce possible
22 transmission, although certain clerics highlighted the existence of varying opinions.

23 *If we look at developments so far, the Covid-19 protocol for certain corpses' funeral does
24 show that people who are exposed to Covid-19 can still transmit it when they have died
25 through the touch of a living person who according to information 3-5 hours after
26 death"*(Religious figure 3, Male 61 Years).

27 Community leaders also recognized knowledge differences among religious leaders, influenced by the
28 variety of information disseminated.

29 *"Most religious leader reject the COVID-19 procedure due to differences in understanding
30 and knowledge of this infectious disease"* (Community leader 1, Male, 62 years old)

31 Religious leaders understood this variation lies in the diverse opinions of health experts around the
32 transmission of COVID-19 through funerals. A crucial point is the transparency of the implementation of

1 a series of sharia corpse caring processions, namely bathing, covering, praying, burying, and
2 condolences.

3 *"I do not understand, in the initial discourse that was disseminated there were differences
4 of opinion from experts whether those who died were still infectious or not" (Religion
5 leaders 6, Male 51 years)*

6 *"The implementation of fardhu kifayah, especially for Muslims, has not been perfectly
7 carried out by the hospital, this distrust is especially the community. Now the
8 implementation of fardhu kifayah in an open hospital can be witnessed by families from
9 afar with equipment limitations "(Community Leader 2, male, 52 years)*

10 The prohibition on public spread of hoax information, including by religious leaders, tends to minimize
11 community rejection of COVID-19 protocols, and the active role of these scholars through official
12 sources is crucial in reducing the knowledge disparities of religious leaders around handling corpses.

13 **Perceptions of religious leader about COVID-19 patients**

14 All scholars/religious leaders stated that funerals, using the health protocols issued by authorities, are
15 expected to be conducted with consideration of potential disease transmission. Some Islamic
16 organizations had developed personal guidelines for COVID-19 caring procedures, which modified
17 religious values held by certain institutions, to prevent infectious disease.

18 *"In fact, for example, the matter of corpse burial already has protocols. Based on the
19 protocol made by related parties, the transmission to other living creatures is no longer
20 possible"(Religious Leader 1, Male 43 Years Old)*

21 *"Therefore, actually in Muhammadiyah, there is also a health protocol that has also been
22 agreed on nationally and even internationally, hence we follow that burialrules" (Religious
23 Leader 2, Male 65 Years Old)*

24 Through the hospital network, religious organizations have trained caring teams on COVID-19
25 procedures. However, corpse caring in society continues to be driven by existing values and norms.

26 *"The protocol that has been established and has also been confirmed by the Indonesian
27 Ulama Council regarding the implementation of such a corpse; no longer brought home, no
28 longer treated as normal conditions; bathed, dipped in, and others; if allowed, this has the
29 potential to be infectious. Therefore, covid-19 patients are immediately treated at the
30 hospital and taken directly to a special cemetery, this shows an effort to cut off its spread
31 "(Religious Leader 3, Male 61 Years Old)*

32 *"However, sometimes, the socialization of funeral protocols does not reach the public
33 properly and clearly. Therefore there will be reactions, such as refusal to buried people in
34 somewhere "(Religious Figure 1, Male 43 Years Old)*

35 Communal socialization was not extensively organized, and therefore, rejection and forceful possession
36 of corpses occurs in the community. Scholars suggested the need for peaceful coordination between

1 local governments, religious leaders, and the community on the issues of the COVID-19 protocol.
2 However, religious leaders argued the uncontrolled psychological conditions and cultural values
3 prompted the public to reject COVID-19 procedures.

