

**Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review**

23 messages

hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

1 June 2022 at 08:24

To: Jurnal Kesmas <jurnalkesmas.ui@gmail.com>

Faculty of Public Health, Universitas Sriwijaya, Indonesia

Date: 1.6.2022

Email: hamzah@fkm.unsri.ac.id**Submission of manuscript**

Dear

Prof. Dr. Dewi Susanna, dra, MS.

Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

We kindly ask for consideration of our manuscript entitled: "**Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review**" in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

Patients with diabetes are at greater risk of contracting COVID-19, which has a more severe course resulting in death. COVID-19 prevention is the most effective method of avoiding COVID-19 because of the disease's detrimental effect on diabetic patients and the lack of a treatment considered adequate for COVID-19.

By narrative literature review concluded that health education programs for diabetic patients regarding COVID-19 need to be improved to increase knowledge, encourage positive attitudes, and implement good COVID-19 prevention behaviours, among other things.

With the submission of this manuscript, we certify that this manuscript has neither been previously published nor is currently under consideration elsewhere, and we affirm that the script is an original work. We confirm that all authors have disclosed any actual or potential competing interests regarding the submitted article and the nature of those interests.

We hope that our manuscript is suitable for publication in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

We look forward to hearing from you.

Yours sincerely,

Hamzah Hasyim (on behalf of all authors)

5 attachments **Title Page (with author details).docx**
39K **Manuscript (without author details).docx**
110K **Figure 1.docx**
29K **Figure 3.docx**
296K **Figure 2.docx**
235K

hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

1 June 2022 at 08:30

To: Patricia Dale <p.dale@griffith.edu.au>

Dear Prof Pat

Please see the following paper, which is also part of the special issue; in the meantime, we are awaiting comments from the editor or reviewers regarding the proofreading, in particular.

Best



hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review - Please extend the submission.

4 messages

hamzah fkmunsri <hamzah@fkm.unsri.ac.id>
To: Jurnal Kesmas <jurnalkesmas.ui@gmail.com>

Dear
Prof. Dr. Dewi Susanna, dra, MS.
Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Please extend my new submission of the article. Currently, I am waiting for feedback for one of the coauthorships, like below.

I appreciate your flexibility.

Respectfully,

Hamzah Hasyim

----- Forwarded message -----

From: Patricia Dale <p.dale@griffith.edu.au>
Date: Sun, 5 Jun 2022 at 14:30
Subject: Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review
To: <hamzah@fkm.unsri.ac.id>

Thanks Hamzah
I will get it back to you in one or two days at latest.
Best wishes
Pat

School of Environment and Science,
Centre for Planetary Health and Food Security,
Griffith University,
Nathan,
Queensland, Australia 4111
Email: p.dale@griffith.edu.au

From: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>
Sent: Sunday, 5 June 2022 1:48 pm
To: Patricia Dale <p.dale@griffith.edu.au>
Subject: Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review

Dear prof Pat,

Kindly see the manuscript entitled: "Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review," revised. Please recheck it.

The article has checked the author guidelines for Special Issue at <https://journal.fkm.ui.ac.id/kesmas/about/submissions#authorGuidelines> that the maximum word in the manus

In addition, please put you're signed in the image on the second page of the cover Letter for Submission of a paper manuscript.

Respectfully,

Hamzah Hasyim

On Sat, 4 Jun 2022 at 08:12, Patricia Dale <p.dale@griffith.edu.au> wrote:

Dear Hamzah
That is good.
Now just to be clear. You will address the reviewer comments (don't worry about any about English), send the revised document to me and then I will fix the English easy for me). If that is all I have to do, it will not take a long time, depending on where I am and what else I am doing!
Very best wishes
Pat

Emeritus Professor Pat Dale
School of Environment and Science,
Centre for Planetary Health and Food Security,
Griffith University,
Nathan,
Queensland, Australia 4111
Email: p.dale@griffith.edu.au

On Thu, 2 Jun 2022 at 18:26, Jurnal Kesmas <jurnalkesmas.ui@gmail.com> wrote:

Dear Hamzah Hasyim,

Thank you for submitting to Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal). The manuscript will be considered for review. However, pl

Please also fill out the cover letter and statement letter.

Revision can be sent to the Editor by replying to this email no later than 4 days after receiving this email.

Thank you.

Best Regards,
Dewi Susanna
Editor in Chief
Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

On Wed, Jun 1, 2022 at 8:25 AM hamzah fkmunsri <hamzah@fkm.unsri.ac.id> wrote:
Faculty of Public Health, Universitas Sriwijaya, Indonesia

Date: 1.6.2022
Email: hamzah@fkm.unsri.ac.id

Submission of manuscript

Dear
Prof. Dr. Dewi Susanna, dra, MS.
Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

We kindly ask for consideration of our manuscript entitled: "**Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review**" in Public Health Journal) in a special issue

Patients with diabetes are at greater risk of contracting COVID-19, which has a more severe course resulting in death. COVID-19 prevention is the most effective detrimental effect on diabetic patients and the lack of a treatment considered adequate for COVID-19.

By narrative literature review concluded that health education programs for diabetic patients regarding COVID-19 need to be improved to increase knowledge, encourage prevention behaviours, among other things.

With the submission of this manuscript, we certify that this manuscript has neither been previously published nor is currently under consideration elsewhere, confirm that all authors have disclosed any actual or potential competing interests regarding the submitted article and the nature of those interests.

We hope that our manuscript is suitable for publication in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

We look forward to hearing from you.

Yours sincerely,

Hamzah Hasyim (on behalf of all authors)

--
Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) published by Faculty of Public Health Universitas Indonesia since August 2006 and has Education in July 2009 and re-accredited in 2012 (No.56/DIKTI/Kep/2012) and 2017 (No.32a/E/KPT/2017). Our journal is indexed in Scopus & SINTA1 and published quarterly

<http://journal.fkm.ui.ac.id/kesmas>

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)
Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

Jurnal Kesmas <jurnalkesmas.ui@gmail.com>
To: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

6 June 2022 at 10:35

Dear Hamzah Hasyim,

We will give you an extension. Please send it before June 11, 2022.

Thank you.

[Quoted text hidden]

hamzah fkmunsri <hamzah@fkm.unsri.ac.id>
To: Jurnal Kesmas <jurnalkesmas.ui@gmail.com>

10 June 2022 at 08:43

Dear
Prof. Dr. Dewi Susanna, dra, MS.
Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Kindly see the paper's revision attached and the cover Letter for Submission signed by all co-authors.

The article has checked the author guidelines for Special Issue at <https://journal.fkm.ui.ac.id/kesmas/about/submissions#authorGuidelines>. I hope the paper can be accepted at KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Respectfully,

Hamzah Hasyim

[Quoted text hidden]

2 attachments

 **Hamzah Hasyim_COVID-19 Prevention Behaviour in Diabetes Mellitus.docx**
95K

 **Cover Letter for Submission of a Paper.doc**
91K

hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

To: 10012682125022@student.unsri.ac.id, 10012682125088@student.unsri.ac.id

----- Forwarded message -----

From: **hamzah fkmunsri** <hamzah@fkm.unsri.ac.id>

Date: Fri, Jun 10, 2022, 08:43

Subject: Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review - Please extend the submission.

To: Jurnal Kesmas <jurnalkesmas.ui@gmail.com>

Dear

Prof. Dr. Dewi Susanna, dra, MS.

Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Kindly see the paper's revision attached and the cover Letter for Submission signed by all co-authors.

The article has checked the author guidelines for Special Issue at <https://journal.fkm.ui.ac.id/kesmas/about/submissions#authorGuidelines>. I hope the paper can be accepted a Public Health Journal)

Respectfully,

Hamzah Hasyim

On Mon, 6 Jun 2022 at 10:35, Jurnal Kesmas <jurnalkesmas.ui@gmail.com> wrote:

Dear Hamzah Hasyim,

We will give you an extension. Please send it before June 11, 2022.

Thank you.

On Sun, Jun 5, 2022 at 7:07 PM hamzah fkmunsri <hamzah@fkm.unsri.ac.id> wrote:

Dear

Prof. Dr. Dewi Susanna, dra, MS.

Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Please extend my new submission of the article. Currently, I am waiting feedback from one of the coauthorships, like below.

I appreciate your flexibility.

Respectfully,

Hamzah Hasyim

----- Forwarded message -----

From: **Patricia Dale**

Date: Sun, 5 Jun 2022 at 14:30

Subject: Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review

To: <hamzah@fkm.unsri.ac.id>

Thanks Hamzah

I will get it back to you in one or two days at latest.

Best wishes

Pat

School of Environment and Science,
Centre for Planetary Health and Food Security,
Griffith University,
Nathan,
Queensland, Australia 4111

From: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

Sent: Sunday, 5 June 2022 1:48 pm

To: Patricia Dale

Subject: Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review

[Quoted text hidden]

 **Hamzah Hasyim_COVID-19 Prevention Behaviour in Diabetes Mellitus.docx**
95K



hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

Please Submit Your Article in Author Version

5 messages

Jurnal Kesmas <jurnalkesmas2.ui@gmail.com>
To: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

5 July 2022 at 13:58

Dear Author,

Please submit your article (the latest revision) + supplementary files (Cover Letter & Statement) as soon as possible through your submission system in **Author Version**. We hereby attach the **Author Tutorial** as a submission guide.

If you have already submitted your article through the system, please let us know your **submission ID** by replying to this email or via WhatsApp: +62815-1141-6600.

Thank you.

Regards,

Editorial Team of Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

--
Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) published by Faculty of Public Health Universitas Indonesia since August 2006 and has been accredited by Director General of Higher Education in July 2009 and re-accredited in 2012 (No.56/DIKTI/Kep/2012) and 2017 (No.32a/E/KPT/2017). Our journal is indexed in Scopus & SINTA1 and published quarterly on February, May, August and November.

<http://journal.fkm.ui.ac.id/kesmas>

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600



AUTHOR TUTORIAL.pptx
3201K

hamzah fkmunsri <hamzah@fkm.unsri.ac.id>
To: Patricia Dale <p.dale@griffith.edu.au>

6 July 2022 at 11:07

Dear Prof Pat

If you agree with the revision paper that I have made, I will submit it

Best,

Hamzah

[Quoted text hidden]

5 attachments



AUTHOR TUTORIAL.pptx
3201K



Hamzah Hasyim (clean)_COVID-19 Prevention Behaviour in Diabetes (considered for review-belum ada MB).docx



Dr.rer.med.Hamzah Hasyim <hamzah@fkm.unsri.ac.id>

Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review

1 message

hamzah fkmunsri <hamzah@fkm.unsri.ac.id>
To: Jurnal Kesmas <jurnalkesmas.ui@gmail.com>

1 June 2022 at 08:24

Faculty of Public Health, Universitas Sriwijaya, Indonesia

Date: 1.6.2022

Email: **hamzah@fkm.unsri.ac.id**

Submission of manuscript

Dear

Prof. Dr. Dewi Susanna, dra, MS.

Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Faculty of Public Health

Universitas Indonesia

G301 Building G 3rd Floor

Kampus Baru UI Depok 16424

Phone: +62815 1141 6600

We kindly ask for consideration of our manuscript entitled: "**Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review**" in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

Patients with diabetes are at greater risk of contracting COVID-19, which has a more severe course resulting in death. COVID-19 prevention is the most effective method of avoiding COVID-19 because of the disease's detrimental effect on diabetic patients and the lack of a treatment considered adequate for COVID-19.

By narrative literature review concluded that health education programs for diabetic patients regarding COVID-19 need to be improved to increase knowledge, encourage positive attitudes, and implement good COVID-19 prevention behaviours, among other things.

With the submission of this manuscript, we certify that this manuscript has neither been previously published nor is currently under consideration elsewhere, and we affirm that the script is an original work. We confirm that all authors have disclosed any actual or potential competing interests regarding the submitted article and the nature of those interests.

We hope that our manuscript is suitable for publication in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

We look forward to hearing from you.

Yours sincerely,

Hamzah Hasyim (on behalf of all authors)

5 attachments



Title Page (with author details).docx
39K



Manuscript (without author details).docx
110K



Figure 1.docx
29K



Figure 3.docx
296K



Figure 2.docx
235K



Dr.rer.med.Hamzah Hasyim <hamzah@fkm.unsri.ac.id>

Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review

1 message

Jurnal Kesmas <jurnalkesmas.ui@gmail.com>
To: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

2 June 2022 at 18:25

Dear Hamzah Hasyim,

Thank you for submitting to Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal). The manuscript will be considered for review. However, please do some revisions as attached.

Please also fill out the cover letter and statement letter.

Revision can be sent to the Editor by replying to this email no later than 4 days after receiving this email.

Thank you.

Best Regards,
Dewi Susanna
Editor in Chief
Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

On Wed, Jun 1, 2022 at 8:25 AM hamzah fkmunsri <hamzah@fkm.unsri.ac.id> wrote:
Faculty of Public Health, Universitas Sriwijaya, Indonesia

Date: 1.6.2022
Email: hamzah@fkm.unsri.ac.id

Submission of manuscript

Dear
Prof. Dr. Dewi Susanna, dra, MS.
Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

We kindly ask for consideration of our manuscript entitled: "**Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review**" in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

Patients with diabetes are at greater risk of contracting COVID-19, which has a more severe course resulting in death. COVID-19 prevention is the most effective method of avoiding COVID-19 because of the disease's detrimental effect on diabetic patients and the lack of a treatment considered adequate for COVID-19.

By narrative literature review concluded that health education programs for diabetic patients regarding COVID-19 need to be improved to increase knowledge, encourage positive attitudes, and implement good COVID-19 prevention behaviours, among other things.

With the submission of this manuscript, we certify that this manuscript has neither been previously published nor is currently under consideration elsewhere, and we affirm that the script is an original work. We confirm that all authors have disclosed any actual or potential competing interests regarding the submitted article and the nature of those interests.

We hope that our manuscript is suitable for publication in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

We look forward to hearing from you.

Yours sincerely,



Hamzah Hasyim (on behalf of all authors)

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) published by Faculty of Public Health Universitas Indonesia since August 2006 and has been accredited by Director General of Higher Education in July 2009 and re-accredited in 2012 (No.56/DIKTI/Kep/2012) and 2017 (No.32a/E/KPT/2017). Our journal is indexed in Scopus & SINTA1 and published quarterly in February, May, August, and November.

<http://journal.fkm.ui.ac.id/kesmas>

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)
Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

2 attachments

-  **Hamzah Hasyim_COVID-19 Prevention Behaviour in Diabetes Mellitus (1).docx**
638K
-  **COVER LETTER & STATEMENT_KESMAS_JURNAL KESEHATAN MASYARAKAT (NATIONAL PUBLIC HEALTH JOURNAL).doc**
37K

Cover Letter for Submission of a Paper

[Name]
[Affiliation]
[Address]

[Date]

Dear [Publisher or Editor in Chief Name],

We would like to submit a new manuscript entitled "[title of article]" for consideration by the *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*.

We confirm that this work is original and has neither been published elsewhere nor currently under consideration for publication elsewhere.

In this paper, we report on [research statement]. This is significant because [reason]. The paper should be of interest to readers in [the areas of study].

[Please explain in your own words the significance and novelty of the work, the problem that is being addressed, and why the manuscript belongs in this journal. Do not simply insert your abstract into your cover letter! Briefly describe the research you are reporting in your paper, why it is important, and why you think the readership of the journal would be interested in it.]

