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ORIGINAL ARTICLES

ORIGINAL ARTICLE

Patients' Perceptions of Multi Drug Resistant Tuberculosis Outpatient in Healthcare Services: A Qualitative Study

Lailatun Nimah[1], Rr Dian Tristiana[1], Nursalam Nursalam[1], Laily Hidayati[1], R Endro Sulistyono[2], Kittisak Kumpeera[3]

[1] Faculty of Nursing Universitas Airlangga, Kampus C Mulyorejo Fakultas Keperawatan Universitas Airlangga Indonesia 60115
[2] Faculty of Nursing Universitas Jember, Jalan Kalimantan No. 37 Krajan Timur, Sumbersari, Kec. Sumbersari Jember Jawa Timur Indonesia 68121
[3] Faculty of Nursing Naresuan University, Thailand

ABSTRACT

Introduction: Assuring the quality of Multidrug Resistant Tuberculosis (MDR-TB) care is important for a better treatment outcome. Indonesia is one of the countries with the highest MDR-TB cases in the world, thus it becomes an unresolved issue in Indonesia. This study aimed to gain insight of the MDR-TB patients perceptions about the out-patient healthcare services in a public healthcare facility in Surabaya. **Methods:** This study used qualitative phenomenological approach. This study was conducted in a hospital in Surabaya. Fifteen MDR-TB patients were recruited by purposive sampling and were interviewed semi-structurally and audiotaped. The research data were further analyzed using thematic analysis. Research data from the participants were conveyed word by word, collected, defined, coded, and arranged into each theme. The process of collecting the research data was done by developing codes and themes. **Results:** Topics generated were Interaction of Provider-Patient, Lack of Human resources, and Inadequate Hospital Facilities. **Conclusion:** Patients' satisfaction of healthcare services also an important factor in long-term care of MDR-TB patients. Healthcare services can be improved by involving both healthcare worker resource and facilities. In addition, the role of health workers in understanding the problems experienced by MDR-TB patients is also needed in order to increase their satisfaction while providing the services.

Keywords: Communicable disease; Healthcare; Multidrug resistant tuberculosis; Patients perspective; Tuberculosis

Corresponding Author:
Lailatun Nimah, M.Kep
Email: lailatunnimah@fkp.unair.ac.id
Tel: +6231 5913754

INTRODUCTION

The global epidemic of Multidrug Resistant Tuberculosis (MDR-TB) is a major challenge for tuberculosis (TB) control efforts worldwide. MDR-TB is a disease caused by Mycobacterium tuberculosis which is immune to antimicrobial drugs (1). The treatment duration for most of MDR-TB patients with the regimen is 18 to 20 months. This duration can be changed according to the patient's response to therapy(2). The health care system recommended by the World Health Organization for MDR-TB patients are isoniazid tuberculosis regimen, drug composition, treatment duration, standardized drugs, patient response monitoring, antiretroviral in patients with MDR-TB and Health Immunodeficiency Virus, surgery when necessary, care and support (2). There is limited information about the quality of MDR-TB care service delivery in Indonesia, particularly related to the perspective of patients.

Indonesia is one of the 30 countries that have high MDR-TB cases in the world, in which 23.000 patients were estimated to suffer from this disease in Indonesia (3). There was about 2.8% of new MDR-TB cases in Indonesia. Furthermore, the World Health Organization (WHO) in 2018 stated that Indonesia has not been successful in implementing MDR-TB treatment (3). In East Java during 2014 to 2017 the treatment success MDR-TB treatment rate was low and the number of defaults was high (4).

The impact of MDR-TB treatment can be classified into 3 parts: costs related to medical costs (such as medicine costs, examinations, doctor's services, and nurses), direct non-medical costs (such as transportation to hospital, eating, and drinking), as well as indirect

costs (such as loss of income)(5). The side effects of drugs experienced by MDR-TB patients are nausea, vomiting, hyperuricemia, allergies, heat and many other effects (6).

MDR-TB patients' treatment is high risk of treatment failure. Various factors of treatment failure or non-adherence to treatment in MDR-TB patients are expectations, good knowledge, autonomy, patient involvement, self-body perception, and drug tolerance. Research in Europe explained that the health care system is the key to successful treatment for MDR-TB patients. The health system includes timely diagnosis, financial system for accessing the treatment, patient-centered approach with cross-border collaboration, emotional, social needs, health workers, and adequate health facilities (7).

Study in Portugal showed the problems experienced by MDR-TB patients were depression, social discrimination, and drug side effects. Good interactions between patients and health workers, as well as careful treatment are associated with factors of adherence and successful treatment. The health system problems faced by MDR-TB patients based on research in Mozambique are delays in diagnosis, stigma associated with diagnosis and treatment, long stay at the hospital, lack of nutritional support, no comprehensive psychosocial support, and lack of knowledge (8).

Study in Indonesia concluded that patients' behavior, self-efficacy, and social support were factors associated with MDR-TB treatment adherence. Meanwhile, according to the research findings in primary health care, less than optimal infection control and feelings of insecurity due to stigma from health workers are related to MDR-TB treatment (9). In addition, knowledge and motivation of health workers in complying with the MDR-TB treatment protocol (9),(10), patients education, patients knowledge, type of drugs, transportation, family support (10),(1),(11) and social organizations also support the adherence of MDR-TB patients (12).