4 *"It should also pay attention to psychological factors. Therefore, do not merely accept the*
5 *information that develops. Once someone dies in a short time, they are carried away, not*
6 *to be seen by their siblings, their families, their families. Therefore, cases emerged where*
7 *people fought over the corpses and then eventually it became a matter of legal cases to*
8 *become suspects and so on. Hence, in my opinion, the funeral will use the existing*
9 *protocol from the government. It should (cough) pay more attention to psychological factors*
10 *hence there is no misinterpretation and then people feel their basic rights. I say that try to*
11 *feel it, we are our closest family, whether it is our spouse, or our children, or our parents,*
12 *try to imagine. If, for example, he was admitted to the hospital he could not be seen,*
13 *isolated. Then even after he died we could not see, try to imagine how his family would*
14 *feel. "* (Religious Leader 1, Male 43 Years Old)

15 Community leaders indicated dialogue between the government and other parties provides an
16 important educational opportunity. A humanist approach of religious leaders was seen through
17 their identifying obstacles and possible best solutions by considering the COVID-19 protocol
18 alongside the sharia rules. Furthermore, active participation by religious leaders in educating and
19 observing spiritual services is important for families of COVID-19 patients, to prevent
20 transmission and new clusters.

21 *"dialogue and arguments are carried out between the government, then religious leader*
22 *who have a role, therefore it can provide enlightenment, can give openness to the person*
23 *concerned to be able to accept the actual method of the funeral with this protocol.*
24 *Furthermore, the most important thing is to save souls, do not because of one*
25 *understanding, the damage or uselessness is high "*(Community Leader 1, Male, 52 Years
26 *Old)*

28 **DISCUSSION**

29 This study found patients' families struggled to fully accept the diagnosis of COVID-19, which led to
30 their rejection of COVID-19 funeral protocols, which may have been exacerbated by misleading
31 information about medical diagnoses received from medical practitioners. A similar finding was
32 reported in Brazil that highlighted unclear communication between family members and medical staff
33 led to distrust in medical care (Cardoso et al., 2020; Luiz et al., 2017). To reduce family member
34 distrust, accurate information empathetically conveyed by medical staff to the families of critical patients
35 is important (Regaira-Martínez & Garcia-Vivar, 2021).

36 Religious leaders have an important role to play in accompanying families through sociological and
37 psychological changes that result from the significant differences across social norms of honoring

1 deceased bodies before and after the pandemic (Yardley & Rolph, 2020). In a pandemic situation,
2 families cannot participate in funeral process activities as they otherwise might have done, namely
3 through touching, hugging and kissing and participating in rituals such as cleansing and packing the
4 corpse (Jahangir & Hamid, 2020). These rituals aim to honor the deceased, prepare for afterlife
5 acceptance, and, importantly, preserve cultural norms and allow the bereaved to express their feelings
6 (Hamid & Jahangir, 2020). Research in Kashmir, India reports that more limited involvement of
7 families in the process of caring for a corpse has a profound psychological impact on the family (Hamid
8 & Jahangir, 2020). Therefore, any revisions to how families can interact with bodies during funeral
9 proceedings through COVID-19 protocols must involve families themselves (*mahram*).

10 This research confirmed scholars from selected Islamic community organizations agree that corpse
11 caring in the context of infectious diseases requires restrictions to prevent disease transmission. In
12 Islam, similar opinions from distinguished intellectuals have been observed (Al-Shahri et al., 2007;
13 Nielsen et al., 2015). Special treatment was conducted by not only regular washing, but also avoiding
14 water splashing onto those responsible for bathing the dead bodies (Lev, 2011; Petersen, 2013).
15 Decision making in determining a case diagnosed as an infectious disease and requiring special care is
16 achieved by medical personnel or authorized parties. Previous research showed corpse management
17 with the assistance of a medical team is likely to prevent disease clusters (Lee-Kwan et al., 2017). This
18 medical support is necessary to avoid rejection of protocols and also increase public confidence.

19 Apart from the corpse caring with the medical team's assistance, there is the implementation of Ghoib
20 prayers and restrictions on people in *ta'ziah* or online, as a substitute for funeral prayer in Islamic
21 community organizations in Indonesia. This is in accordance with scholarly responses, where the
22 organizations' central management have formulated specific regulations for conducting corpse caring
23 with health protocols in hospitals and mosques. The Muhammadiyah Central Board issued a circular to
24 all regional administrators to execute the necessary health protocols (Pengurus Pusat Muhammadiyah,
25 2020). Furthermore, Ghoib prayers are offered to prevent disease transmission at funeral prayer places
26 and *ta'ziah* activities. The education of public and religious leaders plays a significant role in a
27 comprehensive and cross-sectoral strategy for preventing COVID-19.