Please address all correspondence concerning this manuscript to me at [email address].

Thank you for your consideration of this manuscript.

Sincerely,

[Name, Signature]

STATEMENT LETTER

Name :
Institution :
Institution Address :
Mailing Address :
E-mail :
Mobile Phone :
Article Title :

- a. Author and co-author has sufficiently participated in the writing of this article so the article can be accountable to the public.
- b. All of the authors have reviewed the final version of the manuscript and agreed to publish this manuscript.
- c. This text has not been published in a form that is similar or the same in other journals or any magazines and are not processed in any other journal or any magazine.
- d. This text is really the original work of the authors and plagiarism free, if later found indications of plagiarism, the authors are willing to accept sanctions in accordance with prevailing regulations.
- e. This text is accompanied by copy of ethical clearance statement*
- f. The manuscript was sent to *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)* will not be withdrawn before it was decided whether the manuscript is accepted or rejected.
- g. The author is willing to pay the cost of the article publication if the article has been declared worthy of publication.

Place, Date

First Author	Co-author (1)	Co-author (2), ... etc
(name, signature)	(name, signature)	(name, signature)

Note:

- * Devoted to experimental research involving human and/animals samples
- Biodata is filled by the corresponding author only
- All Writers who contributed to this paper are required to provide consent signatures
- Signature with 10,000 stamped listed to only corresponding author

Analysis of COVID-19 Prevention Behaviour in Diabetes Mellitus

Patients: A Literature Review

Hamzah Hasyim^{*1}, Gizka Putri², Patricia Dale³

¹Faculty of Public Health, Universitas Sriwijaya, Indonesia

²City Health Services Office, Palembang, Indonesia

³Centre for Planetary Health and Food Security (CPHFS) School of Environment and Science, Griffith University, Nathan, Queensland, Australia

***Correspondence Author:** Hamzah Hasyim, Faculty of Public Health, Universitas Sriwijaya, Indonesia. E-mails: hamzah@fkm.unsri.ac.id. Phone: +62 (711) 580068

Abstract

COVID-19 is a new human-infected coronavirus that causes respiratory problems. COVID-19 can affect people of all ages, but those with a history of chronic disease (comorbidity) are at higher risk of poor outcomes with COVID-19. Diabetes Mellitus (DM) is one of the comorbidities that aggravates COVID-19 patients. COVID-19 patients with diabetes are at risk of worsening critical conditions in the intensive care unit (ICU), leading to death. COVID-19 prevention is the best way to avoid COVID-19 because COVID-19 is not currently considered adequate. This article reviews 32 papers of narrative literature focusing on COVID-19, DM, COVID-19 in DM patients, COVID-19 preventive behaviour, and COVID-19 KAP (knowledge, attitude, practice) in chronic disease patients, specifically Diabetes Mellitus. Diabetes patients at high risk of COVID-19 must practice good COVID-19 behaviour. Improving knowledge, encouraging positive attitudes, and implementing good COVID-19 prevention behaviours in DM patients requires education and access to COVID-19 health information.

Keywords: COVID-19, Diabetes Mellitus, COVID-19 in Diabetes Mellitus Patients, Preventive Behaviour of COVID-19, KAP (Knowledge, Attitude, Practice) of COVID-19.

Commented [KJ1]: Dear authors, kami membantu merapikan artikel yang anda kirimkan menjadi satu file. Silakan melakukan pada file ini saja dan lakukan perbaikan dengan rapi.

Commented [KJ2]: The maximum word in the manuscript is 4000 words.

Commented [KJ3]: Dear authors, ensure you've checked the author guidelines for Special Issue <https://journal.fkm.ui.ac.id/kesmas/about/submissions#authorGuidelines>

Commented [KJ4]: Department? City?

Commented [KJ5]: Department? City?

Commented [KJ6]: Tulis kepanjangan terlebih dahulu kemudian singkatannya.

Commented [KJ7]: The aim of this article?

Commented [KJ8]: Sort alphabetically

Commented [KJ9]: Do not use abbreviation in the keywords.

Introduction

COVID-19 was first discovered in Wuhan City, Hubei, China, on December 1, 2019, and by March 11, 2020, WHO had declared it a worldwide pandemic. Initially, this disease was called 2019 Novel Coronavirus (2019-nCoV) by WHO, which renamed it Coronavirus Disease (COVID-19).¹ The COVID-19 virus is spread from human to human by droplets derived from coughing or sneezing. Symptoms are fever, dry cough, and fatigue.² The ongoing COVID-19 Pandemic impacts the health sector and the world's socio-economic system.³ Based on WHO data, on June 20, 2021, there were 177,108,695 COVID-19 cases and 3,840,223 deaths. Indonesia is 18th in the world for COVID-19 occurrences.⁴ Indonesian Ministry of Health (Kemenkes) verifies COVID-19 cases reached 1,989,909 patients who recovered 1 of 792,528 people and number of deaths 54,662 on June 20, 2021.⁵ The elderly and people with a history of chronic disease (comorbid) are at greater risk and experience worse complications.⁶

Concerning comorbidities in COVID-19 patients in Indonesia, hypertension, DM, and cardiovascular disease are three of the most prevalent.⁷ Hyperglycemia and imbalances in pathways involved in viral entry into cells and impaired immune and inflammatory responses cause this COVID-19-induced annoying mechanism in DM patients.⁸ Uncontrolled blood sugar levels and complications accompanying DM accompany this group of COVID-19 patients, whose prognosis is poor.⁹

Data obtained from various countries show that the prevalence of DM patients in COVID-19 patients is generally lower than the general population but has a more severe impact than those without the disease.⁸ Based on the Indonesian COVID-19 Handling Task Force data as of June 20, 2021, 4,332 patients had comorbidities. DM ranks second among diseases, with a percentage of 36.5%. Meanwhile, out of the 4,322 COVID-19 patients with comorbidities who died, most issues were related to DM, 9.7 per cent.⁵

Reduce efforts to prevent COVID-19, especially in DM patients with the current conditions. To avoid COVID-19 infection, one must focus on DM prevention.¹⁰ On March 28, 2020, the Indonesian government announced measures to be implemented during the COVID-19 pandemic to help DM patients.¹¹ In addition, to prevent getting sick from COVID-19, the best step is to follow COVID-19 prevention behaviour. Knowledge and attitude reflect preventive behaviour. Knowledge, attitudes, and behaviour regarding COVID-19 affect community compliance.² People have good knowledge and positive attitudes and do good preventive action

in Indonesia.¹² Those at higher risk of contracting COVID-19 must maintain adequate COVID-19 prevention behaviour. Insufficient knowledge in DM and hypertension patients affects preventive behaviour, which increases the risk of COVID-19 transmission.¹³ People's age, gender, education, and occupation all affect their COVID-19 prevention behaviour. COVID-19 prevention behaviour is related to age, gender, and employment.¹⁴ Diabetics patients had a higher risk to get poor outcomes after COVID-19 infection. Previous studies reported knowledge, attitude and COVID-19 preventive measures in diabetics patients. This study aimed to conduct a narrative literature review on COVID-19 preventive behaviour in diabetic patients.

Method

We searched articles on PubMed and ProQuest. The inclusion criteria were articles from the last ten years based on keywords. Literature data sources containing keywords relevant to the topic of discussion are searched and reviewed. The article was recorded if it was a review or a research article and available with open access. Articles that were not available in open access were excluded. The search terms using the search term in Medical Subjects Headings (MeSH) and free text were (COVID-19 AND Diabetes Mellitus), ((COVID-19 in Diabetes Mellitus patients) AND (Preventive Behaviour of COVID-19)). The search focused on the literature about COVID-19 preventive behaviour in chronic illness patients, specifically diabetes mellitus. COVID-19 prevention behaviour in DM patients is assessed using relevant literature. The eligibility of the papers based on their title and abstract was assessed independently by GP and HH. If needed, the full paper was acquired to determine the eligibility status additionally. If there is disagreement, a consensus was reached by consulting a third reviewer (MA). Papers in languages other than English were excluded if no translated version of the paper was available. The full text of the papers that met the eligibility for the review was then assessed. We then pooled the results of the studies that focused on COVID-19 preventive behaviour in diabetics patients.

Results

From search keywords, we found 73 papers in Pubmed and ProQuest. Based on inclusion and exclusion criteria, 32 articles were selected and examined based on relevance to the topic. COVID-19, Diabetes mellitus, and COVID-19 in diabetes mellitus patients are subjects of 16 articles. Additionally, 16 studies on Preventive Behaviour of COVID-19 and KAP of COVID-19 in chronic illness patients were also obtained, particularly in people with diabetes. Finally,

Commented [KJ10]: Do not use personal pronouns such as "we". Please change all the words like this.

the articles were reviewed and discussed using objective and comprehensive analysis for COVID-19, Diabetes Mellitus, preventive behaviour and COVID-19 KAP in chronic illness patients, specifically in diabetics patients. Figure 1 shows the PubMed and ProQuest literature search strategy chart.

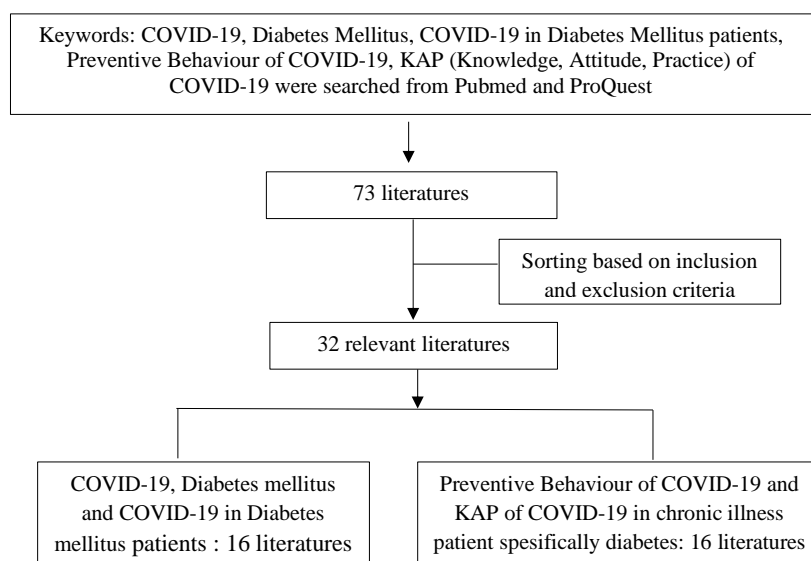


Figure 1. A Literature Search from Pubmed and ProQuest

Discussion

SARS-CoV-2 coronavirus originates from a pneumonia group in Wuhan City. Moreover, this is a brand-new coronavirus that infects humans and causes respiratory failure or sudden death. On January 30, 2020, the WHO declared COVID-19 an international health emergency.¹⁵

Aetiology of COVID-19

SARS-CoV-2 infects humans. SARS-CoV and MERS-CoV cause atypical pneumonia.¹ 70% of the genetic sequence of COVID-19 is identical to SARS-CoV. This virus's target is the lungs, and the viral spike binds to the *Angiotensin-Converting Enzyme 2* (ACE2) receptor on lung cells. SARS-CoV has an affinity about 10-20 times lower than the COVID-19 spike, making it easier to spread between individuals.^{1,16} Structure of Severe Acute Respiratory Syndrome

Coronavirus-2 (SARS-CoV-2) shows in Figure 2, adapted from Li H, Liu S, Yu X, et al. Coronavirus disease 2019 (COVID-19): current status and future perspectives. *Int J Antimicrob Agents* 2020; 55: 105951.

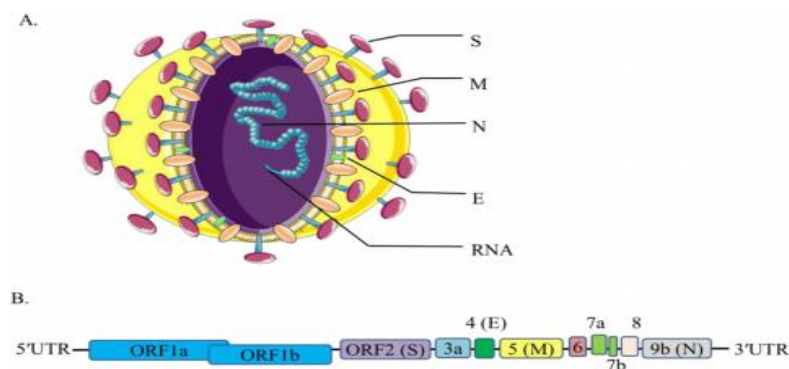


Figure 2. Structure of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2)

Commented [KJ11]: Add the number of reference

Pneumonia of unknown cause is now reported from Wuhan City, China. They were previously exposed to the Wuhan City Huanan seafood market. The new coronavirus confirmed the diagnosis of an acute respiratory infection.¹ Several more cases emerged without having been in Wuhan. Besides, this indicates the possibility of human-to-human transmission.^{1,15}

Incubation period

It takes about 3 to 7 days (on average) for COVID-19 to incubate. These data agree with the current WHO-recommended 14-days active monitoring period.¹ Pre-incubation, asymptomatic COVID-19 patients effectively transmit COVID-19. The most significant transmission risk is observed early in the infection due to virus concentration in secretions. Directly infectious up to 48 hours before symptom onset (presymptomatic) and up to 14 days after symptom onset.¹⁷ The duration of the disease until it can cause death ranges from 6 to 41 days, depending on the patient's age, health, and clinical condition.¹⁶

Transmission

Coronavirus is a zoonotic disease (transmitted between animals and humans). Recent studies have shown that coronaviruses can infect numerous animal species. They can sometimes infect humans with the coronavirus.¹⁸ Meanwhile, the animal responsible for COVID-19 transmission is still unknown.¹⁷ Respiratory droplets are the only known method of transmitting COVID-19. COVID-19 can be transmitted through direct or indirect contact with the eyes, nose, or

mouth. Aerosol transmission may also occur in a moderately closed environment exposed to significant concentrations of aerosols.^{1,19}

Primarily symptomatic people pass on COVID-19 using droplets. occurs when a person is close to someone who has respiratory symptoms (e.g. coughing or sneezing) at risk of infecting mucosa (mouth and nose) and conjunctiva (eyes).^{1,18} COVID-19 transmission is possible by contacting infected people or by exposure to contaminated surfaces used by infected people. There are asymptomatic confirmed cases, but still virtually risk of infection.^{1,19}

Detection and Diagnosis

COVID-19 containment requires rapid and accurate COVID-19 detection. WHO advises testing for COVID-19 in suspected cases. The recommended approach is molecular detection, such as *Reverse Transcription Quantitative* PCR (RT-PCR) examination. This study was primarily using *Nucleic Acid Amplification Test* (NAAT) for the diagnosis.^{1,15,17} Quantitative PCR (QPCR) is a molecular diagnostics technology based on nucleic acid sequences. RT-PCR can identify the viral nucleic acid in nasal and oral mucus, faeces, sputum, or blood samples. However, handling specimens of this type necessitates contact with patients, which increases the risk of spreading the virus to health workers.^{1,17}