The results of research in Indonesia on MDR-TB treatment have not explained in depth regarding the perceptions of MDR-TB patients to the health care system. The MDR-TB patients' perception about the health care system during the long treatment duration is a consideration for improving health services in the future. This study aimed to gain insight of the MDR-TB patients perceptions about the out-patient healthcare services in a MDR-TB Poly in Indonesia, specially Surabaya.

MATERIALS AND METHODS

Study Design

The qualitative approach was chosen by the researcher to conduct this research through a phenomenological approach. The approach allowed researchers to explore patients' perceptions of MDR-TB outpatient healthcare services in public health facilities, particularly the personal perspectives of MDR-TB patients. This perspective helped to strengthen memory and reveal the experiences of MDR-TB patients in obtaining healthcare services at the MDR-TB Poly.

Sampling and participants

Patients were selected based on criteria of undergoing a MDR-TB treatment for oral and injection treatment. The number of patients who were approached by the researcher was 21 people and 6 people refused to be research participants. Inclusion criteria in this study were diagnosed with MDR-TB disease, aged more than 17 years, able to communicate, currently undergoing treatment for MDR-TB. Exclusion criteria were MDR-TB patients with complications of other diseases such as diabetes mellitus, HIV-AIDS, etc Patients were further selected using purposive sampling to obtain heterogeneity which include gender, age, duration of treatment, receiving MDR-TB poly services for at least a month, and their address. Audio recordings between PI and participants were transcribed in words and translated into Indonesian and English. Codes were then given for each theme. All words were then read by both authors to be compared and confirmed the themes obtained. The code and themes developed were carried out during the data collection process. Direct quotations describing important themes were summarized and written in the manuscript. One verbatim was examined by two researchers to analyze whether there were differences in theme determination to avoid subjectivity.

This research was conducted at a hospital in Surabaya in 2019. MDR-TB Poly is an out-patient service which operates every day except Sunday. MDR-TB patient came every day. The services provided at MDR-TB Poly are examinations in other rooms, treatment consultation, oral drugs, and injection drugs. MDR-TB poly is separated from other poly. Furthermore, the interview process was conducted in March-April 2019 with 15 MDR-TB patients as research sample.

Data collection

MDR-TB patients were invited to talk, while waiting

in line at the MDR-TB Poly. In this case, the researcher first explained the procedure, the research objectives, the benefits of the research result, the possible risks that arise, and how to overcome them in the study process. Furthermore, the MDR-TB patients also signed an informed consent after declaring themselves as participants in the study. Patients were given the right to withdraw from the research process if they did not want to continue their participation in the study. The process of collecting the research data from the participants was carried out at a place and time agreed by both parties. The location of data collection used in this study was varied, including the waiting room of MDR-TB Poly and the patient's house.

MDR-TB patients refused to be participants with the following reasons: busy, afraid, having to do the other activities, side effects of drugs, and the medical examination process. Furthermore, in terms of the interview conducted, two Principal Investigator (PI) were involved, carrying out in-depth interviews with participants that were further recorded. PI already had experience and training in qualitative interviews and qualitative research. The languages used in-depth interviews were Indonesian language, Javanese language, and Madurese language. PI has a semi in-depth interview guide that contains: knowledge, treatment experience, factors that affect treatment, barrier faced, social impacts, treatment of health workers, health facilities, procedures for getting services, and side effects of treatment. The interview guide was developed from the results of various MDR-TB studies.

The interview started with the opening, concerning the demographic data or general data of participants, followed by participants' perceptions of the health care system, and experience of health care procedures, specifically MDR-TB during treatment. Each interview took around 40-60 minutes. Each interview was conducted 2-3 times. The recorded interview results were then written to be used as verbatim for each participant.

Data analysis

Credibility was done by means of peer debriding and member-checking by three people as a research team. The peer debriefing activity is where the PI explained the summary of the results of the interviews and discussed the findings with the research team and two lecturers from the Faculty of Nursing, Universitas Airlangga who are experts in qualitative methodologies to get feedback on data collection and analysis. These activities aimed to reduce bias.

All interviews were recorded and written in the field notes. Dependability was achieved if all auditors consisting of three co-authors agreed on the conclusions and written notes made during the process of data collection and data analysis. Meanwhile, transferability was achieved by providing a specially marked description.

Ethical consideration:

This research protocol approval permit number is 0179/KEPK/IV/2018 on 10 April 2018. The ethical test was carried out at the research hospital. After the ethics certificate was issued by the hospital ethics committee, the researchers made leaflets containing information about the research to be conducted and distributed to patients at the MDR-TB Poly.

Rigor and trustworthiness

Every three participants were member-checked by returning to interview summaries from the participants to clarify the verbatim reports. At the end of the session, the PI examined and presented the participant's point of view and if it was appropriate, the participant signed the verbatim. Confirmability was done by auditing the research process including: data collection, checking the accuracy of coding in the analysis process, and confirming the consistency of the researcher's conclusions.

Translation

The translation process was carried out by: 1) identifying topics related to the research, word by word translated into English including the existing field notes. If there is a difference, then a discussion is held. This study used two translator, English and Indonesian translator.

RESULTS

The study was conducted on 15 participants with demographic characteristics of 9 males and 6 females. The age of the oldest participant was 67 years old, while the youngest was 29 years old. Most of the participants were senior high school graduate, married (8 participants), and unemployed. The longest duration of treatment was 24 months, while the shortest was 1 month.