28 The cultural structure of Indonesian society is known as a religious community, with great respect paid
29 to scholars. In addition, Fatwas and scholarly opinions serve as references for worship implementation.
30 Several studies show intellectuals play important roles in health education (Cotton et al., 2006; Koenig,
31 2009; Rivera-Hernandez, 2014; Zou et al., 2009). However, various case reports reveal that visiting
32 families of patients/*ta'ziah* during the COVID-19 pandemic triggered new viral clusters (Nurhayati Tri
33 Bayu Purnama, 2020; Purnama et al., 2020). Compliance by community and religious leaders with

1 health protocols remains a problem in terms of controlling COVID-19 versus facilitating spiritual
2 worship.

3 In this pandemic, the government showed very strong interest in scholarly opinions. This is evidenced
4 by the involvement of scholars in enhancing public awareness on COVID-19 dangers and on how to
5 reduce transmission associated with corpse caring. The involvement of scholars in socialization and
6 community assistance possibly indicates a personal concern for social problems. These religious
7 leaders are deliberately presented on television media or through social media, and often worship at
8 home. COVID-19 corpse management can be very effective when medical protocols are employed to
9 avoid the virus being spread to caregivers. Therefore, protection and respect or protocols may need to
10 take precedent over traditional care for corpses so as not to endanger other people's lives.

11 This research could impact on the involvement of religious leaders in the funeral processes for COVID-
12 19 patients. However, several limitations emerged in this study. The influence of the patriarchal model
13 is quite dominant in the study area, which triggered a gender bias whereby this study could only recruit
14 males as key participants (religious leaders). In addition, the spread of existing COVID-19
15 misinformation has clearly affected the perceptions and responses of religious leaders, although this
16 was not explored in depth in this study. Further study should be conducted to explore deeper
17 understanding of religious leader perceptions and responses.

18 19 **CONCLUSION**

20 Our findings argue for the importance of understanding different scholars' perceptions around and
21 responses to preventing further COVID-19 spread through the corpse caring process. The religious
22 character of Indonesian society and the central role of scholars in public education offers promising
23 potential to reduce COVID-19 transmission. Furthermore, comprehensive socialization and coordination
24 tend to reduce misperceptions and misinformation in relation to corpse caring processes required by
25 the government's COVID-19 directives. More successful implementation of these protocols will
26 potentially impede the occurrence of new viral clusters.

27 Scholar involvement in Indonesia is extensive, but they should have a more significant role in
28 supporting the government to educate the public and comply with COVID-19 corpse caring directives,
29 in accordance with health protocols and sharia, by using the emergency care provisions. The regional
30 development system and informal dialogue of religious leaders through a network of mosques or
31 Islamic centres are important as an early alert system that can educate individuals about the corpse
32 caring process. Furthermore, the training model and content materials that outline new requirements
33 related to COVID-19 should be modified, with amendments potentially based on Islamic principles.

