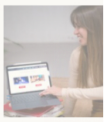
BUKTI REVIEWER

ARTIKEL JURNAL INTERNASIONAL BEREPUTASI

No	Perihal	Tanggal
1	Bukti A manuscript is waiting for your review - (ID 1568563)	Feb 2, 2025
2	Bukti Thank you for agreeing to review 1568563	Feb 2, 2025
3	Bukti konfirmasi Looking forward to your review	Feb 10, 2025
4	Bukti konfirmasi Thank you for finalizing your Independent Review Report - 1568563	Feb 10, 2025
5	Bukti Interactive review reactivated for the authors - 1568563	April 3, 2025
6	Bukti Acceptance of manuscript you reviewed - 1568563	April 8, 2025
7	Bukti Congratulations on the article you reviewed - 1568563	May 6, 2025



Frontiers in Cellular and Infection Microbiology

COUNTRY

Switzerland

Universities and research institutions in Switzerland

Media Ranking in Switzerland

SUBJECT AREA AND CATEGORY

Immunology and Microbiology
- Immunology
- Microbiology

Medicine
- Infectious Diseases
- Medicine (miscellaneous)
- Microbiology (medical)

PUBLISHER

Frontiers Media SA

Frontiers Media SA in Scimago Institutions Rankings

SJR 2024

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Journals

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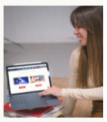

SCOPE

Frontiers in Cellular and Infection Microbiology is a leading specialty journal, publishing rigorously peer-reviewed research across all pathogenic microorganisms and their interaction with their hosts. Chief Editor Yousef Abu Kwaik, University of Louisville is supported by an outstanding Editorial Board of international experts. This multidisciplinary open-access journal is at the forefront of disseminating and communicating scientific knowledge and impactful discoveries to researchers, academics, clinicians and the public worldwide. Frontiers in Cellular and Infection Microbiology includes research on bacteria, fungi, parasites, viruses, endosymbionts, prions and all microbial pathogens as well as the microbiota and its effect on health and disease in various hosts. The research approaches include molecular microbiology, cellular microbiology, gene regulation, proteomics, signal transduction, pathogenic evolution, genomics, structural biology, and virulence factors as well as model hosts. Areas of research to counteract infectious agents by the host include the host innate and adaptive immune responses as well as metabolic restrictions to various pathogenic microorganisms, vaccine design and development against various pathogenic microorganisms, and the mechanisms of antibiotic resistance and its countermeasures.

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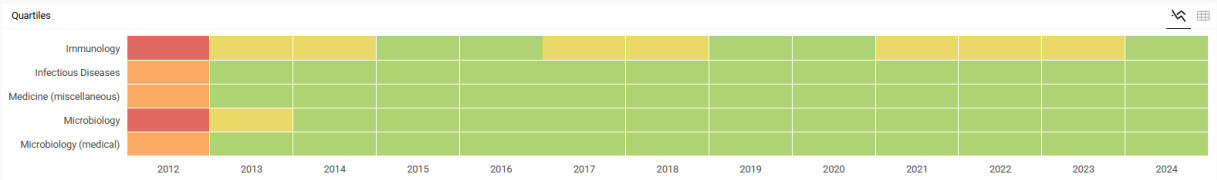