Most of the MDR-TB patients had unpleasant experiences related to the communication with the health personnel. When seeking treatment at the health service, the patient had the experience of being yelled at, scolded, and not being open. In addition, they also met unfriendly health workers and had inadequate consultation time. Health information regarding the procedure of action and incomplete examination results were conveyed to MDR-TB patients. Participants also felt that health workers cared less about them. The number of health workers on duty was also insufficient even though the number of MDR-TB patients continued to grow. In addition, the facilities and infrastructure in health

services were also inadequate. This is in accordance with the statement of the participants:

Theme 1. Interaction between the provider and patient
Interaction between the provider and patient include: interactions between patients and doctors, nurses, administrative officers, and others. This interaction occurs in the hospital, namely in the MDR-TB Poly while receiving treatment. Most of the participants thought that the provider attitude, respect, and compassion was not good enough. This includes unfriendly behavior, less patience, and less caring. This explanation is further quoted in table II.

Theme 2. Lack of human resources
MDR-TB patients who underwent treatment felt that the number of health workers serving them was insufficient. These health workers include doctors, nurses, administrative officers, and drug taking supervisors. In addition, the ratio of the number of patients and health workers were not balanced. This explanation is further quoted in Table II.

Theme 3. Inadequate hospital facilities
During MDR-TB treatment, the patient received oral and injectable drugs. The facilities needed are patient waiting room, families' waiting room, examination room, drug administration room, and injection drug room. Participants said that the hospital facilities were inadequate. In this case, the shortcomings include hot temperatures, less space, a narrow place for treatment, inadequate equipment at the MDR-TB Poly, posts provided according to the lack of therapy time, no loudspeakers, and a place of worship that is far away. This explanation is quoted in Table II.

DISCUSSION

The research participants claimed that the services and facilities at the research site had both advantages and disadvantages. It is expected that the deficiencies delivered can improve the quality of services provided by the hospital. We identified the structural barrier related to healthcare services facility for MDR-TB patients namely interaction between the provider and patient, lack of human resources, and inadequate hospital facilities.

Provider and patients' interaction is an important factor that affect treatment adherence. In addition, participants also experienced poor interaction between the provider-patient such as unfriendly

Table I : Demographic Data of Participants (n=15)

	Gender	Age (years)	Level of Education	Marriage status	Occupation	Address	Treatment Duration (months)
P1	M	35	Senior High School	Single	Unemployed	Surabaya	24
P2	M	45	Junior High School	Widow	Side jobs	Surabaya	15
P3	F	40	Junior High School	Married	Housewife	Surabaya	7
P4	F	33	Senior High School	Married	Employer	Surabaya	24
P5	F	45	Junior High School	Married	Housewife	Surabaya	7
P6	F	42	Bachelor degree	Married	Housewife	Sidoarjo	1
P7	M	44	Senior High School	Widow	Driver	Surabaya	18
P8	F	57	Elementary school	Married	Unemployed	Surabaya	12
P9	F	56	Uneducated	Widow	Unemployed	Surabaya	24
P10	M	29	Diploma	Single	Employer	Surabaya	24
P11	M	47	Senior High School	Married	Enterpreneur	Surabaya	9
p12	M	50	Junior High School	Married	Labourer	Surabaya	3
p13	M	51	Senior High School	Widow	Enterpreneur	Surabaya	24
p14	M	67	Senior High School	Married	Enterpreneur	Mojokerto	1
p15	M	32	Senior High School	Single	Side jobs	Surabaya	12

M= male; F= Female

Table II : Themes identified through interviews with Multi Drug Resistant Patient

Theme	Subtheme	Quotations
I. Interaction between the provider and patient	i. Unfriendly behavior	"Were shouted at (by the health workers)."
		"I've been yelled at by the health workers here."
		"They are not friendly"
	ii. Less patience	"I hope that they will be more patient"
		"Maybe too many pastients. Please be more patient"
	iii. Less caring	"For nursing staff, the majority of them are caring, but not all of them, some are lacking."
		"The nurse near me doesn't do anyting"
II. Lack of human resources	i. Insufficient human resources	"The number of personnel was insufficient and in the end, the assistance was lacking."
		"There was no nurse who guided the patients and standby."
		"Since there were many patients, so the nurses did not have the chance to manage patients according to the length of treatment group."
		"The doctor was not here yet."
III. Inadequate hospital facilities	i. Hot	"This place sometimes it is hot."
		"The place is very hot."
	ii. Less space	"The place is not wide enough, because there are many patients.
		"The injection site is narrow"
		"Families room it is still not spacious"
		"The poly was too crowded."
	iii. Inadequate equipment at the MDR-TB Poly	"In the Poly MDR-TB, the equipment was incomplete."
		"I had to be referred because the equipment wa incomplete,."
	iv. Posts provided according to the lack of therapy time	" many places for body examination, why not make it close together."
		"The queue was very long eventhough I had to eat lunch."
	v. No loudspeakers	"It should be equipped with a microphone so that when you call the patients you will not scream."
		"The nurse called us in a loud voice because there was no mic"
	vi. A place of worship is far away	"The prayer room is far"
		"I want to pray but the place is far away."

behaviour, less patience, and less caring. The health workers behaviour affects the patient's treatment continuity. The poor provider-patient interaction such as negative behavior of health workers according to patient perceptions can cause patients to lose confidence and feel unappreciated which could lead to MDR-TB non-adherence and the treatment will be incomplete (13,14). The results of previous studies showed that patients had experiences of being unappreciated as well as encountered rude and uncaring health workers. Therefore, the patients would choose not to continue the treatment (15), (16). Nurse caring behaviour improve patient satisfaction during treatment (17).