Clinical Symptoms

In common, symptoms of COVID-19 infection are fever, fatigue, dry cough, myalgia, and shortness of breath.^{1,18} Severe patients often experience dyspnea and hypoxemia one week after onset. Septic shock, ARDS, metabolic acidosis is challenging to correct, and coagulation dysfunction develops rapidly. Sometimes, patients can develop ARDS, pneumonia, kidney failure, and even death. Mild patients only show fevers that are not too high, light fatigue, and no pneumonia.¹ Some infected individuals are symptom-free, feeling fine. These asymptomatic or mild cases can be COVID-19-reservoirs. In addition, symptoms of shortness of breath, dry cough, fever and contact history with COVID-19 patients or travelling to high COVID-19 transmission areas. If people experience any of these symptoms, the risk of contracting COVID-19 may increase.^{1,18} Because of this, COVID-19 testing and checks are required. But there are varying recovery times for different patients and age groups.^{17,18}

Management

The patient's treatment is aimed at symptomatic and supportive therapy. Treatment is conducted based on the presenting symptoms and complaints of the patient. Several vaccine

candidates and certain drugs are still in clinical trials.¹⁷ COVID-19 treatment involves rest and supportive care, ensuring adequate energy intake, and monitoring vital signs. Confirmed cases of COVID-19 require treatment in a designated hospital under isolation and protection. Severe symptomatic cases and those with comorbidities require inpatient care with supervision from health workers. Immediate admission to the ICU is needed for severe cases.^{1,18} Patients with mild symptoms don't require hospitalisation unless there is a concern about possible worsening or additional medical considerations. The older, sicker, and more diseases a patient is, the greater the likelihood of suffering severe symptoms and even death.^{1,3}

Prevention

Prevention and treatment are required to control COVID-19. Because of this, the community and the government are needed on the same page. Wearing a mask, diligently washing hands with soap or using hand sanitiser, and maintaining distance are all methods to prevent COVID-19 exposure.^{17,20} The community is advised to follow new habits and preventive measures in every activity.¹⁷

It is critical to keep one's immunity high during the COVID-19 pandemic.^{18,20} People advised staying home, practising cough and sneeze etiquette, and asking a doctor if the issue persists.^{17,18} Gatherings and crowds are to be avoided. Additionally, people should avoid crowds, and gatherings like in public places and children should not attend school.¹⁸ COVID-19 vaccination is also necessary for preventing COVID-19, especially for vulnerable groups.²⁰

Population at Risk

The COVID-19 risk is higher in elderly and sick patients.³ Comorbidities at greater risk include diabetes, cancer, chronic kidney failure, heart disease, Chronic obstructive pulmonary disease (COPD), autoimmune diseases, obesity, and pregnancy. Seniors and people with comorbidities are more likely to develop severe cases, necessitating hospitalisation, ICU and death.^{3,18,21} COVID-19-exposed pregnant women and newborns can develop severe pneumonia requiring intensive care in hospitals. People regularly exposed to COVID-19 patients, such as healthcare workers, are also at high risk.¹ In this situation, all patients and vulnerable people must concentrate on controlling COVID-19 infection. COVID-19 must be kept away from vulnerable people.^{1,18}

Diabetes Mellitus

Diabetes Mellitus is a chronic disease characterised by high blood sugar levels. DM type rises due to the discussion of the cause of increased blood sugar.²² A collection of symptoms characterised by hyperglycemia or high blood sugar due to insulin resistance and insulin secretion, also known as DM.²³ Diabetes mellitus consist of type 1 diabetes, type 2 diabetes, and gestational diabetes.^{22,24} Diabetes is diagnosed when recommended blood sugar levels are measured enzymatically using venous blood plasma and accompanied by symptoms of hyperglycemia.²³

Clinical Symptoms

DM clinical symptoms include polyphagia (increased appetite) and polyuria (frequent urination, especially at night). In addition, polydipsia (excessive thirst) and weight loss without known causes.^{23,24} The atypical clinical symptoms include weakness, tingling in the extremities, itching, blurred vision, erectile dysfunction in men, and pruritus vulva in women.²⁵ The microvascular complications in eyes, kidneys, and nerves and an increased risk of cardiovascular disease are seen in patients with DM.²⁴ Typical symptoms of type 1 diabetes include nausea, vomiting, abdominal pain, vision problems, and weight loss. Symptoms may develop over several years in type 2 diabetes. Sometimes, type 2 diabetes is unknown because it has no symptoms.^{23,26} During pregnancy, Gestational Diabetes may be acquired and without symptoms. Tests are usually given between 24 and 28 weeks into a pregnancy to examine the mother's and baby's health.²⁶ DM severity is due to the presence and duration of diabetes. Diabetes can lead to weakness, loss of consciousness (coma), and even death if it is not controlled.²³

Management

The therapy for DM includes medication and lifestyle modifications.²⁷ The choice of treatment type is personal, dependent on the patient's condition, and generally using a combination of drugs with differing mechanisms of action. Oral hypoglycemic drugs are started with a low dose and are increased according to blood sugar levels to an optimal dose.²⁵ Lifestyle modification includes diet, exercise, and smoking cessation. A disease can be controlled with regular medication, lifestyle modification, and regular monitoring.^{25,27}

Public health efforts must focus on dealing with DM.²⁷ Oral drugs are used as the first-line treatment or insulin.^{23,24} Prevention and lifestyle interventions should be given more consideration. Lifestyle interventions took place in physical activity behaviour, eating patterns,

and DM/nutrition information. Focus on mental health, especially for young patients and adolescents.²⁷

Diabetes Mellitus Risk Factors

DM risk factors are obesity, genetics, history of hypertension, Gestational Diabetes, and inactivity.²⁵ Type 1 diabetes is genetic mainly and age-dependent. Genetic factors and family history of DM Type 1 diabetes usually present in children and adolescents.²⁸ In youth, however, type 2 diabetes is more prevalent, causing an increase in obesity. Type 2 diabetes in children and adolescents is a severe medical problem because it also has a high complication rate.²⁷

Diabetes Mellitus and COVID-19

Diabetes Mellitus and COVID-19 Risk Mechanisms

Diabetes mellitus, hypertension, and severe obesity increase morbidity and mortality in patients with COVID-19. Since DM is common in cardiovascular disease, obesity, and hypertension, it is unknown whether DM causes the disease or its complications.⁹ COVID-19 in DM patients shares similar symptoms to other COVID-19 patients, but in DM patients, symptoms can be more severe. COVID-19 patients with DM are at a greater risk of severe complications such as ARDS and death.^{29,30}

DM comorbidity in COVID-19 patients with hyperglycemia causes the aggravating mechanism.⁸ Undiagnosed or uncontrolled diabetes increases the risk of infection, such as 2009 pandemic influenza A (H1N1), SARS-CoV, and MERS-CoV. In this case, patients with DM have a higher risk of experiencing severe COVID-19 and even death.³¹ Also, DM-related complications are commonly associated with a poor prognosis. COVID-19 with DM increases the risk of critical conditions, requires intensive care in ICU, and patients may die.⁸

Mechanisms contributed to increased COVID-19 susceptibility in DM shows in Figure 3, adapted from Muniyappa R, Gubbi S. COVID-19 pandemic, coronaviruses, and diabetes mellitus. *Am J Physiol - Endocrinol Metab* 2020; 318: E736–E741.

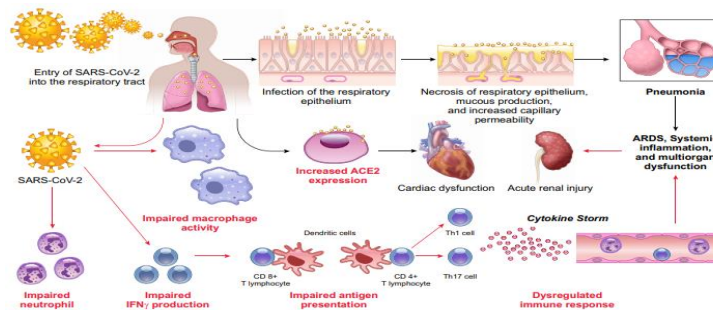


Figure 3. Mechanisms were Contributing to Increased COVID-19 Susceptibility in Diabetes Mellitus

Commented [KJ12]: Add the number of reference

Glycemic control

Hyperglycemia weakens the body's defence system, activates inflammation, and increases the severity of COVID-19.³⁰ To prevent hyperglycemia which worsens the COVID-19 condition in diabetic patients taking insulin to control sugar and consuming low sugar content.^{8,32}

Impaired immune response and inflammation

Elderly patients with low immune systems are vulnerable to DMs. DM's effect on the adaptive immune response and inflammatory reactions support the emergence and development of COVID-19 infection.^{8,9} DM is a risk factor for various infections, including respiratory viral infections, such as COVID-19. Also present are low-grade chronic pro-inflammatory and pro-coagulant conditions, characteristic of DM-related diseases.^{8,32}

DM related comorbidities and complications

DM's adverse effect on COVID-19 is closely linked to hyperglycemia and other associated health problems.^{8,9} Comorbidities associated with DM include obesity and hypertension. Additional complications of chronic hyperglycemia include cardiovascular disease and renal failure.⁸ Macrovascular and microvascular complications frequently occur in DM patients.³²

Managing Diabetes during the COVID-19 Pandemic

As of right now, research to treat COVID-19-infected DM patients continues. Close monitoring of blood sugar and drug interactions reduces aggravation symptoms.^{30,31} One should not ignore the possibility of hypoglycemic episodes in diabetic patients. Following the severity of the

disease, other comorbidities and complications due to DM, age, and other conditions is required.³¹ To recommend that DM patients with COVID-19 take oral or injectable drugs regularly and make regular checks on blood sugar levels.

Managing DM during the COVID-19 pandemic is a challenge. During a pandemic, fear of visiting health facilities obstructs DM patients to check their blood sugar more frequently. Due to the DM Pandemic, the opportunity to exercise is somewhat limited. Food habits that result in high-calorie and high-fat packaged foods are eaten daily. Complications resulting from glucose dysregulation include type 1 diabetes-related diseases.³³ Patients are advised to use telemedicine facilities to minimise visits to health facilities. DM patients should do home blood sugar checks, eat healthy foods, and get some exercise.²⁹

Prevention of COVID-19 in diabetics

To prevent COVID-19, Clinicians advise DM patients to frequently wash their hands with soap and avoid touching their faces, except when necessary to minimise their exposure to virus carriers. Wearing a mask is strongly recommended if you have to leave the house. DM patients are advised to have a healthy diet and stay active. Furthermore, following a diabetic treatment, check blood sugar regularly, and see a doctor if there are complaints. Since patients have to handle both oral and injection drugs, it is imperative to wash hands frequently to prevent COVID-19 infection.³⁴ DM patients' risk of suffering from severe infections is due to uncontrolled blood sugar, which must be controlled regularly.³⁰ Healthy lifestyle choices and consistent medication administration are advised for DM patients. If any problems arise, contact your doctor. Taking advantage of telemedicine facilities reduces the risk of exposure. Additionally, monitor your blood sugar levels regularly.^{33,34}

COVID-19 Preventive Behaviors

Behaviour and lifestyle significantly affect health status. Good habits are performed by someone who believes they are healthy, intending to better their health condition. Prevention behaviour is an activity performed by someone who believes they are healthy, inhibiting illness or detecting the disease when asymptomatic.³⁵ Lifestyle, behaviour, and environment responsiveness are affected by three factors: predisposing factors, enabling factors, and reinforcing elements, says Lawrence Green. Knowledge and attitudes are predisposing factors for behaviour change.³⁶

There is no effective treatment for COVID-19, so prevention is the best way to prevent infection. Knowledge and attitude both demonstrate preventive behaviour. Susilawati in Indonesia found that respondents have good knowledge and positive attitudes and practised preventive behaviours.¹² Majority of the population has good knowledge, good attitudes, and practises appropriate COVID-19 prevention behaviours.^{2,14,37} Based on Lee, Kang, and You's research in South Korea, knowledge about COVID-19 related to prevention behaviour, such as wearing masks, hand hygiene, and avoiding crowds.³⁷ In addition to good knowledge and attitudes toward COVID-19, the people of Sudan do not describe good behaviour.³⁸ To avoid misleading information, adequate information about COVID-19 precautions is essential.¹²

Many patients with comorbidities such as diabetes and hypertension are aware of the symptoms of COVID-19 and implement behaviours to prevent COVID-19. Many, however, have not made routine changes to prevent COVID-19.³⁹ In Vietnam and Ethiopia, patients had

strong knowledge, positive attitudes and performed COVID-19 prevention well.^{40,41} Good knowledge and a positive attitude in patients with chronic diseases are significant for preventing COVID-19.⁴¹ In comparison, many patients with chronic conditions had low perceptions and willingness to carry out COVID-19 intervention behaviours.⁴² Additionally, Akalu's study found that chronic disease patients demonstrated poor preventive behaviour, such as failing to use masks when leaving the house, being unwilling to avoid crowds, and maintaining a distance. Patients with chronic disease have low knowledge and are less likely to follow COVID-19 prevention practice.⁶

COVID-19 risk for DM patients must be combated by good COVID-19 prevention behaviour. In studies on DM and hypertension patients, it was found that inadequate knowledge increases the risk of COVID-19 transmission.¹³ COVID-19 use knowledge and attitudes were high in DM type 1 patients in a study.⁴³ To date, it is unclear if DM patients comply with COVID-19 prevention measures. Extra and optimal prevention practices are rare.³⁴ COVID-19 is at a higher risk of infection in DM patients than those who do not have DM. COVID-19 was avoided mainly during the COVID-19 pandemic due to behavioural changes such as maintaining diet, using a medication, and exercising.⁴⁴ During the lockdown during the COVID-19 Pandemic, DM patients were reportedly anxious about the COVID-19 pandemic. Taking preventive measures, they maintained a healthy diet. However, only 28% of DM patients monitor their blood sugar levels regularly.⁴⁵ In comparison, many young adults patients with type 1 diabetes are less aware of the risk of COVID-19.⁴⁶

Knowledge

Sources of good information are needed to increase public knowledge about COVID-19. Correcting misinformation in the community will help reduce inappropriate preventive behaviour.¹⁴ Social media is widely used to find information about COVID-19 in Indonesia.¹² To provide excellent and appropriate COVID-19 prevention practices, the overall health education programmes regarding COVID-19 must be improved.² Although COVID-19 is a new disease, Indonesia, Malaysia, South Korea, China, and Sudan all seem to know about it.^{2,12,14,37,38} Knowledge of COVID-19 is related to COVID-19 attitudes and prevention practices.^{2,37} DM patients in Ethiopia had adequate knowledge about COVID-19.^{13,34} Meanwhile, in patients with such chronic diseases as diabetes, hypertension, and chronic lung disease, results from using COVID-19 have been inconclusive.⁶

Attitude

Assessment and measurement are essential in understanding human attitudes and behaviour.⁴⁷ COVID-19 studies show that people in the community favour and aware of COVID-19.^{2,12,14,37,38} A positive attitude towards COVID-19 influences preventive behaviour. Having a positive COVID-19 attitude related to good COVID-19 prevention behaviour.² Findings on DM and hypertension patients and DM type 1 patient showed positive attitudes toward COVID-19.^{13,43} Type 1 DM patients are positive and aware of COVID-19 disease. They keep their distance and wash their hands frequently to protect themselves.⁴³ People with DM had an increased risk of getting infected with COVID-19 during the COVID-19 pandemic so that they took action to avoid infection.⁴⁴

Characteristics

Because a person's grasp and mindset grow with age, the knowledge will become better and better.⁴⁸ The research found that knowledge and attitudes regarding COVID-19 are linked to age groups.^{12,14,38} Age group, gender, education, and residence are significant variables relating to knowledge.² People with chronic diseases that less aware of COVID-19 are less likely to practise COVID-19 preventive behaviour, according to researchers.⁶ Men behave rationally and analytically, while women are emotional. Knowledge of COVID-19 is connected to gender.^{2,14,37} Research in Indonesia indicates that gender influences COVID-19 prevention behaviour; women have better preventive behaviour precisely.¹² As education increases, knowledge can be received and understood at a higher level. Knowledge about COVID-19 is related to a level of education.^{2,12,37,38} Lower levels of education significantly impact patients chronic disease knowledge about COVID-19.⁶ A study on DM and hypertensive patients found inadequate knowledge and behaviour COVID-19 associated with low educational attainment.¹³

A work environment can impart a person with both direct and indirect knowledge. The entrepreneur community is weaker when it comes to COVID-19 knowledge than those who work in the government.¹³ Researchers discovered that knowledge and preventive behaviour of COVID-19 are related to occupation.¹⁴ Research on patients with chronic disease shows that socio-economic characteristics, such as age, education, employment, and income, are connected to low knowledge and poor preventive behaviour.⁶

Conclusion

DM patients have a higher risk of being infected with COVID-19 and worse severity that can cause death. COVID-19 preventive behaviour is the best step to avoid COVID-19 due to its harmful effect on DM patients and the absence of treatment considered adequate for COVID-19. Health education programs regarding COVID-19 in DM patients need to be improved to increase knowledge and help encourage positive attitudes and implement good COVID-19 prevention behaviours. There is still little literature discussing COVID-19 prevention behaviour in DM patients in Indonesia, so further research and discussion are needed to control and prevent COVID-19 in DM patients.