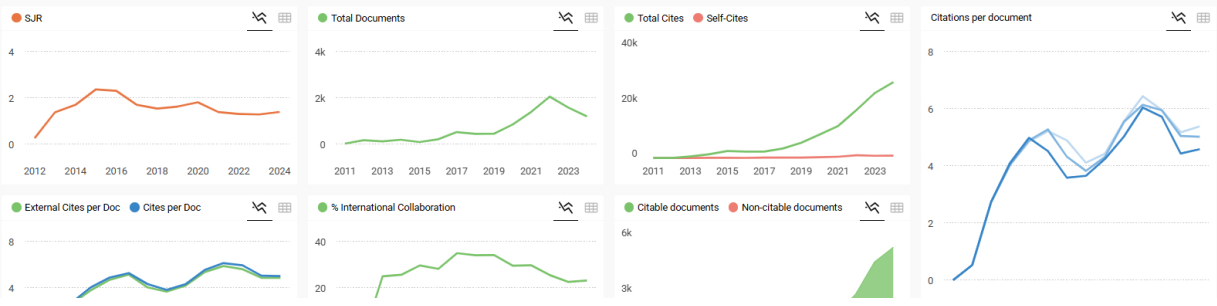

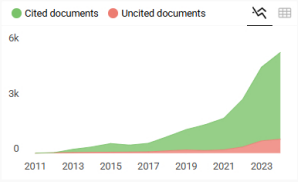

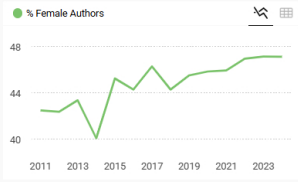

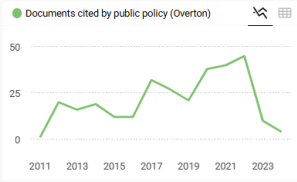

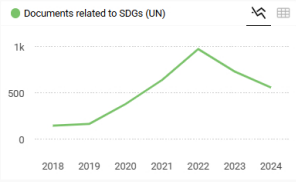

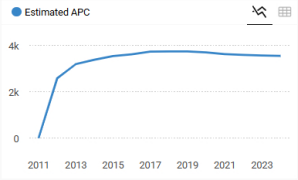

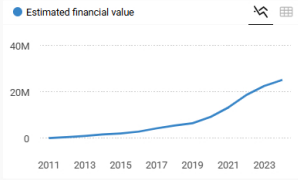

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Khoerul Umam <khoerul.umam@uhamka.ac.id>

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1 message

Omar Hamarsheh (Via FrontiersIn) <noreply@frontiersin.org> Sun, Feb 2, 2025 at 1:43 PM
Reply-To: Omar Hamarsheh <ohamarsheh@staff.alquds.edu>
To: Khoerul Umam <khoerul.umam@uhamka.ac.id>

Dear Dr Khoerul Umam,

Are you able to review "A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis" by Zhou Zhiyuan, Chaoran Yu, Danhua Yao, Zhen Wang, Yuhua Huang, Pengfei Wang, Weimin Wang and Yousheng Li that's been submitted to Frontiers in Cellular and Infection Microbiology, section Parasite and Host?

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Thank you for your time.

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Omar Hamarsheh
Associate Editor, Frontiers in Cellular and Infection Microbiology
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----------MANUSCRIPT DETAILS----------
Journal: Frontiers in Cellular and Infection Microbiology, section Parasite and Host
Article type: Original Research
Manuscript title: A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis
Manuscript ID: 1568563
Authors: Zhou Zhiyuan, Chaoran Yu, Danhua Yao, Zhen Wang, Yuhua Huang, Pengfei Wang, Weimin Wang and Yousheng Li
Submitted on: 30 Jan 2025
Edited by: Omar Hamarsheh

Abstract: Cutaneous myiasis, one of the most frequently diagnosed myiasis types, is identified as skin or soft tissue on a living host infested by dipterous larvae (maggots). However, bibliometric analysis of this disease remains sparse.All the studies were retrieved from PubMed and were processed by R software in bibliometric analysis and Latent Dirichlet Allocation (LDA) topic modeling. Two diabetes patients with serious soft tissue infection-associated sepsis were admitted and studied for clinical features.A total of 211 results were retrieved. Fifty topics relevant to cutaneous myiasis were determined by LDA algorithm. The topics of uncommon fly species, nasal infestation and physician discussion of cutaneous myiasis were consistently common for the last 20 years. Case report remains one of the key features in myiasis. Four major clusters were identified, i.e. case report related, disease type and development, travel in the tropics and skin disease. Retrospectively, two cases with soft tissue infection related sepsis highlighted the distinct role of myiasis in certain circumstances. Levels of white blood cell, blood glucose and c-reactive protein of the case with cutaneous myiasis were more stable than the case without cutaneous myiasis, which turned into sepsis shock.Key topics have been modeled among the increasing popularity of maggot therapy.Maggot debridement therapy may show promising and beneficial to soft

tissue infection-related sepsis.

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Frontiers in Cellular and Infection Microbiology Editorial Office <cellandinfect.editorial.office@frontiersin.org> Sun, Feb 2, 2025 at 3:08 PM
Reply-To: Frontiers in Cellular and Infection Microbiology Editorial Office <cellandinfect.editorial.office@frontiersin.org>
To: khoerul.umam@uhamka.ac.id

Dear Dr Umam,

Thank you for accepting to review the manuscript "A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis". Your time and effort towards this assessment is greatly appreciated.