Many participants stated their desire for psychological supports during treatment, one of them is derived from healthcare provider. Prior study, it was found that patient–provider relationships are characterized by trust, mutual respect, and shared decision-making which facilitate adherence to chronic disease treatment (18). Complete information about disease, treatment, examination, and disease progression can be an effective communication to increase interaction between patients and health workers (19). Furthermore, providers should also show more supportive attitudes which might improve patient willingness to remain in care. The quality of service from health workers needs to be improved to prevent treatment failure of MDR-TB patient.

Participants stated that health information related to disease was not conveyed completely and accurately by health workers. Doctors are less effective in communicating about the completeness of information regarding health status and examination procedures that must be carried out and treatment progress (20). Whereas, complete health information explanation from doctors can increase patient satisfaction so that it affects the patient's compliance and motivation to undergo the treatment.

Furthermore, health care facilities for MDR-TB patients services are still lacking. Participants stated that the speaker to call the queue did not work and the room for injection drugs was also narrow so patients felt uncomfortable. The distance of worship room was also far from the treatment room so that the patient was not comfortable. In addition, the facilities for the accompanying family were inadequate. The number of special seats for families was less than the number of families who accompanied them. Therefore, improvements and additions to health facilities need to be done to improve hospital image and increase patient satisfaction (21,22). Good family support reduces the risk treatment failure (1).

In this research, the sample size involved is small and the results of the study cannot be generalized, yet the results of this study can provide information for relevant providers to increase the success of the MDR-TB treatment program. The results of this study can provide information to program managers and service providers to increase patient satisfaction with health facilities and design MDR-TB treatment strategies. The limitation of this study is collected data carried out while participants were undergoing treatment because not all participants were willing to be visited at home. The results of the interview can different when the interview is conducted outside the treatment period. This is accordance with research that MDR-TB patients can experience hearing loss, coclear dysfunction due to drug side effects that can affect participant communication (23).

CONCLUSION

The study highlight is the MDR-TB patients' perceptions about health care facility during treatment. During the treatment, MDR-TB patients' state that there is still poor interaction between Provider and Patient, Lack of Human resources, and inadequate hospital facilities. The negative perception of patients leads to dissatisfaction and uncomfortable feeling during their treatment. Therefore, the hospital services need to be improved by improving the healthcare workers and facilities quality, so that MDR-TB patients' satisfaction during treatment increases and further affects their adherence in long term treatment.

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MANUSCRIPT PREPARATION

Language

All articles submitted must be written in the British English language. The Editorial Office does not offer copyediting services; therefore, the author's responsibility is to ensure that the English language is thoroughly revised before submitting the work for publication. It is the responsibility of the authors to send their articles for grammar and editing services. Editorial Office reserves the right to reject a manuscript if the use of language is deemed too poor.

Organisation

The following documents are required for each submission, in this order:

- Covering Letter
- Title Page
- Manuscript
- Tables (if any)
- Figures (or illustrations) (if any)
- Copyright Assignment Form (signed by all the authors)
- Conflict of Interest Form

Covering Letter

The covering letter should be uploaded at the stage of the online submission process. Explain in the covering letter why your paper should be published in MJMHS

Title Page

The title page should be **an individual document, uploaded separately**, that provides:

- Title of manuscript
- Full name of all authors; underline the family/last name,
  e.g. Lekhraj Rampal, Chih-Kong Tong, Fazila Hanis Hashim
- Full postal address of all authors' institutions
- Details of the corresponding author
  - Designation and name of the corresponding author
  - Contact details: email, telephone and fax number

Please refer to the sample of 'Title Page' that could be obtained from the 'Instruction & Forms' tab

Note: Persons designated authors should have participated sufficiently in work to justify authorship. Kindly refer to the section on authorship in the Uniform Requirements for Manuscripts Submitted to

Biomedical Journals, available at www.icmje.org. The editor may require authors to justify the assignment of authorship

Manuscript

Abstract

- The abstract should be an informative synopsis/summary of your manuscript.
- All abstracts for original articles should follow the structured format, with the headings Introduction, Methods, Results and Conclusion. The word count should not exceed 250 words.
- Abstract for Case Series should follow the structured format, with Introduction, Case Series and Conclusion heading. The word count should not exceed 250 words.
- Abstract for Short Communications, Review article, Commentary and Case report should follow the unstructured format.No need to divide the abstract into different sections. The word count should not exceed 150 words.