Conflicts of Interest:

The authors declare that they have no conflict of interest.

Authorship contributions

GP conceived the study. HH advised on the research. HH, MA, and GP wrote the main manuscript text, and all authors contributed to interpreting the results. All authors read and approved the final manuscript.

Funding

The authors should state that they have no funding for the research.

Acknowledgements

Thank you to those who have helped and supported this research.

Commented [KJ13]: Please adjust these things :
- abbreviations
- ethics approval and consent to participate
- competing interest
- availability of data and materials
- authors' contribution
- acknowledgment

Reference

1. Li H, Liu S, Yu X, Tang S, Tang C. Coronavirus disease 2019 (COVID-19): current status and future perspectives. *Int J Antimicrob Agents*. 2020;55(5):105951.
2. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, et al. Knowledge, attitudes, and practices towards COVID-19 among chinese residents during the rapid rise period of the COVID-19 outbreak: A quick online cross-sectional survey. *Int J Biol Sci*. 2020;16(10):1745–52.
3. Garg I, Srivastava S, Rai C, Vinay K, Hembrom, Angelina A, et al. Coronavirus (COVID-19): Prognostic Risk Associated with Comorbidities and Age. *Int J Recent Sci Res*. 2020;11(04 (A)):37983–6.
4. WHO.int. WHO Coronavirus Disease (COVID-19) Dashboard [Internet]. WHO. 2021 [cited 2021 Jun 20]. Available from: <https://covid19.who.int/table>
5. Satgas COVID-19. Indonesia; Data Sebaran [Internet]. covid19.go.id. 2021 [cited 2021 Jun 20]. Available from: <https://covid19.go.id/peta-sebaran>
6. Akalu Y, Ayelign B, Molla MD. Knowledge, attitude and practice towards covid-19 among chronic disease patients at addis zemen hospital, Northwest Ethiopia. *Infect Drug Resist*. 2020;13:1949–60.
7. Karyono DR, Wicaksana AL. Current prevalence, characteristics, and comorbidities of patients with COVID-19 in Indonesia. *J Community Empower Heal*. 2020;3(2):77.
8. Pugliese G, Vitale M, Resi V, Orsi E. Is diabetes mellitus a risk factor for COroNaVirus Disease 19 (COVID-19)? *Acta Diabetol* [Internet]. 2020;57(11):1275–85. Available from: <https://doi.org/10.1007/s00592-020-01586-6>
9. Muniyappa R, Gubbi S. COVID-19 pandemic, coronaviruses, and diabetes mellitus. *Am J Physiol - Endocrinol Metab*. 2020;318(5):E736–41.
10. Kumar A, Arora A, Sharma P, Anil S. Is diabetes mellitus associated with mortality and severity of COVID19? A meta-analysis. *Diabetes Metab Syndr Clin Res Rev* [Internet]. 2020;(January). Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1871402120301090?via%3Dihub>
11. Kemenkes RI. Langkah - Langkah Pencegahan bagi Penyandang Diabetes Melitus di Masa Pandemi COVID-19 [Internet]. 2020 [cited 2021 Feb 8]. Available from: <http://www.p2ptm.kemkes.go.id/kegiatan-p2ptm/dki-jakarta/langkah-langkah-pencegahan-bagi-penyandang-diabetes-melitus-di-masa-pandemi-covid-19>
12. Sulistyawati S, Rokhmayanti R, Aji B, Wijayanti SPM, Hastuti SKW, Sukesu TW, et al.

knowledge, attitudes, practices and information needs during the covid-19 pandemic in indonesia. *Risk Manag Healthc Policy*. 2021;14:163–75.

13. Taye GM, Bose L, Beressa TB, Tefera GM, Mosisa B, Dinsa H, et al. COVID-19 knowledge, attitudes, and prevention practices among people with hypertension and diabetes mellitus attending public health facilities in Ambo, Ethiopia. *Infect Drug Resist*. 2020;13:4203–14.
14. Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E. Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *PLoS One* [Internet]. 2020;15(5):1–15. Available from: <http://dx.doi.org/10.1371/journal.pone.0233668>
15. WHO.int. Naming the coronavirus disease (COVID-19) and the virus that causes it [Internet]. 2020 [cited 2020 Oct 20]. Available from: [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it)
16. Wan Y, Shang J, Graham R, Baric RS, Li F. Receptor Recognition by the Novel Coronavirus from Wuhan: an Analysis Based on Decade-Long Structural Studies of SARS Coronavirus. *J Virol*. 2020;94(7):1–9.
17. Kementrian Kesehatan RI. Pedoman Pencegahan dan Pengendalian Coronavirus Disease (COVID-19). Vol. revisi 5. jakarta; 2020. 1–214 p.
18. Ali I, Alharbi OML. COVID-19: Disease, management, treatment, and social impact. *Sci Total Environ* [Internet]. 2020;728:138861. Available from: <https://doi.org/10.1016/j.scitotenv.2020.138861>
19. CDC. How COVID-19 Spreads [Internet]. CDC.gov. 2020 [cited 2021 Feb 8]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html>
20. CDC. How to Protect Yourself & Others [Internet]. CDC.gov. 2021 [cited 2021 Feb 8]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>
21. CDC. People at Increased Risk [Internet]. CDC.gov. 2021 [cited 2021 Feb 26]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/index.html>
22. Kemenkes. Tetap Produktif, cegah dan atasi diabetes melitus [Internet]. pusdatin. 2020. Available from: <https://pusdatin.kemkes.go.id/resources/download/pusdatin/infodatin/Infodatin-2020->

Diabetes-Melitus.pdf

23. Kharroubi AT. Diabetes mellitus: The epidemic of the century. *World J Diabetes*. 2015;6(6):850.
24. Punthakee Z, Goldenberg R, Katz P. Definition, Classification and Diagnosis of Diabetes, Prediabetes and Metabolic Syndrome. *Can J Diabetes* [Internet]. 2018;42:S10–5. Available from: <https://doi.org/10.1016/j.jcjd.2017.10.003>
25. Ikatan Dokter Indonesia. Panduan Praktik Klinis Bagi Dokter di Fasilitas Pelayanan Kesehatan Primer. Menteri Kesehat Republik Indones. 2017;162, 364.
26. CDC. Diabetes Symptoms [Internet]. CDC.gov. 2020 [cited 2021 Feb 26]. Available from: <https://www.cdc.gov/diabetes/basics/symptoms.html>
27. Zhao L, Long T, Hui AL, Zhao R, Long S, Peng W. Type 2 Diabetes Mellitus in Children and Adolescents : Early Prevention and Non-Drug Therapy. 2017;121–41.
28. CDC. Diabetes Risk Factors [Internet]. CDC.gov. 2020 [cited 2021 Feb 26]. Available from: <https://www.cdc.gov/diabetes/basics/risk-factors.html>
29. Abdi A, Jalilian M, Ahmadi P, Vlasisavljevic Z. Diabetes and COVID-19 : A systematic review on the current evidences. *Diabetes Res Clin Pract*. 2020;166(July).
30. Zhu et al. Association of Blood Glucose Control and Outcomes. *Cell Metab*. 2020;31(June):1068–1077.
31. Hussain A, Bhowmik B, Cristina N. COVID-19 and Diabetes : Knowledge in progress. *Diabetes Res Clin Pract* [Internet]. 2020;162:108142. Available from: <https://doi.org/10.1016/j.diabres.2020.108142>
32. Minuljo TT, Anindita YPC, Seno HNH, Pemayun TGD, Sofro MAU. Karakteristik dan Keluaran Pasien COVID-19 dengan DM di RS Umum Pusat Dr. Kariadi (Tinjauan pasien periode Maret-Juli 2020). *Medica Hosp J Clin Med*. 2020;7(1A):150–8.
33. Kumar A, Gupta R, Ghosh A, Misra A. Diabetes in COVID-19: Prevalence, pathophysiology, prognosis and practical considerations. *elsevier Diabet Metab Syndr Clin reserch Rev* [Internet]. 2020;14(January):303–10. Available from: <https://doi.org/10.1016/j.dsx.2020.04.004>
34. Ajay K, Hamza I, Deepika K, Ramsha GQ-A, Hamza S, Maria HS, et al. Knowledge & Awareness about COVID-19 and the Practice of Respiratory Hygiene and Other Preventive Measures among Patients with Diabetes Mellitus in Pakistan. *Eur Sci J ESJ*. 2020;16(12):53–62.
35. Green L. Modifying and Developing Health Behaviour. *Annu Rev Public Health* [Internet]. 1984;5:215–36. Available from:

<https://www.annualreviews.org/doi/pdf/10.1146/annurev.pu.05.050184.001243>

36. Green LW, Kreuter MW. Health Promotion Planning: An Educational and Environmental Approach. New York: McGraw-Hill; 2005.
37. Lee M, Kang B, You M. Knowledge, attitudes, and practices (KAP) toward COVID-19: a cross-sectional study in South Korea. BMC Public Health. 2021;1–11.
38. Mohamed AAO, Elhassan EAM, Mohamed AO, Mohammed AA, edris HA, Mahgoop MA, et al. Knowledge, attitude and practice of the Sudanese people towards COVID-19: an online survey. BMC Public Health. 2021;21(1):1–8.
39. Wolf MS, Serper M, Opsasnick L, O'Connor RM, Curtis L, Benavente JY, et al. Awareness, Attitudes, and Actions Related to COVID-19 Among Adults With Chronic Conditions at the Onset of the US Outbreak: A Cross-sectional Survey. Ann Intern Med. 2020;173(2):100–9.
40. Huynh G, Nguyen MQ, Tran TT, Nguyen VT, Nguyen TV, Do THT, et al. Knowledge, attitude, and practices regarding covid-19 among chronic illness patients at outpatient departments in Ho Chi Minh City, Vietnam. Risk Manag Healthc Policy. 2020;13:1571–8.
41. Andarge E, Fikadu T, Temesgen R, Shegaze M, Feleke T, Haile F, et al. Intention and practice on personal preventive measures against the covid-19 pandemic among adults with chronic conditions in southern ethiopia: A survey using the theory of planned behavior. J Multidiscip Healthc. 2020;13:1863–77.
42. Dires A. Perception of COVID-19 Prevention Methods Efficacy and Intention to Use Among Patients with Chronic Disease in Dessie Town, Northeast Ethiopia: A Multicentered Cross-sectional Study. J Multidiscip Healthc. 2021;(June).
43. Pal R, Yadav U, Grover S, Saboo B, Verma A. Knowledge, attitudes and practices towards COVID-19 among young adults with Type 1 Diabetes Mellitus amid the nationwide lockdown in India: A cross-sectional survey. Diabetical Res Clin Pract. 2020;166(January).
44. Yan AF, Sun X, Zheng J, Mi B, Zuo H, Ruan G. Perceived risk, behavior changes and Health-related outcomes during COVID-19 pandemic: Findings among adults with and without Diabetes in China. 2020;(January).
45. Nachimuthu S, Vijayalakshmi R, Sudha M, Viswanathan V. Coping with Diabetes during the COVID e 19 lockdown in India: Results of an online pilot survey. Diabetes Metab Syndr Clin Res Rev. 2020;14(January):579–82.
46. Pal R, Yadav U, Verma A, Bhadada SK. Awareness regarding COVID-19 and problems

being faced by young adults with type 1 diabetes mellitus amid nationwide lockdown in India: A qualitative interview study. Prim care diabetes Eur. 2020;(January).

47. Azwar S. Sikap manusia: Teori dan Pengukuran. Jakarta: Pustaka Pelajar; 2011.
48. Budiman, Riyanto. Kapita Selekta Kuesioner : Pengetahuan dan Sikap dalam Penelitian Kesehatan. Jakarta: Salemba Medika; 2013. 11–22

Authors' original submitted files for Figures

Figure legends

Figure 1. A literature search from PubMed and ProQuest.

Figure 2. Structure of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2).

Figure 3. Mechanisms were contributing to increased COVID-19 susceptibility in diabetes Mellitus.



Dr.rer.med.Hamzah Hasyim <hamzah@fkm.unsri.ac.id>

Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review

1 message

Jurnal Kesmas <jurnalkesmas.ui@gmail.com>
To: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

27 June 2022 at 14:20

Dear Hamzah Hasyim,

Thank you for submitting to Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal). The manuscript will be considered for review. However, please do some revisions as attached.

Please also fill out the author response form.

[HIGHLIGHT THE CHANGED PART - CHANGE THE FONT COLOR OR GIVE A HIGHLIGHT; PLEASE ALSO WRITE THE LINE NUMBER. DO NOT USE TRACK CHANGES]

Revision can be sent to the Editor by replying to this email no later than 7 days after receiving this email.

Thank you.

Best Regards,
Dewi Susanna
Editor in Chief
Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

On Wed, Jun 1, 2022 at 8:25 AM hamzah fkmunsri <hamzah@fkm.unsri.ac.id> wrote:
Faculty of Public Health, Universitas Sriwijaya, Indonesia

Date: 1.6.2022
Email: hamzah@fkm.unsri.ac.id

Submission of manuscript

Dear
Prof. Dr. Dewi Susanna, dra, MS.
Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

We kindly ask for consideration of our manuscript entitled: "**Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review**" in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

Patients with diabetes are at greater risk of contracting COVID-19, which has a more severe course resulting in death. COVID-19 prevention is the most effective method of avoiding COVID-19 because of the disease's detrimental effect on diabetic patients and the lack of a treatment considered adequate for COVID-19.