The majority of our reviewers kindly submit their review assessments within 10 days of accepting the invitation. You can access the manuscript and the structured review questionnaire you will complete via this link: Enter Review Forum
If you require more time to complete your review, you can grant yourself an extension directly on the review forum via the link above. Additionally, you can at any stage contact the handling editor or the Editorial Office if you need advice.

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In advance, thank you for providing your expert, constructive feedback. This is invaluable to help guide the authors on how the manuscript can be improved.

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----------MANUSCRIPT DETAILS----------
Manuscript title: A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis
Manuscript ID: 1568563
Authors: Zhou Zhiyuan, Chaoran Yu, Danhua Yao, Zhen Wang, Yuhua Huang, Pengfei Wang, Weimin Wang and Yousheng Li
Journal: Frontiers in Cellular and Infection Microbiology, section Parasite and Host
Article type: Original Research
Submitted on: 30 Jan 2025
Edited by: Omar Hamarsheh

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Khoerul Umam <khoerul.umam@uhamka.ac.id>

Looking forward to your review of A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis (ID: 1568563)

1 message

Frontiers in Cellular and Infection Microbiology <cellandinfect.editorial.office@frontiersin.com> Mon, Feb 10, 2025 at 12:09 AM
Reply-To: Frontiers in Cellular and Infection Microbiology <cellandinfect.editorial.office@frontiersin.com>
To: khoerul.umam@uhamka.ac.id

Dear Khoerul,

I see that you will shortly be submitting your Reviewer Report on the manuscript: A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis [ID: 1568563]. I appreciate you committing your valuable time and expertise to this article, and on behalf of the Authors: thank you.

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Best regards,

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Head of Review Operations
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Khoerul Umam <khoerul.umam@uhamka.ac.id>

Thank you for finalizing your Independent Review Report - 1568563

1 message

Frontiers in Cellular and Infection Microbiology Editorial Office <cellandinfect.editorial.office@frontiersin.org> Mon, Feb 10, 2025 at 11:19 AM
Reply-To: Frontiers in Cellular and Infection Microbiology Editorial Office <cellandinfect.editorial.office@frontiersin.org>
To: khoerul.umam@uhamka.ac.id

Dear Dr Umam,

Thank you for submitting your independent review report for the manuscript "A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis". As you endorsed publication of this manuscript in its current form, your peer review process is now finalized. The handling editor has been notified, and you can find a copy of your report below.

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----------MANUSCRIPT DETAILS----------
Manuscript title: A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis
Manuscript ID: 1568563
Authors: Zhou Zhiyuan, Chaoran Yu, Danhua Yao, Zhen Wang, Yuhua Huang, Pengfei Wang, Weimin Wang and Yousheng Li
Journal: Frontiers in Cellular and Infection Microbiology, section Parasite and Host
Article type: Original Research
Submitted on: 30 Jan 2025
Edited by: Omar Hamarsheh

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---------- Independent Review Report, Reviewer: Khoerul Umam
EVALUATION
Please list your revision requests for the authors and provide your detailed comments, including highlighting limitations and strengths of the study and evaluating the validity of the methods, results, and data interpretation. If you have additional comments based on Q2 and Q3 you can add them as well.
your abstract has a good explanations, while keywords need some improvement to change an order word from A to Z.

The introduction to the methods is okay as far as it goes, but it lacks context. Why is it important to study trends in myiasis research? What gaps in knowledge does this study address? What are the potential implications of the findings? The introduction needs to motivate the research and clearly state the objectives. The definition of topic modeling and LDA is helpful, but it should be placed after the motivation for the study is established. The sentence "This method provides reliable ways to process or automatically organizing large electronic publications..." is grammatically awkward and needs to be rewritten. Something like, "This method provides a reliable way to automatically process and organize large collections of electronic publications..."

Methods: The description of the search strategy is adequate, but it could be more detailed. Which databases were searched? What were the exact search terms used? Were any inclusion/exclusion criteria applied beyond the ones mentioned? Transparency is crucial for reproducibility. The description of the bibliometric analysis is very brief. What metrics were used (e.g., number of publications, citation counts, co-authorship networks)? How was the LDA implemented? What software was used? What were the parameters? More detail is needed.

Results: The provided text doesn't include any results. This is the most important part of the manuscript! What were the key trends identified? What were the prominent themes in myiasis research during the specified period? Were there any shifts in research focus over time? Visualizations (figures and tables) of the results are essential.