Keywords

- Below the abstract, provide 5 keywords (compulsory) that will assist in cross-indexing the article.
- Check and confirm that the keywords are the most relevant terms found in the title or the abstract and should be listed in the medical subject headings (MeSH) list of Index Medicus found in http://www.nlm.nih.gov/mesh/meshhome.html

Main Text

- Times New Roman font, size 12 with double-line spacing. The left, right, top and bottom margins should be 2.54 cm (1 inch).
- Do not use boldface for emphasis within the text
- Numbers one to ten are written out in words unless they are used as a unit of measurement, except in figures and tables
- Use single hard-returns to separate paragraphs. Do not use tabs or indents to start a paragraph
- Do not use the automated features of your software, such as hyphenation, headers, or footers (especially for references). You can use page numbering

Figures

- Abbreviate "Figure" as "Fig.", e.g. Fig. 1, Fig. 2.
- Number the figures consecutively in Arabic numerals (e.g. Fig. 1, Fig. 2) in the order of their first citation in the text.
- Images as TIFF/JPEG files should be submitted with a **minimum resolution of 300 DPI** and a minimum dimension of 1,000 x 1,000 pixels. Colour images should be submitted in CMYK format instead of RGB format.
- **The figure should cover a minimum of 85-95% of the figure's total area, and the margin area/space should not exceed more than 10%.**
- **Each figure should be submitted separately without figure legend and title**.
  (Authors are advised to keep backup files of all images).
- Figure legends should be provided in the main text after references.
- Line Figures – freehand and type-written lettering are not acceptable.
- Letters, numbers and symbols should be clear and even throughout and of sufficient size so that when they are reduced in size for publication, each item will still be clearly identifiable.

- If a Figure has been published, acknowledge the original source and submit written permission from the copyright holder to reproduce the material.
- Authors' names and affiliations should not appear on the images.
- All Figures/Figure-parts relating to one patient should have the same Figure number.
- Symbols, arrows or letters used in photomicrographs should contrast with the background.

Please refer to the sample of 'Figure' that could be obtained from the 'Instruction & Forms' tab

Clinical Pictures

- The ideal Clinical Picture provides valuable visual information to other clinicians.
- Clinical Pictures should be interesting, educational, and respectful of the patient. MJMHS is less interested in pictures that simply illustrate an extreme example of a medical condition.
- Authors must obtain signed informed consent for publication.
- Use no more than 450 words, with no references. The text should include brief patient history and must put the image in context, explaining what the image shows and why it is of interest to the general reader.

Tables

- **Submit all tables in Microsoft word format only.**
- **Each table should be submitted separately.**
- Number the tables consecutively in Roman numerals (e.g. Table I, Table II, Table III) in the order of their first citation in the text
- Provide a brief title, which should be shown at the top of each table
- The main table heading should be in10 point Times New Roman font **BOLD**
- Legends should be in 10 points, single-spaced
- Tables should be in 8-point Times New Roman font, single-spaced
- Headings within tables should be in 8 points BOLD
- Place table explanations in the footnotes of the table
- Explain all non-standard abbreviations in the footnotes to the tables
- Obtain permission for publication before submission of the manuscript and acknowledge fully if data from another published source is used

Abbreviations and Symbols

- The full term for which an abbreviation or acronym stands should precede its first use unless it is a standard unit of measurement
- Symbols and abbreviations should be those used by British Chemical and Physiological Abstracts
- Weights, volumes, etc. should be denoted in metric units

Data

- An International System of Units (SI) is required
- Numbers in text and tables should always be provided if % is shown
- Means should be accompanied by Standard Deviation and Medians by Inter-Quartile Range
- Exact p values should be provided unless p<0·0001

Drug names

- Recommended international non-proprietary name (rINN) is required

References

- Use the form of references adopted by the US National Library of Medicine and the Index Medicus. Use the style of the examples cited at the end of this section.
- **The citation and bibliographical style of all reference sources (book, chapter in a book, journal articles and internet) should adhere to the Vancouver citation style and must supplement with a digital object identifier (DOI). The reference can be cited without a DOI if it does not have a DOI.**
- If you use reference managing software such as EndNote, Mendeley or RefWorks, you may opt for the **"Springer Vancouver"** style for reference formatting.
- **References in text, table and legends should be numbered in brackets (e.g. [1], [1, 4], [1-3] and [1, 3-5]) and cited consecutively in the order of appearance in the manuscript**.
- Personal communications and unpublished observations may not be used as a reference.
- Two references are cited, separated by a comma, with space. Three or more consecutive references are given as a range with an en rule.
- References in tables, figures and panels should be in numerical order according to where the item is cited in the text
- Give any subpart to the title of the article. Journal names are abbreviated in their standard form as in Index Medicus
- If there are six authors or fewer, give all six in the form: surname space initials comma
- If there are seven or more, cite the first six names followed by et al
- For a book, give any editors and the publisher, the city of publication, and the year of publication
- For a chapter or section of a book, cite the editors, authors and title of the section, and the page numbers (http://www.ncbi.nlm.nih.gov/books/NBK7271/#A34171)
- For online material, please cite the URL, together with the date you accessed the website
- Do not include references in the abstract.

Examples of reference style are given below:

Reference Citation Style for MJMHS

Standard Format for Books:

Author Surname Initials. Title: subtitle. Edition (if not the first). Place of publication: Publisher; Year. [Include DOI if available].

Book with 1-6 authors/editors

Abul A, Lichtman A, Pillai S. Cellular and molecular immunology. 7th ed. Philadelphia: Elsevier Saunders; 2012.

More than 6 authors/editors (Book, Chapter in a book & etc.)

Fauci AS, Braunwald E, Kasper DL, Hauser SL, Longo DL, Jameson JL, et al. Harrison's Principles of Internal Medicine. 17th ed. New York: McGraw Hill; 2008.

Chapter in a book

Vidyadaran S, Ramasamy R, Seow HF. Stem cells and cancer stem cells: Therapeutic Applications in Disease and Injury. In: Hayat MA, editor. New York: Springer; 2012.