By narrative literature review concluded that health education programs for diabetic patients regarding COVID-19 need to be improved to increase knowledge, encourage positive attitudes, and implement good COVID-19 prevention behaviours, among other things.

With the submission of this manuscript, we certify that this manuscript has neither been previously published nor is currently under consideration elsewhere, and we affirm that the script is an original work. We confirm that all authors have disclosed any actual or potential competing interests regarding the submitted article and the nature of those interests.

We hope that our manuscript is suitable for publication in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

We look forward to hearing from you.

Yours sincerely,

Hamzah Hasyim (on behalf of all authors)

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) published by Faculty of Public Health Universitas Indonesia since August 2006 and has been accredited by Director General of Higher Education in July 2009 and re-accredited in 2012 (No.56/DIKTI/Kep/2012) and 2017 (No.32a/E/KPT/2017). Our journal is indexed in Scopus & SINTA1 and published quarterly in February, May, August, and November.

<http://journal.fkm.ui.ac.id/kesmas>

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)
Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

2 attachments

-  **Hamzah Hasyim (2)_COVID-19 Prevention Behaviour in Diabetes Mellitus.docx**
101K
-  **FORM AUTHOR RESPONSE TO COMMENT.docx**
12K



Dr.rer.med.Hamzah Hasyim <hamzah@fkm.unsri.ac.id>

Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review

1 message

Patricia Dale <p.dale@griffith.edu.au>

30 June 2022 at 07:38

To: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

Thanks Hamzah
Best wishes
Pat

Emeritus Professor Pat Dale
School of Environment and Science,
Centre for Planetary Health and Food Security,
Griffith University,
Nathan,
Queensland, Australia 4111
Email: p.dale@griffith.edu.au

From: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>**Sent:** Thursday, 30 June 2022 12:25 am**To:** Jurnal Kesmas <jurnalkesmas.ui@gmail.com>**Subject:** Re: Call for Paper COVID-19 [2022] Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review**Submission of revision manuscript.**

Dear

Prof. Dr. Dewi Susanna, dra, MS.

Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

Kindly see the paper that we have revised both in track change and clean version and also the Author's response to the Editors' Comments.

I hope the article can be published in a special issue at Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Please let me know if you have any questions.

Respectfully,

Hamzah Hasyim

Lecturer in Faculty of Public Health, Universitas Sriwijaya,
South Sumatra, Palembang-Prabumulih, KM 32
Indralaya (Ogan Ilir) 30662
INDONESIA
<http://fkm.unsri.ac.id/id/hamzah@fkm.unsri.ac.id>
Scopus ID 57200911734
Orcid ID 0000-0002-2780-8902
Web of Science Researcher ID AAO-1249-2020
<https://scholar.google.com/citations?user=0OtyRq0AAAAJ&hl=id>
Sinta ID 5974146

bit.ly/weM38G

Please consider the environment before printing this e-mail
Bitte denken Sie an die Umwelt, bevor Sie diese e-Mail ausdrucken

On Mon, 27 Jun 2022 at 14:20, Jurnal Kesmas <jurnalkesmas.ui@gmail.com> wrote:

Dear Hamzah Hasyim,

Thank you for submitting to Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal).

The manuscript will be considered for review. However, please do some revisions as attached.

Please also fill out the author response form.

[HIGHLIGHT THE CHANGED PART - CHANGE THE FONT COLOR OR GIVE A HIGHLIGHT; PLEASE ALSO WRITE THE LINE NUMBER. DO NOT USE TRACK CHANGES]

Revision can be sent to the Editor by replying to this email no later than 7 days after receiving this email.

Thank you.

Best Regards,
Dewi Susanna
Editor in Chief
Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

On Wed, Jun 1, 2022 at 8:25 AM hamzah fkmunsri <hamzah@fkm.unsri.ac.id> wrote:
Faculty of Public Health, Universitas Sriwijaya, Indonesia

Date: 1.6.2022
Email: hamzah@fkm.unsri.ac.id

Submission of manuscript

Dear
Prof. Dr. Dewi Susanna, dra, MS.
Editor in Chief KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

We kindly ask for consideration of our manuscript entitled: "**Analysis of Covid-19 Prevention Behaviour In Diabetes Mellitus Patients: A Literature Review**" in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

Patients with diabetes are at greater risk of contracting COVID-19, which has a more severe course resulting in death. COVID-19 prevention is the most effective method of avoiding COVID-19 because of the disease's detrimental effect on diabetic patients and the lack of a treatment considered adequate for COVID-19.

By narrative literature review concluded that health education programs for diabetic patients regarding COVID-19 need to be improved to increase knowledge, encourage positive attitudes, and implement good COVID-19 prevention behaviours, among other things.

With the submission of this manuscript, we certify that this manuscript has neither been previously published nor is currently under consideration elsewhere, and we affirm that the script is an original work. We confirm that all authors have disclosed any actual or potential competing interests regarding the submitted article and the nature of those interests.

We hope that our manuscript is suitable for publication in KESMAS: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) in a special issue

We look forward to hearing from you.

Yours sincerely,

Hamzah Hasyim (on behalf of all authors)



Dr.rer.med.Hamzah Hasyim <hamzah@fkm.unsri.ac.id>

Dummy Article Confirmation

1 message

Jurnal Kesmas <jurnalkesmas.ui@gmail.com>
To: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

29 July 2022 at 20:57

Dear Hamzah Hasyim,


Good evening,
We would like to send you the dummy of the article "Analysis of COVID-19 Preventive Behavior in Diabetes Mellitus Patients: A Literature Review" that will be published on Vol.17 (Special Issue 1), 2022. There are some highlights and notes that need to be confirmed. Please also confirm the whole article, whether there is typo on the article or the figure, miss spell, or else.
We would like to hear from you as soon as possible.

Best regards,
Secretariat Kesmas

—
Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) published by Faculty of Public Health Universitas Indonesia since August 2006 and has been accredited by Director General of Higher Education in July 2009 and re-accredited in 2012 (No.56/DIKTI/Kep/2012) and 2017 (No.32a/E/KPT/2017). Our journal is indexed in Scopus & SINTA1 and published quarterly in February, May, August, and November.

<http://journal.fkm.ui.ac.id/kesmas>

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)
Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600

 **KESMAS SPECIAL ISSUE 2022_Dummy_Preventive Behavior in DM Patients.pdf**
205K

Analysis of COVID-19 Preventive Behavior in Diabetes Mellitus Patients: A Literature Review

Hamzah Hasyim^{1*}, Gizka Putri², Patricia Dale³

¹Department of Environmental Health, Faculty of Public Health, Universitas Sriwijaya, Palembang, Indonesia, ²Department of Health of Palembang City, Palembang, Indonesia, ³Center for Planetary Health and Food Security (CPHFS), School of Environment and Science, Griffith University, Queensland, Australia

Abstract

The coronavirus disease 2019 (COVID-19) is a new human-infected coronavirus causing respiratory problems. The COVID-19 can affect people of all ages, but those with a record of chronic disease (comorbidity) are at higher risk of poor outcomes with the COVID-19. This study aimed to review COVID-19 preventative behavior in diabetes patients. Diabetes Mellitus (DM) is one of the comorbidities that aggravates COVID-19 in patients. Such patients are at risk of deteriorating critical conditions in the intensive care units (ICUs) and even death. Prevention is the best measure to avoid COVID-19, although it is currently considered adequate. This article reviewed 22 papers focusing on COVID-19, DM, COVID-19 in DM patients, COVID-19 preventive behavior, and COVID-19 knowledge, attitude, and practice in patients with chronic disease, while primary focusing on DM. It is revealed that diabetes patients at high risk of COVID-19 need to practice good preventive behaviors. Furthermore, it emphasizes that improving knowledge, encouraging positive attitudes, and implementing good COVID-19 preventive behaviors in DM patients requires education and access to COVID-19 health information.

Keywords: attitude, COVID-19, diabetes mellitus, knowledge, preventive behavior

Introduction

The ongoing COVID-19 pandemic impacts the health sector and the world's socioeconomic system.¹ Based on World Health Organization (WHO) data, on June 9, 2022, there were 531,550,610 confirmed cases of COVID-19 and 6,302,982 deaths globally.² The Ministry of Health of the Republic of Indonesia verified that, on June 8, 2022, there were 6,058,180 confirmed cases of COVID-19, with 5,897,630 recovered and 156,628 deaths.³

Based on data from the Indonesian COVID-19 Handling Task Force data as of June 20, 2021, around 4,332 patients had comorbidities. Diabetes Mellitus (DM) is the second-highest comorbid disease by 36.5 %. Of the 4,322 COVID-19 patients with comorbidities who died, 9.7% were related to DM.⁴ Thus, this study addresses the challenge of identifying issues related to COVID-19 and DM. To attain this end, data were obtained from reported research on COVID-19 pertaining to various countries.

Existing evidence suggested that elderly people with a record of chronic disease (comorbid) are at increased risk and experience worse complications.⁵ Nearly 30% of

COVID-19 deaths can be attributed to diabetes, hypertension, obesity, and smoking.⁶ In Indonesia, three of most prevalent comorbidities in COVID-19 patients are hypertension, DM, and cardiovascular disease,⁷ wherein diabetes is the second most common non-communicable disease (NCD) in COVID-19 patients which worsens disease severity and mortality.⁸ Other prevalent comorbidities include hypertension, diabetes, and thyroid diseases.⁹ Although the prevalence of DM in COVID-19 patients is generally lower compared to the general population, it has a more severe impact than on those without the disease.¹⁰ However, the results obtained from the preliminary analysis showed that elderly male patients with diabetes exhibited a higher likelihood of having severe COVID-19 symptoms than those without such characteristics.¹¹ Hyperglycemia, imbalances in pathways involved in viral entry into cells, and impaired immune and inflammatory responses cause this COVID-19-induced mechanism in DM patients.¹⁰ Uncontrolled blood sugar levels and complications related to DM critically affects this group of COVID-19 patients, whose prognosis was observed to be poor.¹²

As for the situation in Indonesia, the country's gov-

Correspondence*: Hamzah Hasyim, Department of Environmental Health, Faculty of Public Health, Universitas Sriwijaya, Ogan Ilir, South Sumatra 30862, Indonesia. E-mail: hamzah@fkm.unsri.ac.id. Phone: +62 (711) 580068

Received : June 10, 2022
Accepted : July 21, 2022
Published : July 31, 2022

ernment announced measures to be implemented to help DM patients during the COVID-19 pandemic on March 28, 2020.¹³ To reduce the likelihood of contracting the disease, the most effective step is to follow COVID-19 preventive behavior. It should be noted that knowledge, attitudes, and behavior regarding COVID-19 largely affect community compliance with guidelines and regulations.¹⁴ If people in Indonesia possess good knowledge and exhibit positive attitudes, they can be expected to take effective preventive action.¹⁵ It is imperative that those at a higher risk of contracting COVID-19 must maintain adequate COVID-19 preventive behavior. However, the key problem is that insufficient knowledge among patients with DM and hypertension affects their preventive behavior, thus increasing their risk of contracting COVID-19.¹⁶ Notably, COVID-19 prevention behavior is closely related to age, sex, and employment.¹⁷ As explained above, it is evident that one must also focus on DM prevention to avoid DM complications arising from COVID-19 infection and reduce its incidence.¹⁸ However, there is a gap in the literature regarding discussions on COVID-19 preventive behavior in DM patients in Indonesia, suggesting that further research and investigations are required to control and prevent COVID-19 in such patients. This study aimed to fill this gap by conducting a literature review of COVID-19 preventive behavior in diabetic patients.

Method

The literature searched for this review focused on study relevant to COVID-19 preventive behavior in patients with chronic illness, specifically DM. Relevant articles were searched for and identified on PubMed and ProQuest. About 22 of the 73 shortlisted articles met the exclusion and inclusion criteria. The inclusion criteria were articles published in the last three years based on the keywords COVID-19 and DM as well as COVID-19 preventive behavior in DM patients. The exclusion criterion was articles whose summary of contents did not correspond to the relevant keywords. An article was considered for this study if it was either a review or a research article that was available for open access. Articles that were unavailable for open access were excluded. The search terms used in Medical Subjects Headings (MeSH) were (COVID-19 AND Diabetes Mellitus), (COVID-19 in Diabetes Mellitus patients), AND (Preventive Behavior of COVID-19).

The eligibility of the papers based on their title and abstract was assessed independently by the first two authors. Additionally, if needed, the full paper was acquired to determine its eligibility status. In case of any disagreement, a consensus was reached by consulting the third author. Papers in languages other than English were excluded if their translations were unavailable. The full text

of the papers that met the eligibility criteria for the review was then assessed. The authors then pooled the results of the studies focusing on COVID-19 preventive behavior in diabetic patients. Finally, the articles were reviewed and discussed thoroughly, critically, and objectively using the same method from the related previous study.¹⁹

Results and Discussion

Article Selection

After searching with the selected keywords, the authors identified 73 research articles on PubMed and ProQuest, after removing duplicate entries. Based on the inclusion and exclusion criteria, 22 articles were finally selected and examined based on their relevance to the topic. COVID-19, diabetes mellitus, and COVID-19 in DM patients were the subjects of five articles. Additionally, 17 studies were based on preventive behavior for COVID-19, including knowledge, attitude, and practice (KAP) in patients with chronic illnesses, particularly those with diabetes. Finally, the articles were reviewed and discussed using objective and comprehensive analysis with regard to COVID-19, diabetes mellitus preventive behavior, and COVID-19 KAP in patients with chronic illness, specifically in diabetic patients.

This review analyzes articles dealing with the prevention of COVID-19 in diabetics and COVID-19 preventive behaviors. Areas for further study that emerged from the articles have been identified, including knowledge, attitudes, and characteristics in relation to COVID-19 among diabetics. While, the relative lack of publications regarding preventative behavior among diabetic COVID-19 patients can be regarded as a limitation and weakness of the present review. The strengths of this review are twofold: one, it has employed reputable databases (PubMed and ProQuest) consisting of recent publications to select relevant articles; and two, it has facilitated the review of publications on COVID-19 preventive behavior in diabetic. This study recommends that COVID-19 preventive behavior is the most effective strategy to avoid COVID-19, and further emphasizes the need for improving COVID-19 health education programs for DM patients to encourage knowledge development, positive attitudes, and efficient preventative behaviors among them.

Prevention of COVID-19 in Diabetics

To prevent COVID-19, clinicians advise DM patients to wash their hands frequently with soap and avoid touching their faces, except when necessary, to minimize their exposure to virus carriers. Wearing a mask outdoors is also strongly recommended. In addition, DM patients are advised to maintain a healthy diet and stay active. Furthermore, when following a diabetic treatment, patients should check their blood sugar levels regularly,^{20,21} and consult a doctor in case of discrepancies. Since pa-

tients must handle both oral and injected drugs, it is imperative for them to wash hands frequently to prevent COVID-19 infection.²¹ DM patients' increased risk of suffering from severe diseases is primarily due to uncontrolled blood sugar levels; therefore, it must be monitored regularly.²¹ Moreover, healthy lifestyle choices and consistent administration of medication are also advised for DM patients. Besides, taking advantage of telemedicine facilities may further reduce the risk of exposure.