1 REFERENCES

- 2 Ahaddour, C., Van den Branden, S., & Broeckaert, B. (2017). *Purification of Body and Soul for the Next*
3 *Journey. Practices Surrounding Death and Dying Among Muslim Women*. OMEGA - Journal of
4 *Death and Dying*, 76(2), 169–200. <https://doi.org/10.1177/0030222817729617>
- 5 Ahmed Al-Dawoody & Oran Finegan. (2020). *COVID-19 and Islamic burial laws: safeguarding dignity of*
6 *the dead*. <https://blogs.icrc.org/law-and-policy/2020/04/30/covid-19-islamic-burial-laws/>
- 7 Ahmed, Q. A., Arabi, Y. M., & Memish, Z. A. (2006). *Health risks at the Hajj*. In *Lancet*.
8 [https://doi.org/10.1016/S0140-6736\(06\)68429-8](https://doi.org/10.1016/S0140-6736(06)68429-8)
- 9 Al-Shahri, M. Z., Fadul, N., & Elsayem, A. (2007). *Death, dying and burial rites in Islam*. In *European*
10 *Journal of Palliative Care*.
- 11 Al-Zubaydi, A. al-F. M. bin M. bin 'Abd al-W. al-H. (n.d.). *Tâj al-'Arûs min Jawâhir al-Qâmûs*. *Al-Warrâq*.
- 12 Cardoso, É. A. de O., da Silva, B. C. de A., Dos Santos, J. H., Lotério, L. D. S., Accoroni, A. G., & Dos
13 Santos, M. A. (2020). *The effect of suppressing funeral rituals during the covid-19 pandemic on*
14 *bereaved families*. *Revista Latino-Americana de Enfermagem*. [https://doi.org/10.1590/1518-](https://doi.org/10.1590/1518-8345.4519.3361)
15 [8345.4519.3361](https://doi.org/10.1590/1518-8345.4519.3361)
- 16 Charzyńska, E. (2015). *Multidimensional Approach Toward Spiritual Coping: Construction and*
17 *Validation of the Spiritual Coping Questionnaire (SCQ)*. *Journal of Religion and Health*.
18 <https://doi.org/10.1007/s10943-014-9892-5>
- 19 Cotton, S., Puchalski, C. M., Sherman, S. N., Mrus, J. M., Peterman, A. H., Feinberg, J., Pargament, K.
20 I., Justice, A. C., Leonard, A. C., & Tsevat, J. (2006). *Spirituality and religion in patients with*
21 *HIV/AIDS*. *Journal of General Internal Medicine*. <https://doi.org/10.1111/j.1525-1497.2006.00642.x>
- 22 Cyphers, N. A., Clements, A. D., & Lindseth, G. (2017). *The Relationship Between Religiosity and*
23 *Health-Promoting Behaviors in Pregnant Women*. *Western Journal of Nursing Research*.
24 <https://doi.org/10.1177/0193945916679623>
- 25 Gao, Q., Hu, Y., Dai, Z., Xiao, F., Wang, J., & Wu, J. (2020). *The Epidemiological Characteristics of*
26 *2019 Novel Coronavirus Diseases (COVID-19) in Jingmen, China*. *SSRN Electronic Journal*.
27 <https://doi.org/10.2139/ssrn.3548755>
- 28 Gray, P. B. (2004). *HIV and Islam: Is HIV prevalence lower among Muslims?* *Social Science and*
29 *Medicine*. [https://doi.org/10.1016/S0277-9536\(03\)00367-8](https://doi.org/10.1016/S0277-9536(03)00367-8)
- 30 Hall, D. E., Meador, K. G., & Koenig, H. G. (2008). *Measuring religiousness in health research: Review*
31 *and critique*. *Journal of Religion and Health*. <https://doi.org/10.1007/s10943-008-9165-2>
- 32 Hamid, W., & Jahangir, M. S. (2020). *Dying, Death and Mourning amid COVID-19 Pandemic in*
33 *Kashmir: A Qualitative Study*. *Omega (United States)*. <https://doi.org/10.1177/0030222820953708>
- 34 Indonesian COVID-19 Task Force. (2020a). *Situation Report of COVID-19 in Indonesia*.
35 <https://covid19.go.id>
- 36 Indonesian COVID-19 Task Force. (2020b). *Situation Report of COVID-19 in Indonesia*.
- 37 Indonesian Ulama Council. (2020). *Fatwa Majelis Ulama Indonesia No 14 Tahun 2020 tentang*
38 *Penyelenggaraan Ibadah Dalam Situasi Terjadi Wabah COVID-19*. Indonesia