Corporate/Organisation as Author

Canadian Dental Hygienists Association. Dental hygiene: definition and scope. Ottawa: Canadian Dental Hygienists Association; 1995.

E-book

Frank SA. Immunology and Evolution of Infectious Disease [Internet]. Princeton: Princeton University Press; 2002 [cited 2014 December 17]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK2394/pdf/TOC.pdf. doi/book/10.xxxx/xxxxxxxxxx

Standard Format for Journal Articles:

Author Surname Initials. Title of the article. Title of the journal abbreviated. Year of Publication: Volume Number (Issue Number): Page Numbers. DOI

Journal article 1-6 authors

Dazzi F, Ramasamy R, Glennie S, Jones SP, Roberts I. The role of mesenchymal stem cells in haemopoiesis. Blood Reviews. 2006;20(3):161-71. doi: 10.1016/j.blre.2005.11.002.

Journal article with more than 6 authors

Leong YY, Ng WH, Umar Fuaad MZ, Ng CT, Ramasamy R, Lim V, et al. Mesenchymal stem cells facilitate cardiac differentiation in Sox2-expressing cardiac C-kit cells in coculture. J Cell Biochem. 2019;120(6):9104-16. doi: 10.1002/jcb.28186.

Journal article in press

Clancy JL, Patel HR, Hussein SM, Tonge PD, Cloonan N, Corso AJ, et al. Small RNA changes en route to distinct cellular states of induced pluripotency. Nature communications.2014; 5:5522.Epub 2014/12/11.

It is the authors' responsibility to check all references very carefully for accuracy and completeness. Authors should avoid using abstracts as references. "Unpublished observations" and "personal communications" may not be used as references; if cited, a letter (from the person quoted) granting permission must be submitted. Subject to editorial approval, the person quoted will be cited in parentheses in the text and not in the reference section.

Acknowledgements

State contributions that need to be acknowledged but do not justify authorship.

Acknowledgeable contributions include (not in exhaustive order) general support by a Department Head or Chairman, technical help, and financial and/or material support (including grants). Mention conflicts of interest, if any.

ARTICLE CATEGORIES

The format for the text varies depending on the type of article. The list of article types and their respective formats are as follows: Original Article, Short Communication, Review Article, Case Report, Commentary and Letters to Editors.

Original Article

- An original article is a report on the research objectives and analytical process, as well as a discussion of the implications of the results of a study
- The manuscript should be organised according to the following headings:
    - Title of the manuscript
    - Abstract (Structured & 250 words) and Keywords
    - Introduction
    - Materials and Methods
    - Results
    - Discussion
    - Conclusions
    - Acknowledgements
    - References
    - Figure Legends
- **The original article should not exceed 6000-word count, 4-7 figures/table and 50 references**.

Short Communications

- Short Communication is a brief report that presents original and significant research data. It is not meant for publishing preliminary or incomplete results but to provide a platform for the rapid dissemination of exceptionally interesting and valuable data.
- The manuscript should be organised according to the following headings:
    - Title of the manuscript
    - Abstract (Unstructured & 150 words) and Keywords
    - Introduction
    - Materials and Methods
    - Results and Discussion (Combined)
    - Conclusions
    - Acknowledgements
    - References
    - Figure legends
- **The short communications should not exceed 3000-word count, 3-5 figures/tables and 20 references.**

Review Article

- It is usually a solicited/invited article written by an expert, providing critical analysis and recent information on a given speciality.
- The manuscript file should be organised according to the following headings:
    - Title of the manuscript

- Abstract (Unstructured & 150 words) and Keywords
- Introduction
- Relevant section headings of the author's choice
- Conclusions
- References

- **The review article should not exceed 6000-word count, 0-4 figures/tables, and there should be an adequate number of references to support the review**.

Case Report

- Case reports submitted to MJMHS **should contribute to medical knowledge and must have educational value or highlight the need for a change in clinical practice or diagnostic/prognostic approaches.**
- The manuscript file should be organised according to the following headings:
  - Title of the manuscript
  - Abstract (Unstructured & 150 words) and Keywords
  - Introduction
  - Case Report
  - Discussion
  - Conclusions
  - Acknowledgements
  - References
- **The length manuscript should not exceed 1500 words, 3-4 figures/tables and 5 references**.

Case series

- The Case Series should report 3-6 similar cases that address clinical problems/challenges in diagnosis/treatment or health-related solutions (non-clinical) to provide a better or different perspective in managing these cases/issues.
- The manuscript file should be organised according to the following headings:
  - Title of the manuscript
  - Abstract (Structured & 250 words) and Keywords
  - Introduction
  - Case Series
  - Discussion
  - Conclusions
  - Acknowledgements
  - References
- The case series must be accompanied by a comprehensive review of the literature.
- The structure of the abstract should follow subheadings: Introduction, Case Series & Conclusion
- **The length manuscript should not exceed 3000 words, 3-5 figures/tables and 20 references**.

Study protocol

- Study protocol articles will generally only be considered for proposed or ongoing trials that have not completed participant recruitment at the time of submission. Submissions should provide a detailed account of the study's hypothesis, rationale, and methodology. Randomised trial protocols should follow the SPIRIT guidelines (https://www.spirit-statement.org), including the SPIRIT flow diagram in the main body of the text.
- The manuscript should be organised according to the following headings:
    - Title Page
    - Abstract (Structured – Introduction, Methods, Discussion and Trial Registration; maximum 250 words) and Keywords
    - Introduction
    - Methods/Design
    - Discussion
    - Acknowledgements
    - References
    - Figure Legends
- The study protocol article should not exceed 4000-word count, 1-2 figures/table and 30 references.