'You use R apps for machine learning-text, it is very good. but we need to understand why do you use R, instead of others. Your reasons to explain using R, is required.

Your conclusion is good, but need more improvement to show the opportunity to future research.

details comment in pdf.
Check List
a. Is the quality of the figures and tables satisfactory?
Yes
b. Does the reference list cover the relevant literature adequately and in an unbiased manner?
Yes
c. Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)
Yes
d. Is a statistician required to evaluate this study?
Yes
e. Are the methods sufficiently documented to allow replication studies?
Yes
QUALITY ASSESSMENT:
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4
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Interest to a general audience
5

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Khoerul Umam <khoerul.umam@uhamka.ac.id>

Omar Hamarsheh via Frontiers: Interactive review reactivated for the authors - 1568563

1 message

Omar Hamarsheh (Via FrontiersIn) <noreply@frontiersin.org> Thu, Apr 3, 2025 at 11:58 PM
Reply-To: "Omar Hamarsheh (Via FrontiersIn)" <ohamarsheh@staff.alquds.edu>
To: khoerul.umam@uhamka.ac.id

Dear Dr Umam,

This is to notify you that your review for the manuscript "A machine learning-based text mining of cutaneous myiasis and potential value of an accidental maggot therapy to complicated skin and soft tissue infection with sepsis" had to be reactivated.
The authors were instructed to respond to the remaining open issues you raised.

You will be notified as soon as the authors respond in the interactive review forum.

In the meantime, you can always access this manuscript and the discussion here:
http://www.frontiersin.org/Review/EnterReviewForum.aspx?activationno=98184e6e-f337-45ec-bd70-8f04ea7ba78d&retab=0

With best regards,

Omar Hamarsheh
Associate Editor,
www.frontiersin.org

Manuscript title: A machine learning-based text mining of cutaneous myiasis and potential value of an accidental maggot therapy to complicated skin and soft tissue infection with sepsis
Authors: Zhou Zhiyuan, Chaoran Yu, Danhua Yao, Zhen Wang, Yuhua Huang, Pengfei Wang, Weimin Wang, Yousheng Li
Journal: Frontiers in Cellular and Infection Microbiology, section Parasite and Host
Article type: Original Research
Submitted on: 30 Jan 2025
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Frontiers in Cellular and Infection Microbiology Editorial Office <cellandinfect.editorial.office@frontiersin.org> Tue, Apr 8, 2025 at 6:35 PM
Reply-To: Frontiers in Cellular and Infection Microbiology Editorial Office <cellandinfect.editorial.office@frontiersin.org>
To: khoerul.umam@uhamka.ac.id

Dear Dr Umam,

The manuscript you reviewed was accepted for publication:

Manuscript title: A machine learning-based text mining of cutaneous myiasis and potential value of an accidental maggot therapy to complicated skin and soft tissue infection with sepsis
Journal: Frontiers in Cellular and Infection Microbiology, section Parasite and Host
Article type: Original Research
Authors: Zhou Zhiyuan, Chaoran Yu, Danhua Yao, Zhen Wang, Yuhua Huang, Pengfei Wang, Weimin Wang and Yousheng Li
Edited by: Omar Hamarsheh

Here's the link to the article:
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Cellular And Infection Microbiology Production Office <cellandinfect.production.office@frontiersin.org> Tue, May 6, 2025 at 1:11 PM
Reply-To: Cellular And Infection Microbiology Production Office <cellandinfect.production.office@frontiersin.org>
To: khoerul.umam@uhamka.ac.id

Hello, Dr. Umam ,

Congratulations – the article that you recently reviewed: A machine learning-based text mining of cutaneous myiasis and potential value of an accidental maggot therapy to complicated skin and soft tissue infection with sepsis, by Yousheng Li, Weimin Wang, Pengfei Wang, Yuhua Huang, Zhen Wang, Danhua Yao, Chaoran Yu, Zhou Zhiyuan, has now been published in Frontiers in Cellular and Infection Microbiology.

This article is an open-access publication, which means that it is accessible to any reader anywhere in the world. You can see it for yourself (and share it with your network) using this link: https://www.frontiersin.org/articles/10.3389/fcimb.2025.1568563.

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Once again, congratulations. Your contribution really opens up your field for the entire world.

We look forward to your future submissions.