- 1 Jahangir, M. S., & Hamid, W. (2020). *Mapping Mourning Among Muslims of Kashmir: Analysis of*
2 *Religious Principles and Current Practices*. Omega (United States).
3 <https://doi.org/10.1177/0030222820911544>
- 4 Koenig, H. G. (2009). *Research on religion, spirituality, and mental health: A review*. In *Canadian*
5 *Journal of Psychiatry*. <https://doi.org/10.1177/070674370905400502>
- 6 Lee-Kwan, S. H., DeLuca, N., Bunnell, R., Clayton, H. B., Turay, A. S., & Mansaray, Y. (2017).
7 *Facilitators and Barriers to Community Acceptance of Safe, Dignified Medical Burials in the*
8 *Context of an Ebola Epidemic, Sierra Leone, 2014*. *Journal of Health Communication*.
9 <https://doi.org/10.1080/10810730.2016.1209601>
- 10 Lev, E. (2011). *Ottoman Medicine, Healing and Medical Institutions 1500–1700*. By Miri Shefer-
11 *Mossensohn*. pp. 277. Albany, State University of New York, 2009. *Journal of the Royal Asiatic*
12 *Society of Great Britain & Ireland*. <https://doi.org/10.1017/s1356186311000137>
- 13 Luiz, F. F., Caregnato, R. C. A., & Costa, M. R. da. (2017). *Humanization in the Intensive Care:*
14 *perception of family and healthcare professionals*. *Revista Brasileira de Enfermagem*, 70(5),
15 1040–1047. <https://doi.org/10.1590/0034-7167-2016-0281>
- 16 Ma'luf, L. (1977). *Al-Munjid fi al-Lughah*. Dar al-Masyriq.
- 17 Memish, Z. A., Stephens, G. M., Steffen, R., & Ahmed, Q. A. (2012). *Emergence of medicine for mass*
18 *gatherings: Lessons from the Hajj*. In *The Lancet Infectious Diseases*.
19 [https://doi.org/10.1016/S1473-3099\(11\)70337-1](https://doi.org/10.1016/S1473-3099(11)70337-1)
- 20 Moreira-Almeida, A., Neto, F. L., & Koenig, H. G. (2006). *Religiousness and mental health: A review*. In
21 *Revista Brasileira de Psiquiatria*. <https://doi.org/10.1590/s1516-44462006005000006>
- 22 Nielsen, C. F., Kidd, S., Sillah, A. R. M., Davis, E., Mermin, J., & Kilmarx, P. H. (2015). *Improving burial*
23 *practices and cemetery management during an Ebola virus disease epidemic — Sierra Leone,*
24 *2014*. In *Morbidity and Mortality Weekly Report*.
- 25 Noden, B. H., Gomes, A., & Ferreira, A. (2010). *Influence of religious affiliation and education on HIV*
26 *knowledge and HIV-related sexual behaviors among unmarried youth in rural central*
27 *Mozambique*. *AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV*.
28 <https://doi.org/10.1080/09540121003692193>
- 29 Nurhayati Tri Bayu Purnama. (2020). *Tokoh agama bisa berperan dalam cegah tindakan ambil paksa*
30 *jenazah pasien COVID, ini caranya*. *The Conversation*. [https://theconversation.com/riset-tokoh-](https://theconversation.com/riset-tokoh-agama-bisa-berperan-dalam-cegah-tindakan-ambil-paksa-jenazah-pasien-covid-ini-caranya-147095#comment_2357005)
31 [agama-bisa-berperan-dalam-cegah-tindakan-ambil-paksa-jenazah-pasien-covid-ini-caranya-](https://theconversation.com/riset-tokoh-agama-bisa-berperan-dalam-cegah-tindakan-ambil-paksa-jenazah-pasien-covid-ini-caranya-147095#comment_2357005)
32 [147095#comment_2357005](https://theconversation.com/riset-tokoh-agama-bisa-berperan-dalam-cegah-tindakan-ambil-paksa-jenazah-pasien-covid-ini-caranya-147095#comment_2357005)
- 33 Pane, M., Kong, F. Y. M., Purnama, T. B., Glass, K., Imari, S., Samaan, G., & Oshitani, H. (2019).
34 *Indonesian Hajj cohorts and mortality in Saudi Arabia from 2004 to 2011*. *Journal of Epidemiology*
35 *and Global Health*, 9(1). <https://doi.org/10.2991/jeqh.k.181231.001>
- 36 Pengurus Pusat Muhammadiyah. (2020). *Edaran Pimpinan Pusat Muhammadiyah Nomor*
37 *02/EDR/I.0/E/2020 Tentang Tuntunan Ibadah Dalam Kondisi Darurat COVID-19*.
- 38 Persynaki, A., Karras, S., & Pichard, C. (2017). *Unraveling the metabolic health benefits of fasting*
39 *related to religious beliefs: A narrative review*. In *Nutrition*.
40 <https://doi.org/10.1016/j.nut.2016.10.005>