COVID-19 Preventive Behaviors

Behavior and lifestyle significantly affect health status. To reduce patient risk factors and comorbidities public policies should promote healthier lifestyles, including healthier diets and regular physical activity.⁶ Since there is no effective treatment for COVID-19 yet, prevention is the best way to minimize infection. Under such circumstances, knowledge and attitude are fundamental for preventive behavior. Sulistyawati, *et al.*,¹⁵ found that in Indonesia respondents with good knowledge and positive attitudes practiced preventive behaviors. Similarly, good knowledge and positive attitudes among the majority of a population indicated a higher likelihood of appropriate COVID-19 preventive behaviors.^{14,22} Based on Lee, Kang, and You's study in South Korea, knowledge about COVID-19 related to preventive behaviors, such as wearing masks, hand hygiene, and avoiding crowds impelled people to adopt preventive practices.²² However, having good knowledge and attitudes to COVID-19 does not necessarily result in improved health practices, as was found for the people of Sudan.²³ To avoid misleading information, adequate information on COVID-19 precautions is essential.¹⁵

Although a large number of patients with comorbidities, such as diabetes and hypertension, are aware of the symptoms of COVID-19 and have implemented appropriate behaviors, many are yet to make routine changes for preventing infection.²⁴ Contrary to this, patients in Vietnam and Ethiopia exhibit strong knowledge, positive attitudes, and performed COVID-19 prevention well.^{25,26} As mentioned before, sufficient knowledge and a positive attitude in patients with chronic diseases are significant for preventing COVID-19.²⁶ In comparison, many patients with chronic conditions had low perceptions and willingness to carry out COVID-19 intervention behaviors.²⁷ Akalu's study (2020) in Ethiopia found that patients with chronic diseases demonstrated poor preventive behavior, such as failing to use masks outdoors as well as unwillingness to avoid crowds and maintaining a distance. In general, patients with chronic diseases and low level of knowledge are less likely to practice COVID-19 preventive behaviors.⁵

The risk of COVID-19 for DM patients must be encountered by appropriate preventive behavior. A study

on DM and hypertension patients found that inadequate knowledge increased their risk of COVID-19 infection.¹⁶ COVID-19 knowledge and attitudes were observed to be high in type 1 diabetes mellitus (T1DM) patients in a study involving young adults in India.²⁸ However, many young adult patients with T1DM were less aware of the risk of COVID-19 compared to those with other kinds of diabetes.²⁸

To date, it is unclear whether DM patients comply with COVID-19 preventive measures. Extra and optimal preventive practices were rarely observed in Pakistan.²¹ In a Chinese study, DM patients were reportedly more anxious about COVID-19 than non-DM people. In the same study, it was reported that infection was avoided during the COVID-19 pandemic primarily due to behavioral changes, such as maintaining a healthy diet, using medication, and exercising.²⁹ Furthermore, an Indian study showed that only 28% of DM patients regularly monitored their blood sugar levels during the COVID-19 pandemic.³⁰

Knowledge

Sources of verified accurate information are the utmost importance in increasing public knowledge on COVID-19. Fixing hoax circulating in the community will also help reduce inappropriate preventive behavior.¹⁷ Social media is widely used to find information on COVID-19 in Indonesia.¹⁵ To provide error-free and appropriate COVID-19 preventive practices, the overall health education programs regarding COVID-19 must be improved.¹⁴ Although COVID-19 is a new disease, Indonesia, Malaysia, South Korea, China, and Sudan all seem to possess some amount of prior knowledge about it.^{15,22,23} Knowledge of COVID-19 is related to COVID-19 attitudes and preventive practices.²² As an example, DM patients in Ethiopia had adequate knowledge of COVID-19.¹⁶ Meanwhile, results have been inconclusive with regard to appropriate knowledge of COVID-19 and its preventive behavior among patients with chronic diseases like diabetes, hypertension, and chronic lung disease.⁵ Considering that effective prevention practices are associated with possessing sufficient knowledge of the same, health sectors should cooperate to increase access to COVID-19 information.¹⁶

Attitude

Assessment and measurement are essential tools for understanding human attitudes and behavior.³¹ Studies related to COVID-19 have shown that communities are becoming increasingly aware of COVID-19.^{15,17,22,23} A positive attitude to protection against COVID-19 influences preventive behavior.² Since people with DM face an increased risk of being infected with COVID-19 during the pandemic, they took sufficient preventive action

to avoid infection.²⁹ Findings with regard to DM and hypertension patients as well as T1DM patients showed positive attitudes to COVID-19 preventive behavior.^{16,28} These patients maintained social distance and washed their hands frequently to protect themselves.²⁸

Characteristics

With an increase in education, knowledge can also be better received and understood. Knowledge of COVID-19 is, therefore, closely related to the level of education.^{22,23} Lower levels of education significantly impact knowledge of COVID-19 among patients suffering from chronic diseases. A study on DM and hypertensive patients found that inadequate knowledge and appropriate behavior related to COVID-19 was associated with low educational attainment.¹⁶ The demographic characteristics related to the KAP could serve as a compass for policymakers to focus health education programs toward appropriate target groups.³² The evaluation of the diabetes KAP has become essential for directing behavioral changes among individuals with diabetes and those at risk.³³ Furthermore, a study on patients with chronic diseases shows that socio-economic characteristics, such as age, education, employment, and income, are connected to low knowledge and poor preventive behaviour.⁵

Conclusion and Recommendation

This study concludes that COVID-19 preventive behavior is the best strategy to avoid contracting the disease, especially in view of its harmful effect on DM patients and the lack of treatment considered adequate for COVID-19. Although vaccination is one of the main steps to avoid transmission, severity of infection, and death as a result of contracting COVID-19 among high-risk patients (comorbid), it is still necessary to practice protective behavior to reduce the risk of transmission of COVID-19. Therefore, future studies on the current topic are recommended, so that health education programs regarding COVID-19 in DM patients can be improved to increase knowledge, help encourage positive attitudes, and implement appropriate COVID-19 prevention behaviors.

Abbreviations

COVID-19: Coronavirus Disease 2019; DM: Diabetes Mellitus; ICU: Intensive Care Unit; KAP: Knowledge, Attitude, and Practice; WHO: World Health Organization; NCD: Non-communicable Disease; MeSH: Medical Subjects Headings; T1DM: Type 1 Diabetes Mellitus.

Ethics Approval and Consent to Participate

Not Applicable.

Competing Interest

The authors declare that there are no significant competing financial,

professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

Availability of Data and Materials

The authors have full access to all the data in the study and take responsibility for the data integrity.

Authors' Contribution

HH and GP conceptualized, investigated, wrote the draft of the manuscript, and validated the study. HH and PD wrote the main manuscript text. PD edited the draft, and all authors contributed to interpreting the results. All authors read and approved the final manuscript.

Acknowledgment

The authors gratefully acknowledge those who have helped and supported this study, and the authors would like to thank the reviewer for the constructive feedback.

References

1. Garg I, Srivastava S, Rai C, Kumar V, Hembrom AA, Ghosh N, et al. Coronavirus (COVID-19): Prognostic risk associated with comorbidities and age. *Int J Recent Sci Res.* 2020; 11 (04): 37983-6.
2. World Health Organization. WHO Coronavirus (COVID-19) Dashboard. World Health Organization; 2022.
3. Satuan Tugas Penanganan COVID-19. Data sebaran COVID-19. Satuan Tugas Penanganan COVID-19; 2022.
4. Satuan Tugas Penanganan COVID-19. Data sebaran COVID-19. Satuan Tugas Penanganan COVID-19; 2021.
5. Akalu Y, Ayelign B, Molla MD. Knowledge, attitude and practice towards COVID-19 among chronic disease patients at Addis Zemen Hospital, Northwest Ethiopia. *Infection and drug resistance.* 2020; 13: 1949-60.
6. Mahamat-Saleh Y, Fiolet T, Rebeaud ME, Mulot M, Guihur A, El Fatouhi D, et al. Diabetes, hypertension, body mass index, smoking and COVID-19-related mortality: a systematic review and meta-analysis of observational studies. *BMJ open.* 2021; 11 (10): e052777.
7. Karyono DR, Wicaksana AL. Current prevalence, characteristics, and comorbidities of patients with COVID-19 in Indonesia. *Journal of Community Empowerment for Health.* 2020; 3 (2): 77-.
8. Marçal IR, Fernandes B, Viana AA, Ciolac EG. The urgent need for recommending physical activity for the management of diabetes during and beyond COVID-19 outbreak. *Frontiers in endocrinology.* 2020; 11: 584642.
9. Saeed S, Awasthi AA, Nandi D, Kaur K, Hasan S, Janardhanan R. Knowledge, attitude and practice towards COVID-19 among individuals with associated comorbidities. *JML.* 2021; 14 (2): 225.
10. Pugliese G, Vitale M, Resi V, Orsi sE. Is diabetes mellitus a risk factor for Coronavirus Disease 19 (COVID-19)? *Acta diabetologica.* 2020; 57 (11): 1275-85.
11. Li X, Zhong X, Wang Y, Zeng X, Luo T, Liu Q. Clinical determinants of the severity of COVID-19: a systematic review and meta-analysis. *PloS one.* 2021; 16 (5): e0250602.
12. Muniyappa R, Gubbi S. COVID-19 pandemic, coronaviruses, and diabetes mellitus. *American Journal of Physiology-Endocrinology and*

- Metabolism. 2020; 318 (5): E736-E41.
13. P2TM Kemenkes RI. Langkah-langkah pencegahan bagi penyandang diabetes melitus di masa pandemi COVID-19. Kementerian Kesehatan Republik Indonesia; 2020.
14. Zhong B-L, Luo W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, Li Yi. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International Journal of Biological Sciences*. 2020; 16 (10): 1745-52.
15. Sulistyawati S, Rokhmawati R, Aji B, Wijayanti SPM, Kurnia Widi Hastuti S, Sukesi TW, Mulasari SA. Knowledge, attitudes, practices and information needs during the COVID-19 pandemic in Indonesia. *Risk Management and Healthcare Policy*. 2021; 14: 163-75.
16. Taye GM, Bose L, Beressa TB, Tefera GM, Mosisa B, Dinsa H, et al. COVID-19 knowledge, attitudes, and prevention practices among people with hypertension and diabetes mellitus attending public health facilities in Ambo, Ethiopia. *Infection Drug Resistance*. 2020; 13: 4203.
17. Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E. Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *PloS one*. 2020; 15 (5): e0233668-e.
18. Kumar A, Arora A, Sharma P, Anikhindi SA, Bansal N, Singla V, et al. Is diabetes mellitus associated with mortality and severity of COVID-19? A meta-analysis. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 535-45.
19. Hasyim H, Dale P. COVID-19 and the city: a healthy city strategy for pandemic challenges, from planning to action. *Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*. 2021; 16 (1): 189-97. Available from:
20. Singh AK, Gupta R, Ghosh A, Misra AJD. Diabetes in COVID-19: Prevalence, pathophysiology, prognosis and practical considerations. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 303-10.
21. Ajay K, Hamza I, Deepika K, Ramsha GQ-u-A, Hamza S, Maria HS, et al. Knowledge & awareness about COVID-19 and the practice of respiratory hygiene and other preventive measures among patients with diabetes mellitus in Pakistan. *European Scientific Journal ESJ*. 2020;16(12):53-62.
22. Lee M, Kang B-A, You MJBPH. Knowledge, attitudes, and practices (KAP) toward COVID-19: a cross-sectional study in South Korea. 2021; 21 (1): 1-10.
23. Mohamed AAO, Elhassan EAM, Mohamed AO, Mohammed AA, Edris HA, Mahgoob MA, et al. Knowledge, attitude and practice of the Sudanese people towards COVID-19: an online survey. *BMC public health*. 2021;21(1):274-.
24. Wolf MS, Serper M, Opsasnick L, O'Connor RM, Curtis L, Benavente JY, et al. Awareness, attitudes, and actions related to COVID-19 among adults with chronic conditions at the onset of the US outbreak. *Annals of Internal Medicine*. 2020; 173 (2): 100-9.
25. Huynh G, Nguyen MQ, Tran TT, Nguyen VT, Nguyen TV, Do Thi Hoai T, et al. Knowledge, attitude, and practices regarding COVID-19 among chronic illness patients at outpatient departments in Ho Chi Minh City, Vietnam. *Risk Management and Healthcare Policy*. 2020; 13: 1571-8.
26. Andarge E, Fikadu T, Temesgen R, Shegaze M, Feleke T, Haile F, et al. Intention and practice on personal preventive measures against the COVID-19 pandemic among adults with chronic conditions in Southern Ethiopia: a survey using the theory of planned behavior. *Journal of multidisciplinary healthcare*. 2020; 13: 1863-77.
27. Dires A, Gedamu S, Getachew Y. Perception of COVID-19 prevention methods efficacy and intention to use among patients with chronic disease in Dessie Town, Northeast Ethiopia: a multicentered cross-sectional study. *Journal of multidisciplinary healthcare*. 2021; 14 (June): 1325-39.
28. Pal R, Yadav U, Grover S, Saboo B, Verma A, Bhadada SK. Knowledge, attitudes and practices towards COVID-19 among young adults with type 1 diabetes mellitus amid the nationwide lockdown in India: a cross-sectional survey. *Diabetes research and clinical practice*. 2020; 166 (January): 108344.
29. Yan AF, Sun X, Zheng J, Mi B, Zuo H, Ruan G, et al. Perceived risk, behavior changes and health-related outcomes during COVID-19 pandemic: findings among adults with and without diabetes in China. *Diabetes research and clinical practice*. 2020; 167 (January): 108350.
30. Nachimuthu S, Vijayalakshmi R, Sudha M, Viswanathan V. Coping with diabetes during the COVID-19 lockdown in India: results of an online pilot survey. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 579-82.
31. Luo Y-F, Chen L-C, Yang S-C, Hong S. Knowledge, attitude, and practice (KAP) toward COVID-19 pandemic among the public in Taiwan: a cross-sectional study. *International Journal of Environmental Research*. 2022; 19 (5): 2784.
32. Kasemy ZA, Bahbah WA, Zewain SK, Haggag MG, Alkalash SH, Zahran E, et al. Knowledge, attitude and practice toward COVID-19 among Egyptians. *Journal of epidemiology global health*. 2020; 10 (4): 378-85.
33. Al-Mutawaa KA, Farghaly AH, Nasir R, Loares AM, Skaroni I, Al-Thani M, et al. Level of knowledge, attitude and practice towards diabetes among nationals and long-term residents of Qatar: a cross-sectional study. *BMJ open*. 2022; 12 (2): e052607.



Dr.rer.med.Hamzah Hasyim <hamzah@fkm.unsri.ac.id>

KESMAS 2022 Special Issue Certificate of Contributing Writer

1 message

Jurnal Kesmas <jurnalkesmas.ui@gmail.com> 23 August 2022 at 09:44
To: hamzah fkmunsri <hamzah@fkm.unsri.ac.id>

Dear Hamzah Hasyim,
Along with saying our gratitude for your time in researching and entrusting your study to be published in our journal, hereby we attach the certificate of becoming a contributing writer for Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) Volume 17 Special Issue 1.
We are looking forward to having your writing again in the near future.