Thank you,
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A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis

Zhou Zhiyuan[1], Chaoran Yu[1], Danhua Yao[1], Zhen Wang[1], Yuhua Huang[1], Pengfei Wang[1], Weimin Wang[1], Yousheng Li[1*]

[1]Shanghai Ninth People's Hospital, School of Medicine, Shanghai Jiao Tong University, China

Submitted to Journal:
Frontiers in Cellular and Infection Microbiology

Specialty Section:
Parasite and Host

Article type:
Original Research Article

Manuscript ID:
1568563

Received on:
30 Jan 2025

Journal website link:
www.frontiersin.org

Commented [KU1]: Title suggestion;

Machine learning-based text mining for cutaneous myiasis and potential value of an accidental maggot therapy for complicated skin and soft tissue infection with sepsis

Scope Statement

This study focused on a bibliometric analysis of cutaneous myiasis and association between alleviated sepsis and maggot debridement therapy via presentation of two cases.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest

Credit Author Statement

Danhua Yao: Data curation, Formal Analysis, Investigation, Project administration, Software, Supervision, Writing – original draft, Writing – review & editing. **Chaoran Yu**: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Software, Writing – original draft, Writing – review & editing. **Pengfei Wang**: Conceptualization, Data curation, Investigation, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing. **Yousheng Li**: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Yuhua Huang**: Data curation, Formal Analysis, Investigation, Project administration, Software, Validation, Writing – original draft, Writing – review & editing. **Weimin Wang**: Data curation, Formal Analysis, Investigation, Methodology, Project administration, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. **Zhou Zhiyuan**: Formal Analysis, Investigation, Methodology, Resources, Software, Supervision, Validation, Writing – original draft, Writing – review & editing. **Zhen Wang**: Investigation, Methodology, Project administration, Resources, Software, Supervision, Writing – original draft, Writing – review & editing.

Keywords

cutaneous myiasis, Latent Dirichlet Allocation, Soft tissue infection, Bibliometric, diabetes

Abstract

Word count: 212

Cutaneous myiasis, one of the most frequently diagnosed myiasis types, is identified as skin or soft tissue on a living host infested by dipterous larvae (maggots). However, bibliometric analysis of this disease remains sparse.All the studies were retrieved from PubMed and were processed by R software in bibliometric analysis and Latent Dirichlet Allocation (LDA) topic modeling. Two diabetes patients with serious soft tissue infection-associated sepsis were admitted and studied for clinical features.A total of 211 results were retrieved. Fifty topics relevant to cutaneous myiasis were determined by LDA algorithm. The topics of uncommon fly species, nasal infestation and physician discussion of cutaneous myiasis were consistently common for the last 20 years. Case report remains one of the key features in myiasis. Four major clusters were identified, i.e. case report related, disease type and development, travel in the tropics and skin disease. Retrospectively, two cases with soft tissue infection related sepsis highlighted the distinct role of myiasis in certain circumstances. Levels of white blood cell, blood glucose and c-reactive protein of the case with cutaneous myiasis were more stable than the case without cutaneous myiasis, which turned into sepsis shock.Key topics have been modeled among the increasing popularity of maggot therapy.Maggot debridement therapy may show promising and beneficial to soft tissue infection-related sepsis.

Funding information

Affiliated to Shanghai Jiao Tong University School of Medicine (JYZZ189).

Funding statement

The author(s) declare that financial support was received for the research, authorship, and/or publication of this article.

Ethics statements

Studies involving animal subjects
Generated Statement: No animal studies are presented in this manuscript.

Studies involving human subjects
Generated Statement: No human studies are presented in the manuscript.

Inclusion of identifiable human data
Generated Statement: No potentially identifiable images or data are presented in this study.

Data availability statement

Generated Statement: The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

Generative AI disclosure

No Generative AI was used in the preparation of this manuscript.

A machine learning-based text mining of studies in cutaneous myiasis and an accidental maggot therapy to complicated skin and soft tissue infection with sepsis

Commented [KU2]: Title suggestion;

Machine learning-based text mining for cutaneous myiasis and potential value of an accidental maggot therapy for complicated skin and soft tissue infection with sepsis

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Abstract

Background

Cutaneous myiasis, one of the most frequently diagnosed myiasis types, is identified as skin or soft tissue on a living host infested by dipterous larvae (maggots). However, bibliometric analysis of this disease remains sparse.