- 1 Petersen, A. (2013). *The Archaeology of Death and Burial in the Islamic World*. The Oxford Handbook
2 of the Archaeology of Death and Burial.
3 <https://doi.org/10.1093/oxfordhb/9780199569069.013.0014>
- 4 Purnama, T. B., Khadijah, S., & Sadri, I. (2020). *How to handle the deceased body of COVID-19: an
5 insight from Indonesian muslim burial handlers knowledge, perception, and practice*. MedRxiv,
6 2020.08.03.20167593. <https://doi.org/10.1101/2020.08.03.20167593>
- 7 Regaira-Martínez, E., & Garcia-Vivar, C. (2021). *The process of giving information to families in
8 intensive care units: A narrative review*. In *Enfermería Intensiva*.
9 <https://doi.org/10.1016/j.enfi.2019.11.004>
- 10 Rewar, S., & Mirdha, D. (2014). *Transmission of Ebola virus disease: An overview*. In *Annals of Global
11 Health*. <https://doi.org/10.1016/j.aogh.2015.02.005>
- 12 Richards, P., Amara, J., Ferme, M. C., Kamara, P., Mokuwa, E., Sheriff, A. I., Suluku, R., & Voors, M.
13 (2015). *Social Pathways for Ebola Virus Disease in Rural Sierra Leone, and Some Implications for
14 Containment*. PLoS Neglected Tropical Diseases. <https://doi.org/10.1371/journal.pntd.0003567>
- 15 Rivera-Hernandez, M. (2014). *The Role of Religious Leaders in Health Promotion for Older Mexicans
16 with Diabetes*. *Journal of Religion and Health*. <https://doi.org/10.1007/s10943-014-9829-z>
- 17 Sukaina Hirji, A. H. and E. L. (2020). *The impact of Covid-19 on Islamic burial rites*. *GMJ Journal*.
18 <https://www.gmjjournal.co.uk/the-impact-of-covid-19-on-islamic-burial-rites>
- 19 The Republic of Indonesia Ministry of Religious Affairs. (2020). *Keputusan Menteri Agama No 6 Tahun
20 2020*.
- 21 Ministry of Religious Affairs, Indonesia. (2020). *Safe burial for COVID-19 cases (Protokol Pengurusan
22 Jenazah Pasien COVID-19)*. Indonesia.
- 23 Tiffany, A., Dalziel, B. D., Kagume Njenge, H., Johnson, G., Nugba Ballah, R., James, D., Wone, A.,
24 Bedford, J., & McClelland, A. (2017). *Estimating the number of secondary Ebola cases resulting
25 from an unsafe burial and risk factors for transmission during the West Africa Ebola epidemic*.
26 PLoS Neglected Tropical Diseases. <https://doi.org/10.1371/journal.pntd.0005491>
- 27 Trepanowski, J. F., & Bloomer, R. J. (2010). *The impact of religious fasting on human health*. In
28 *Nutrition Journal*. <https://doi.org/10.1186/1475-2891-9-57>
- 29 Weiss, P., & Murdoch, D. R. (2020). *Clinical course and mortality risk of severe COVID-19*. In *The
30 Lancet*. [https://doi.org/10.1016/S0140-6736\(20\)30633-4](https://doi.org/10.1016/S0140-6736(20)30633-4)
- 31 WHO. (2020). *COVID-19 Situation Report*.
- 32 Xinguang, C., & Yu, B. (2020). *First two months of the 2019 Coronavirus Disease (COVID-19) epidemic
33 in China: real-time surveillance and evaluation with a second derivative model*. *Global Health
34 Research and Policy*.
- 35 Yardley, S., & Rolph, M. (2020). *Death and dying during the pandemic*. In *The BMJ*.
36 <https://doi.org/10.1136/bmj.m1472>
- 37 Zou, J., Yamanaka, Y., John, M., Watt, M., Ostermann, J., & Thielman, N. (2009). *Religion and HIV in
38 Tanzania: Influence of religious beliefs on HIV stigma, disclosure, and treatment attitudes*. *BMC
39 Public Health*. <https://doi.org/10.1186/1471-2458-9-75>

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65