Regards,
Editor in Chief
Dewi Susanna

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) published by Faculty of Public Health Universitas Indonesia since August 2006 and has been accredited by Director General of Higher Education in July 2009 and re-accredited in 2012 (No.56/DIKTI/Kep/2012) and 2017 (No.32a/E/KPT/2017). Our journal is indexed in Scopus & SINTA1 and published quarterly in February, May, August, and November.

<http://journal.fkm.ui.ac.id/kesmas>

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)
Faculty of Public Health
Universitas Indonesia
G301 Building G 3rd Floor
Kampus Baru UI Depok 16424
Phone: +62815 1141 6600



2022 Special Issue - Contributing Writer - Hamzah Hasyim.png
1713K

Kesmas

Jurnal Kesehatan Masyarakat Nasional
(National Public Health Journal)



HOME ABOUT USER HOME SEARCH CURRENT ARCHIVES ANNOUNCEMENTS
EDITORIAL TEAM EDITORIAL POLICIES AUTHOR GUIDELINES PUBLICATION ETHIC
REVIEWER ACKNOWLEDGEMENT

Home > User > Author > Submissions > #6052 > Summary

#6052 Summary

SUMMARY REVIEW EDITING

Submission

Authors Hamzah Hasyim, Giszka Putri, Patricia Dale
Title Analysis of COVID-19 Prevention Behavior in Diabetes Mellitus Patients: A Literature Review
Original file None
Supp. files [6052-19841-1-SP.PDF](#) 2022-07-17
[6052-19842-1-SP.PDF](#) 2022-07-18
[6052-19843-1-SP.DOCX](#) 2022-07-18
Submitter Mr Hamzah Hasyim 
Date submitted July 7, 2022 - 05:30 AM
Section Articles
Editor Dewi Susanna 
Author comments Dear Editor(s),
Although seemly, I have agreed on the APC earlier. However, I need to request a discount for the APC of the article before publishing.
Fyi, the paper has no funding. In addition, I do not have a project related to the article. So I will propose a discount for APC on the paper
Thank you so much for accommodating my request.***
Kind regards,
Hamzah Hasyim
Abstract Views 794

Author Fees



Article Publication Paid July 28, 2022 - 01:59 PM

Status

Status Published Volume 17, Special Issue No 1, 2022
Initiated 2022-07-29
Last modified 2022-08-11

Submission Metadata

Authors

Name Hamzah Hasyim 
URL <https://orcid.org/my-orcid?orcid=0000-0002-2780-8902>
Affiliation Department of Environmental Health, Faculty of Public Health, Universitas Sriwijaya, Palembang, Indonesia
Country Indonesia
Bio Statement —
Principal contact for editorial correspondence.
Name Giszka Putri 

REGISTER


LOGIN

p-ISSN: 1907-7505

e-ISSN: 2460-0601

LANGUAGE


Select Language

English 
Submit

JOURNAL CONTENT

Search

Search Scope

All 
Search

Browse

- [By Issue](#)
- [By Author](#)
- [By Title](#)
- [Other Journals](#)

USER

You are logged in as...

hamzah73

- [My Journals](#)
- [My Profile](#)
- [Log Out](#)

PREPARING FOR
SUBMISSION




Tutorial Submit
Article



Covering Letter
and Statements



Manuscript
Template

Affiliation	Department of Health of Palembang City, Palembang, Indonesia
Country	Indonesia
Bio Statement	—
Name	Patricia Dale 
Affiliation	Center for Planetary Health and Food Security (CPHFS), School of Environment and Science, Griffith University, Queensland, Australia
Country	Australia
Bio Statement	—

INTERNATIONAL
EDITOR/REVIEWER
FORM



Title and Abstract

Title	Analysis of COVID-19 Prevention Behavior in Diabetes Mellitus Patients: A Literature Review
Abstract	The Coronavirus Disease 2019 (COVID-19) is a new human-infected coronavirus causing respiratory problems. The COVID-19 can affect people of all ages, but those with a record of chronic disease (comorbidity) are at higher risk of poor outcomes with the COVID-19. This study aimed to review COVID-19 preventative behavior in diabetes patients. Diabetes Mellitus (DM) is one of the comorbidities that aggravates COVID-19 in patients. Such patients are at risk of deteriorating critical conditions in the intensive care units (ICUs) and even death. Prevention is the best measure to avoid COVID-19, although it is currently considered adequate. This article reviewed 22 papers focusing on COVID-19, DM, COVID-19 in DM patients, COVID-19 preventive behavior, and COVID-19 knowledge, attitude, and practice in patients with chronic disease, while primary focusing on DM. It is revealed that diabetes patients at high risk of COVID-19 need to practice good preventive behaviors. Furthermore, it emphasizes that improving knowledge, encouraging positive attitudes, and implementing good COVID-19 preventive behaviors in DM patients requires education and access to the COVID-19 related health information.

TOOLS



Indexing

Keywords	attitude, COVID-19, diabetes mellitus, knowledge, preventive behavior
Language	en

Supporting Agencies

Agencies	—
----------	---

References

References

1. Garg I, Srivastava S, Rai C, Kumar V, Hembrom AA, Ghosh N, et al. Coronavirus (COVID-19): Prognostic risk associated with comorbidities and age. *Int J Recent Sci Res.* 2020; 11 (04): 37983-6.
2. World Health Organization. WHO Coronavirus (COVID-19) Dashboard. World Health Organization; 2022.
3. Satuan Tugas Penanganan COVID-19. Data sebaran COVID 19. Satuan Tugas Penanganan COVID-19; 2022.
4. Satuan Tugas Penanganan COVID-19. Data sebaran COVID-19. Satuan Tugas Penanganan COVID-19; 2021.
5. Akalu Y, Ayelign B, Molla MD. Knowledge, attitude and practice towards COVID-19 among chronic disease patients at Addis Zemen Hospital, Northwest Ethiopia. *Infection and drug resistance.* 2020; 13: 1949-60.
6. Mahamat-Saleh Y, Fiolet T, Rebeaud ME, Mulot M, Guihur A, El Fatouhi D, et al. Diabetes, hypertension, body mass index, smoking and COVID-19-related mortality: a systematic review and meta analysis of observational studies. *BMJ open.* 2021; 11 (10): e052777.
7. Karyono DR, Wicaksana AL. Current prevalence, characteristics, and comorbidities of patients with COVID-19 in Indonesia. *Journal of Community Empowerment for Health.* 2020; 3 (2): 77.
8. Marçal IR, Fernandes B, Viana AA, Ciolac EG. The urgent need for recommending physical activity for the management of diabetes during and beyond COVID-19 outbreak. *Frontiers in endocrinology.* 2020; 11: 584642.
9. Saeed S, Awasthi AA, Nandi D, Kaur K, Hasan S, Janardhanan R. Knowledge, attitude and practice towards COVID-19 among individuals with associated comorbidities. *JML.* 2021; 14 (2): 225.
10. Pugliese G, Vitale M, Resi V, Orsi sE. Is diabetes mellitus a risk factor for Coronavirus Disease 19 (COVID-19)? *Acta diabetologica.* 2020; 57 (11): 1275-85.
11. Li X, Zhong X, Wang Y, Zeng X, Luo T, Liu Q. Clinical determinants of the severity of COVID-19: a systematic review and meta-analysis. *PloS one.* 2021; 16 (5): e0250602.
12. Muniyappa R, Gubbi S. COVID-19 pandemic, coronaviruses, and diabetes mellitus. *American Journal of Physiology-Endocrinology and Metabolism.* 2020; 318 (5): E736-E41.
13. P2TM Kemenkes RI. Langkah-langkah pencegahan bagi penyandang diabetes melitus di masa pandemi COVID-19. Kementerian Kesehatan Republik Indonesia; 2020.
14. Zhong B-L, Luo W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, Li Yi. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International Journal of Biological Sciences.* 2020; 16 (10): 1745-52.
15. Sulistyawati S, Rokhmayanti R, Aji B, Wijayanti SPM, Kurnia WidiHastuti S, Sukesi TW, Mulasari SA. Knowledge, attitudes, practices and information needs during the COVID-19 pandemic in Indonesia. *Risk Management and Healthcare Policy.* 2021; 14:

CITATION ANALYSIS

- [SCOPUS](#)
- [Google Scholar](#)

NOTIFICATIONS

- [View](#) (46 new)
- [Manage](#)

AUTHOR

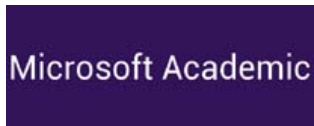
- Submissions
- [Active](#) (2)
 - [Archive](#) (2)
 - [New Submission](#)

163-75.

16. Taye GM, Bose L, Beressa TB, Tefera GM, Mosisa B, Dinsa H, et al. COVID-19 knowledge, attitudes, and prevention practices among people with hypertension and diabetes mellitus attending public health facilities in Ambo, Ethiopia. *Infection Drug Resistance*. 2020; 13: 4203.
17. Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E. Public knowledge, attitudes and practices towards COVID-19: A cross sectional study in Malaysia. *PloS one*. 2020; 15 (5): e0233668-e.
18. Kumar A, Arora A, Sharma P, Anikhindi SA, Bansal N, Singla V, et al. Is diabetes mellitus associated with mortality and severity of COVID-19? A meta-analysis. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 535-45.
19. Hasyim H, Dale P. COVID-19 and the city: a healthy city strategy for pandemic challenges, from planning to action. *Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*. 2021; 16 (1):189-97.
20. Singh AK, Gupta R, Ghosh A, Misra AJD. Diabetes in COVID-19: Prevalence, pathophysiology, prognosis and practical considerations. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 303-10.
21. Ajay K, Hamza I, Deepika K, Ramsha GQ-u-A, Hamza S, Maria HS, et al. Knowledge & awareness about COVID-19 and the practice of respiratory hygiene and other preventive measures among patients with diabetes mellitus in Pakistan. *European Scientific Journal ESJ*. 2020;16 (12):53-62.
22. Lee M, Kang B-A, You MJBPH. Knowledge, attitudes, and practices (KAP) toward COVID-19: a cross-sectional study in South Korea. 2021; 21 (1): 1-10.
23. Mohamed AAO, Elhassan EAM, Mohamed AO, Mohammed AA, Edris HA, Mahgoob MA, et al. Knowledge, attitude and practice of the Sudanese people towards COVID-19: an online survey. *BMC public health*. 2021;21 (1):274-.
24. Wolf MS, Serper M, Opsasnick L, O'Connor RM, Curtis L, Benavente JY, et al. Awareness, attitudes, and actions related to COVID-19 among adults with chronic conditions at the onset of the US outbreak. *Annals of Internal Medicine*. 2020; 173 (2): 100-9.
25. Huynh G, Nguyen MQ, Tran TT, Nguyen VT, Nguyen TV, Do Thi Hoai T, et al. Knowledge, attitude, and practices regarding COVID-19 among chronic illness patients at outpatient departments in Ho Chi Minh City, Vietnam. *Risk Management and Healthcare Policy*. 2020; 13: 1571-8.
26. Andarge E, Fikadu T, Temesgen R, Shegaze M, Feleke T, Haile F, et al. Intention and practice on personal preventive measures against the COVID-19 pandemic among adults with chronic conditions in Southern Ethiopia: a survey using the theory of planned behavior. *Journal of multidisciplinary healthcare*. 2020; 13: 1863-77.
27. Dires A, Gedamu S, Getachew Y. Perception of COVID-19 prevention methods efficacy and intention to use among patients with chronic disease in Dessie Town, Northeast Ethiopia: a multicentered cross-sectional study. *Journal of multidisciplinary healthcare*. 2021; 14 (June): 1325-39.
28. Pal R, Yadav U, Grover S, Saboo B, Verma A, Bhadada SK. Knowledge, attitudes and practices towards COVID-19 among young adults with type 1 diabetes mellitus amid the nationwide lockdown in India: a cross-sectional survey. *Diabetes research and clinical practice*. 2020; 166 (January): 108344.
29. Yan AF, Sun X, Zheng J, Mi B, Zuo H, Ruan G, et al. Perceived risk, behavior changes and health-related outcomes during COVID-19 pandemic: findings among adults with and without diabetes in China. *Diabetes research and clinical practice*. 2020; 167 (January): 108350.
30. Nachimuthu S, Vijayalakshmi R, Sudha M, Viswanathan V. Coping with diabetes during the COVID-19 lockdown in India: results of an online pilot survey. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 579-82.
31. Luo Y-F, Chen L-C, Yang S-C, Hong S. Knowledge, attitude and practice (KAP) toward COVID-19 pandemic among the public in Taiwan: a cross-sectional study. *International Journal of Environmental Research*. 2022; 19 (5): 2784.
32. Kasemy ZA, Bahbah WA, Zewain SK, Haggag MG, Alkalash SH, Zahran E, et al. Knowledge, attitude and practice toward COVID-19 among Egyptians. *Journal of epidemiology global health*. 2020; 10 (4): 378-85.
33. Al-Mutawaa KA, Farghaly AH, Nasir R, Loares AM, Skaroni I, Al-Thani M, et al. Level of knowledge, attitude and practice towards diabetes among nationals and long-term residents of Qatar: a cross sectional study. *BMJ Open*. 2022; 12 (2): e052607.

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) indexed in





Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) by <http://journal.fkm.ui.ac.id> is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

Kesmas

Jurnal Kesehatan Masyarakat Nasional
(National Public Health Journal)

HOME ABOUT USER HOME SEARCH CURRENT ARCHIVES ANNOUNCEMENTS
EDITORIAL TEAM EDITORIAL POLICIES AUTHOR GUIDELINES PUBLICATION ETHIC
REVIEWER ACKNOWLEDGEMENT

Home > User > Author > **Archive**

Archive

ACTIVE **ARCHIVE**

ID	MM-DD SUBMIT	SEC	AUTHORS	TITLE	STATUS
6052	07-07	ART	Hasyim, Putri, Dale	ANALYSIS OF COVID-19 PREVENTION BEHAVIOR IN DIABETES...	Volume 17, Special Issue No 1, 2022
5203	07-13	ART	Hasyim, Dale	COVID-19 AND THE CITY: A HEALTHY CITY STRATEGY FOR...	Volume 16, Special Issue No 1, 2021

1 - 2 of 2 Items

Start a New Submission

[CLICK HERE](#) to go to step one of the five-step submission process.