Systematic review

- Authors should report systematic reviews and meta-analyses following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement and guidelines or other relevant guidelines for systematic reviews. Systematic reviews or meta-analyses terms should be included in the title, abstract and/or full article. Authors may register their systematic review (e.g. in a registry such as PROSPERO) and provide the registry number in their article. Meta-analysis of observational studies requires a MOOSE checklist for meta-analysis of observational studies.
- The information below is adapted from the Journal of Advanced Nursing (JAN).
- The manuscript should be organised according to the following subsections:
    - Abstract (Structured Aims, Design, Data Sources (include search dates), Review Methods, Results, Conclusion and Impact), 250 words and keywords.
    - Introduction (Include rationale, conceptual or theoretical context, and topic's relevance.)
    - Background and Aims (Present the scientific, conceptual or theoretical framework that guided the review, identifying and providing an overview of the conceptual model and/or theory where appropriate. Identify key concepts or variables. Include research topic/objectives/questions/hypothesises).
    - Design (The review design should be the most appropriate for the review question. Identify the type of review and describe the design and methods used in detail. Report processes and steps used and any methodological adaptations/deviations (if any) with supporting rationale.) Report original methodological sources of reference for the review design and methods.
    - Search methods (Include: Development, testing and choice of search strategies (consider using a supplemental information file to report searches), inclusion/exclusion criteria, databases searched, keywords, languages, and inclusive dates of the literature searched.)

- Search outcome and audit trail (application of inclusion/exclusion criteria, retrieval and selection of references and handling. Summarise included studies (and, if appropriate, excluded studies) in separate tables).
- Quality appraisal (Please note that for most systematic review approaches quality appraisal is mandatory and considered the primary marker of a systematic review. If the quality appraisal was not undertaken, provide a convincing and robust explanation, and in the limitations section, outline the potential impact on the credibility of the review findings.) Include a description of approaches used, outcome of appraisal process and audit of discarded studies. Make clear the criteria that were used for discarding studies.
- Data abstraction (Describe the methods and processes).
- Synthesis (Include a clear description of processes used).
- Result (Present the results of your review using appropriate subheadings outlined here and adhere to the relevant standard(s) of reporting. Include a flow diagram illustrating the flow of literature through the review. Review methods that involve multiple methodological stages/processes should report the outcome of each stage/process. If appropriate, identify each definition's conceptual or theoretical context or discussion of the concept found in the literature.)
- Discussion (Draw out the applicability, theoretical and practical implications of the review findings. End with limitations and strength and generalisability/transferability of the evidence.)
- Conclusion (This should not be a summary/repetition of the findings. Clarify the contribution of the review to existing knowledge, highlight gaps in knowledge and understanding, outline future research, report implications/recommendations for practice/research/education/management as appropriate, and be consistent with the limitations. If applicable, consider whether one or more theoretical frameworks could guide future research about the review topic.)

- Systematic Reviews should contain 4000 - 4500 words, a maximum number of references is 100, and a maximum number of illustrations/Tables is 10.
- Useful resources links:
  - Moher D. a Liberati, J. Tetzlaff, DG Altman, P. Grp, Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement (Reprinted from Annals of Internal Medicine). Phys. Ther. 2009;89:873-80.
  - Stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D, Moher D, Becker BJ, Sipe TA, Thacker SB. Meta-analysis of observational studies in epidemiology: a proposal for reporting. Jama. 2000 Apr 19;283(15):2008-12. (MOOSE guideline)
  - PRISMA statement guidelines and checklist (http://www.prisma-statement.org/)
  - Centre for Reviews and Dissemination (https://www.york.ac.uk/crd/)
  - Cochrane Collaboration (https://www.cochrane.org/)
  - The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) https://eppi.ioe.ac.uk/cms/)
  - Joanna Briggs Institute (JBI) (https://joannabriggs.org/)
  - National Institute for Health and Clinical Excellence (https://www.nice.org.uk/)

Commentary

- These are short articles describing an author's personal experience of a specific topic and should outline the various viewpoints. The editor usually invites commentaries.
- The manuscript file should be organised according to the following headings:

- Unstructured abstract (optional) and Keywords
- Introduction
- Relevant section headings of the author's choice
- References

- Length should be about 1,000-1,500 words, 2 figures/tables and references should be limited to only those that support the argument.

Letter to the Editor

- Letters to the Editor should either offer objective and constructive criticism of published articles or discuss matters of general scientific or medical interest to readers of MJMHS.
- This is also a forum for authors to publish concise articles such as reports of novel cases.
- No abstract is required. Standard formal letter format is recommended.
- Comments on MJMHS published articles/authors' reply
  - 250 words (main text only)
  - 1 small table or figure (optional)
  - Up to 5 references
- Discussion on new topics/novel cases
  - 450 words (main text only)
  - 1 small table or figure (optional)
  - Up to 5 references

PLAGIARISM & SIMILARITY INDEX

- Please be advised that all manuscripts submitted to the MJMHS will be screened for plagiarism/duplication. MJMHS adopts a zero-tolerance toward plagiarism.
- Authors are required to paraphrase all reference citations in their own words. This is to prevent any misunderstandings regarding plagiarism.
- In the case where a particular citation would lose its original meaning and essence if paraphrasing is attempted, the journal requires authors to enclose the citation in quotation marks (“") to indicate that it is a direct quote from the source. However, excessive use of such quotation marks is discouraged and should be utilised only when necessary.
- All submitted manuscripts will be screened for the similarity index with other published articles. Failure to comply with the accepted level of similarity index will result in resubmission for rectification or an outright rejection of manuscripts without peer review.