Refbacs

ALL NEW PUBLISHED IGNORED

	DATE ADDED	HITS	URL	ARTICLE	TITLE
<input type="checkbox"/>	2021-07-31	285	https://www.google.com/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-08-03	3	https://scholar.google.com.hk/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-08-03	88	https://scholar.google.com/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
	2021-	2	http://scholar.google.es/	COVID-19	—

REGISTER

LOGIN

p-ISSN: 1907-7505

e-ISSN: 2460-0601

LANGUAGE

Select Language

English ▼
Submit

JOURNAL CONTENT

Search

Search Scope

All ▼
Search

Browse

- [By Issue](#)
- [By Author](#)
- [By Title](#)
- [Other Journals](#)

USER

You are logged in as...

hamzah73

- [My Journals](#)
- [My Profile](#)
- [Log Out](#)

PREPARING FOR
SUBMISSION



Tutorial Submit
Article



Covering Letter
and Statements



Manuscript
Template

<input type="checkbox"/>	08-04			and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-08-16	1	https://scholar.google.co.jp/scholar?cites=11819...	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-08-16	1	https://scholar.google.co.il/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-08-17	5	https://scholar.google.de/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-08-23	1	https://www.bing.com/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-08-25	1	https://id.search.yahoo.com/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-09-01	1	https://scholar.google.it/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-09-04	3	https://scholar.google.com.br/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-09-13	2	http://baidu.com/	COVID-19 and the	—

INTERNATIONAL EDITOR/REVIEWER FORM



TOOLS



CITATION ANALYSIS

- [SCOPUS](#)
- [Google Scholar](#)

Visitor Statistics

03177624

[View My Stats](#)

[View Statistics Detail](#)

Visitor since 2017



NOTIFICATIONS

- [View](#) (43 new)
- [Manage](#)

AUTHOR

Submissions

- [Active](#) (0)
- [Archive](#) (2)
- [New Submission](#)

				City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	
<input type="checkbox"/>	2021- 09-21	5	https://scholar.google.com.au/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021- 09-25	1	https://scholar.google.ca/scholar?hl=en&as_sdt=0...	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021- 09-26	1	https://scholar.google.co.th/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021- 09-28	1	https://scholar.google.com/scholar?start=10&q=ef...	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021- 10-02	9	https://www.google.co.id/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021- 10-05	3	https://scholar.google.co.jp/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021- 10-11	1	https://r.search.yahoo.com/_ylt=Awr9DunHMWRhYWsA...	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021- 10-12	2	https://scholar.google.com/scholar?hl=en&as_sdt=...	COVID-19 and the City: A	—

<input type="checkbox"/>	2021-10-26	2	https://scholar.google.co.kr/	Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-10-30	1	https://sc.panda321.com/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-10-31	1	https://scholar.google.si/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-11-05	1	http://journal.fkm.ui.ac.id/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—
<input type="checkbox"/>	2021-11-08	2	https://scholar.google.es/	COVID-19 and the City: A Healthy City Strategy for Pandemic Challenges, from Planning to Action	—

1 - 25 of 71 Items

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) indexed in




Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) by <http://journal.fkm.ui.ac.id> is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

Kesmas

Jurnal Kesehatan Masyarakat Nasional
(National Public Health Journal)

HOME ABOUT USER HOME SEARCH CURRENT ARCHIVES ANNOUNCEMENTS
EDITORIAL TEAM EDITORIAL POLICIES AUTHOR GUIDELINES PUBLICATION ETHIC
REVIEWER ACKNOWLEDGEMENT

Home > User > Author > Submissions > #6052 > Summary

#6052 Summary

SUMMARY REVIEW EDITING

Submission

Authors	Hamzah Hasyim, Giszka Putri, Patricia Dale
Title	Analysis of COVID-19 Prevention Behavior in Diabetes Mellitus Patients: A Literature Review
Original file	None
Supp. files	6052-19841-1-SP.PDF 2022-07-17 6052-19842-1-SP.PDF 2022-07-18 6052-19843-1-SP.DOCX 2022-07-18
Submitter	Mr Hamzah Hasyim
Date submitted	July 7, 2022 - 05:30 AM
Section	Articles
Editor	Dewi Susanna
Author comments	<p>Dear Editor(s),</p> <p>Although seemly, I have agreed on the APC earlier. However, I need to request a discount for the APC of the article before publishing.</p> <p>Fyi, the paper has no funding. In addition, I do not have a project related to the article. So I will propose a discount for APC on the paper</p> <p>Thank you so much for accommodating my request.***</p> <p>Kind regards, Hamzah Hasyim</p>
Abstract Views	438

Author Fees

Article Publication Paid July 28, 2022 - 01:59 PM

Status

Status	Published	Volume 17, Special Issue No 1, 2022
Initiated	2022-07-29	
Last modified	2022-08-11	

Submission Metadata

Authors

Name	Hamzah Hasyim
URL	https://orcid.org/my-orcid?orcid=0000-0002-2780-8902
Affiliation	Department of Environmental Health, Faculty of Public Health, Universitas Sriwijaya, Palembang, Indonesia
Country	Indonesia
Bio Statement	—
Principal contact for editorial correspondence.	
Name	Giszka Putri
Affiliation	Department of Health of Palembang City, Palembang, Indonesia

REGISTER

LOGIN

p-ISSN: 1907-7505
e-ISSN: 2460-0601

LANGUAGE
Select Language
English

JOURNAL CONTENT
Search

Search Scope
All

Browse

- [By Issue](#)
- [By Author](#)
- [By Title](#)
- [Other Journals](#)

USER
You are logged in as...
hamzah73

- [My Journals](#)
- [My Profile](#)
- [Log Out](#)

PREPARING FOR
SUBMISSION



Tutorial Submit
Article



Covering Letter
and Statements



Manuscript
Template

Country Indonesia
 Bio Statement —
 Name Patricia Dale 
 Affiliation Center for Planetary Health and Food Security (CPHFS), School of Environment and Science, Griffith University, Queensland, Australia
 Country Australia
 Bio Statement —

Title and Abstract

Title Analysis of COVID-19 Prevention Behavior in Diabetes Mellitus Patients: A Literature Review

Abstract The Coronavirus Disease 2019 (COVID-19) is a new human-infected coronavirus causing respiratory problems. The COVID-19 can affect people of all ages, but those with a record of chronic disease (comorbidity) are at higher risk of poor outcomes with the COVID-19. This study aimed to review COVID-19 preventative behavior in diabetes patients. Diabetes Mellitus (DM) is one of the comorbidities that aggravates COVID-19 in patients. Such patients are at risk of deteriorating critical conditions in the intensive care units (ICUs) and even death. Prevention is the best measure to avoid COVID-19, although it is currently considered adequate. This article reviewed 22 papers focusing on COVID-19, DM, COVID-19 in DM patients, COVID-19 preventive behavior, and COVID-19 knowledge, attitude, and practice in patients with chronic disease, while primary focusing on DM. It is revealed that diabetes patients at high risk of COVID-19 need to practice good preventive behaviors. Furthermore, it emphasizes that improving knowledge, encouraging positive attitudes, and implementing good COVID-19 preventive behaviors in DM patients requires education and access to the COVID-19 related health information.

Indexing

Keywords attitude, COVID-19, diabetes mellitus, knowledge, preventive behavior
Language en

Supporting Agencies

Agencies —

References

- References**
- Garg I, Srivastava S, Rai C, Kumar V, Hembrom AA, Ghosh N, et al. Coronavirus (COVID-19): Prognostic risk associated with comorbidities and age. *Int J Recent Sci Res.* 2020; 11 (04): 37983-6.
 - World Health Organization. WHO Coronavirus (COVID-19) Dashboard. World Health Organization; 2022.
 - Satuan Tugas Penanganan COVID-19. Data sebaran COVID 19. Satuan Tugas Penanganan COVID-19; 2022.
 - Satuan Tugas Penanganan COVID-19. Data sebaran COVID-19. Satuan Tugas Penanganan COVID-19; 2021.
 - Akalu Y, Ayelign B, Molla MD. Knowledge, attitude and practice towards COVID-19 among chronic disease patients at Addis Zemen Hospital, Northwest Ethiopia. *Infection and drug resistance.* 2020; 13: 1949-60.
 - Mahamat-Saleh Y, Fiolet T, Rebeaud ME, Mulot M, Guihur A, El Fatouhi D, et al. Diabetes, hypertension, body mass index, smoking and COVID-19-related mortality: a systematic review and meta analysis of observational studies. *BMJ open.* 2021; 11 (10): e052777.
 - Karyono DR, Wicaksana AL. Current prevalence, characteristics, and comorbidities of patients with COVID-19 in Indonesia. *Journal of Community Empowerment for Health.* 2020; 3 (2): 77.
 - Marçal IR, Fernandes B, Viana AA, Ciolac EG. The urgent need for recommending physical activity for the management of diabetes during and beyond COVID-19 outbreak. *Frontiers in endocrinology.* 2020; 11: 584642.
 - Saeed S, Awasthi AA, Nandi D, Kaur K, Hasan S, Janardhanan R. Knowledge, attitude and practice towards COVID-19 among individuals with associated comorbidities. *JML.* 2021; 14 (2): 225.
 - Pugliese G, Vitale M, Resi V, Orsi sE. Is diabetes mellitus a risk factor for Coronavirus Disease 19 (COVID-19)? *Acta diabetologica.* 2020; 57 (11): 1275-85.
 - Li X, Zhong X, Wang Y, Zeng X, Luo T, Liu Q. Clinical determinants of the severity of COVID-19: a systematic review and meta-analysis. *PloS one.* 2021; 16 (5): e0250602.
 - Muniyappa R, Gubbi S. COVID-19 pandemic, coronaviruses, and diabetes mellitus. *American Journal of Physiology-Endocrinology and Metabolism.* 2020; 318 (5): E736-E41.
 - P2TM Kemenkes RI. Langkah-langkah pencegahan bagi penyandang diabetes melitus di masa pandemi COVID-19. Kementerian Kesehatan Republik Indonesia; 2020.
 - Zhong B-L, Luo W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, Li Yi. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International Journal of Biological Sciences.* 2020; 16 (10): 1745-52.
 - Sulistyawati S, Rokhmayanti R, Aji B, Wijayanti SPM, Kurnia WidiHastuti S, Sukesi TW, Mulasari SA. Knowledge, attitudes, practices and information needs during the COVID-19 pandemic in Indonesia. *Risk Management and Healthcare Policy.* 2021; 14: 163-75.

INTERNATIONAL EDITOR/REVIEWER FORM



TOOLS



CITATION ANALYSIS

- [SCOPUS](#)
- [Google Scholar](#)

Visitor Statistics

03177630

[View My Stats](#)

[View Statistics Detail](#)

Visitor since 2017



NOTIFICATIONS

- [View](#) (43 new)
- [Manage](#)

AUTHOR

Submissions

- [Active](#) (0)
- [Archive](#) (2)
- [New Submission](#)

16. Taye GM, Bose L, Beressa TB, Tefera GM, Mosisa B, Dinsa H, et al. COVID-19 knowledge, attitudes, and prevention practices among people with hypertension and diabetes mellitus attending public health facilities in Ambo, Ethiopia. *Infection Drug Resistance*. 2020; 13: 4203.
17. Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E. Public knowledge, attitudes and practices towards COVID-19: A cross sectional study in Malaysia. *PloS one*. 2020; 15 (5): e0233668-e.
18. Kumar A, Arora A, Sharma P, Anikhindi SA, Bansal N, Singla V, et al. Is diabetes mellitus associated with mortality and severity of COVID-19? A meta-analysis. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 535-45.
19. Hasyim H, Dale P. COVID-19 and the city: a healthy city strategy for pandemic challenges, from planning to action. *Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*. 2021; 16 (1):189-97.
20. Singh AK, Gupta R, Ghosh A, Misra AJD. Diabetes in COVID-19: Prevalence, pathophysiology, prognosis and practical considerations. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 303-10.
21. Ajay K, Hamza I, Deepika K, Ramsha GQ-u-A, Hamza S, Maria HS, et al. Knowledge & awareness about COVID-19 and the practice of respiratory hygiene and other preventive measures among patients with diabetes mellitus in Pakistan. *European Scientific Journal ESJ*. 2020;16 (12):53-62.
22. Lee M, Kang B-A, You MJBPH. Knowledge, attitudes, and practices (KAP) toward COVID-19: a cross-sectional study in South Korea. 2021; 21 (1): 1-10.
23. Mohamed AAO, Elhassan EAM, Mohamed AO, Mohammed AA, Edris HA, Mahgoob MA, et al. Knowledge, attitude and practice of the Sudanese people towards COVID-19: an online survey. *BMC public health*. 2021;21 (1):274-.
24. Wolf MS, Serper M, Opsasnick L, O'Connor RM, Curtis L, Benavente JY, et al. Awareness, attitudes, and actions related to COVID-19 among adults with chronic conditions at the onset of the US outbreak. *Annals of Internal Medicine*. 2020; 173 (2): 100-9.
25. Huynh G, Nguyen MQ, Tran TT, Nguyen VT, Nguyen TV, Do Thi Hoai T, et al. Knowledge, attitude, and practices regarding COVID-19 among chronic illness patients at outpatient departments in Ho Chi Minh City, Vietnam. *Risk Management and Healthcare Policy*. 2020; 13: 1571-8.
26. Andarge E, Fikadu T, Temesgen R, Shegaze M, Feleke T, Haile F, et al. Intention and practice on personal preventive measures against the COVID-19 pandemic among adults with chronic conditions in Southern Ethiopia: a survey using the theory of planned behavior. *Journal of multidisciplinary healthcare*. 2020; 13: 1863-77.
27. Dires A, Gedamu S, Getachew Y. Perception of COVID-19 prevention methods efficacy and intention to use among patients with chronic disease in Dessie Town, Northeast Ethiopia: a multicentered cross-sectional study. *Journal of multidisciplinary healthcare*. 2021; 14 (June): 1325-39.
28. Pal R, Yadav U, Grover S, Saboo B, Verma A, Bhadada SK. Knowledge, attitudes and practice towards COVID-19 among young adults with type 1 diabetes mellitus amid the nationwide lockdown in India: a cross-sectional survey. *Diabetes research and clinical practice*. 2020; 166 (January): 108344.
29. Yan AF, Sun X, Zheng J, Mi B, Zuo H, Ruan G, et al. Perceived risk, behavior changes and health-related outcomes during COVID-19 pandemic: findings among adults with and without diabetes in China. *Diabetes research and clinical practice*. 2020; 167 (January): 108350.
30. Nachimuthu S, Vijayalakshmi R, Sudha M, Viswanathan V. Coping with diabetes during the COVID-19 lockdown in India: results of an online pilot survey. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*. 2020; 14 (4): 579-82.
31. Luo Y-F, Chen L-C, Yang S-C, Hong S. Knowledge, attitude and practice (KAP) toward COVID-19 pandemic among the public in Taiwan: a cross-sectional study. *International Journal of Environmental Research*. 2022; 19 (5): 2784.
32. Kasemy ZA, Bahbah WA, Zewain SK, Haggag MG, Alkalash SH, Zahran E, et al. Knowledge, attitude and practice toward COVID-19 among Egyptians. *Journal of epidemiology global health*. 2020; 10 (4): 378-85.
33. Al-Mutawaa KA, Farghaly AH, Nasir R, Loares AM, Skaroni I, Al-Thani M, et al. Level of knowledge, attitude and practice towards diabetes among nationals and long-term residents of Qatar: a cross sectional study. *BMJ Open*. 2022; 12 (2): e052607.

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) indexed in





Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) by <http://journal.fkm.ui.ac.id> is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

CERTIFICATE

awarded to

Hamzah Hasyim

as a contributing writer in

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Volume 17, Special Issue 1, July 2022


with the title of

"Analysis of COVID-19 Prevention Behavior in Diabetes Mellitus Patients: A Literature Review"

Editor-in-Chief of

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)




Prof. Dr. Dewi Susanna, dra., MS.
NIP. 196312021988032002