SIMILARITY INDEX	CATEGORY
< 30 %	Pass
31 – 40 %	Resubmit
> 40 %	**Reject**

- Besides, any individual resource that exceeds 2% of the similarity index will be subjected to resubmission.
- If the excerpt or sentences were taken directly from a published resource without paraphrasing, they should be written in quotation marks (“xxxxxxx xxxx xxxx”) with reference.

POLICY ON DUAL SUBMISSION

- Submissions that are identical (or substantially similar) to previously published, accepted for publication, or submitted in parallel to other conferences are NOT appropriate for submission to MJMHS and violate our dual submission policy.
- If you are in doubt (particularly in the case of material you have posted on a website), we ask you to proceed with your submission but to include a copy of the relevant previously published work or work under consideration by other journals.
- Policy on Near-Duplicate Submissions o Multiple submissions with an excessive amount of overlap in their text or technical content are NOT acceptable. The Editors reserve the right to immediately reject all submissions they deem to be excessively similar and by the same authors. Such "shotgun submissions" are unacceptable, unfair to authors who submit single original papers, and place an additional strain on the review process.

ETHICS

Subject consent forms

Subjects have a right to privacy that should not be infringed without informed consent. Identifying details (written or photographic) should be omitted if they are not essential, but subject data should never be altered or falsified to attain anonymity. Complete anonymity is difficult to achieve, and a consent form should be obtained if there is any doubt. For example, masking the eye region in photographs of subjects is inadequate protection of anonymity. When informed consent has been obtained, it should be indicated in the published article. A sample patient consent form is available here if required.

Ethics committee approval

Authors must sign a declaration that the research was conducted within the guidelines below and under the terms of all relevant local legislation. Please also look at the latest version of the Declaration of Helsinki. The Editors reserve the right to judge the appropriateness of the use and treatment of humans or animals in experiments for publication in the journal.

Human experiments: All work must be conducted following the Declaration of Helsinki. Papers describing experimental work on human participants, which carries a risk of harm, must include (1) a statement that the experiments were conducted with the understanding and the consent of each participant and (2) a statement that the responsible, ethical committee has approved the experiments.

Animal experiments: In papers describing experiments on living animals, include (1) a full description of any anaesthetic and surgical procedure used and (2) evidence that all possible steps were taken to avoid animals' suffering at each stage of the experiment. Describe the precautions taken to ensure adequate anaesthesia in experiments involving muscle relaxants.

Experiments on isolated tissues*:* Indicate precisely how you obtained the donor tissue. The NIH guide for the care and use of laboratory animals (National Institutes of Health Publications No. 80-23, revised 1978) gives guidelines for the acquisition and care of animals.

Clinical trials and behavioural evaluations

Authors reporting results of randomised controlled trials should submit a complete checklist from the CONSORT statement, see http://www.consort-statement.org. For behavioural and public health evaluations involving non-randomised designs, authors should include with their submission a

comprehensive checklist from the TREND statement, see Am J Public Health 2004; 94:361-366 or http://www.cdc.gov/trendstatement/.

Registration of clinical trials: Clinical trial registration in a public registry is required. Registration of a trial must be at or before the enrollment of participants. This policy, in concert with the ICMJE, applies to clinical trials starting enrollment after 1st July 2005. For trials beginning enrollment before this date, the journal will require registration by 13th September 2005. We will use the definition proposed by the ICMJE of a 'clinical trial as a research project that prospectively assigns human subjects to intervention or comparison groups to study a cause and effect relationship between a medical intervention and a health outcome' see *N Engl J Med* 2004; 364:911. Studies such as phase 1 trials will be exempt. The editors do not advocate one particular registry but require that the registry be utilised to meet the criteria set out in the statement of policy of the ICMJE. Thus, the registry must include an identifying number of the trial, a description of the intervention(s), comparison(s) investigated, hypothesis, primary and secondary outcome measures, eligibility and exclusion criteria, dates of start, anticipated follow up and closure, number of subjects, funding source, and contact information for the principal investigator.

PUBLICATION FEE

Effective 1st January 2022, MJMHS imposes a new publication fee for all regular issue articles.

Note: ***No publication fees for the supplementary issue manuscripts****. The supplementary issue only caters to papers from the specific conference, seminar or institution, and all submissions are by invitation only.*

2) Publication fee

- RM300.00
- For all accepted articles for publication
- Payment should be made within 30 days from the manuscript acceptance date. An email from EIC follows to request a publication fee
- Accepted manuscripts will be on hold for the issue assignment and publication until the publication fee is duly paid.

Please refer Publication Fees document at the "Instructions & Files" tab for payment method and additional information

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CONTACT

The Editorial Office can be contacted at mjmhs@upm.edu.my

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Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
43400 UPM Serdang
Selangor Darul Ehsan
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