Materials and methods

All the studies were retrieved from PubMed and were processed by R software in bibliometric analysis and Latent Dirichlet Allocation (LDA) topic modeling. Two diabetes patients with serious soft tissue infection-associated sepsis were admitted and studied for clinical features.

Results

A total of 211 results were retrieved. Fifty topics relevant to cutaneous myiasis were determined by LDA algorithm. The topics of uncommon fly species, nasal infestation and physician discussion of cutaneous myiasis were consistently common for the last 20 years. Case report remains one of the key features in myiasis. Four major clusters were identified, i.e. case report related, disease type and development, travel in the tropics and skin disease. Retrospectively, two cases with soft tissue infection related sepsis highlighted the distinct role of myiasis in certain circumstances. Levels of white blood cell, blood glucose and c-reactive protein of the case with cutaneous myiasis were more stable than the case without cutaneous myiasis, which turned into sepsis shock.

Conclusion

Key topics have been modeled among the increasing popularity of maggot therapy. Maggot debridement therapy may show promising and beneficial to soft tissue infection-related sepsis.

Key words: Cutaneous myiasis; Latent Dirichlet Allocation; soft tissue infection; bibliometric; diabetes

Scope statement

This study focused on a bibliometric analysis of cutaneous myiasis and association between alleviated sepsis and maggot debridement therapy via

Commented [KU3]: Background
The first part of your abstract is a good start, but it's a little repetitive and could be more impactful.
- The sentence "Cutaneous myiasis, one of the most frequently diagnosed myiasis types, is identified as skin or soft tissue on a living host infested by dipterous larvae (maggots)" is grammatically sound, but it's a bit of a mouthful.
- The second sentence, "However, bibliometric analysis of this disease remains sparse," clearly identifies the gap in the literature. This is the **most important** part of your background, so make sure it stands out

Commented [KU4]: This section is too brief and lacks the crucial details needed for scientific reproducibility.
- "All the studies were retrieved from PubMed and were processed by R software in bibliometric analysis and Latent Dirichlet Allocation (LDA) topic modeling." This sentence is too general. You need to provide the specific search terms and date range used.
- "Two diabetes patients with serious soft tissue infection-associated sepsis were admitted and studied for clinical features." This statement is vague. You need to specify that this was a **retrospective analysis** or a **case series**. What clinical features were you specifically looking at? You also need to state that the patients provided consent and that the study was approved by an ethics committee.

Suggestion: Expand this section to be more specific. Here's an example: "We performed a bibliometric analysis of PubMed publications from 2001-2021 using specific search terms. The retrieved data were analyzed using R software to conduct a bibliometric and Latent Dirichlet Allocation (LDA) topic analysis. Additionally, we retrospectively analyzed two cases of severe soft tissue infection-related sepsis in diabetic patients, with ethical approval and patient consent." This provides the necessary information without taking up too much space.

Commented [KU5]: This section needs to be more quantitative and less descriptive. It should be a clear, concise summary of your key findings.
- You state "A total of 211 results were retrieved" and "Fifty topics relevant to cutaneous myiasis were determined." This is good, but you need to present your most important findings first.
- "The topics of uncommon fly species, nasal infestation and physician discussion of cutaneous myiasis were consistently common for the last 20 years. Case report remains one of the key features in myiasis." This information is important, but you should combine it with a summary of the four major clusters you found.
- The second part of the results section describes your clinical cases. You make a strong claim: "Levels of white blood cell, blood glucose and c-reactive protein of the case with cutaneous myiasis were more stable than the case without cutaneous myiasis, which turned into sepsis shock." This is a significant finding, but you must present it cautiously. With only two cases, you can't make a definitive claim. Frame it as a **preliminary finding** or an **observation**.

presentation of two cases.

Introduction

Cutaneous myiasis, one of the most frequently diagnosed myiasis types, is identified as skin or soft tissue of live vertebrate hosts infested by dipterous larvae (maggots), with three major clinical types: furuncular, migratory and traumatic myiasis (1-4). The infesting fly larvae feed on the dead or living tissue of the host for a certain period. The disease is commonly noticed in both veterinary and travel medicine, particularly in tropical climates. Indeed, it has been recorded as one of the most common skin diseases associated with travel (2).

Although myiasis is a global disease, an increasing number of reported cases were noticed to be associated with travel and developed countries (5).

As investigations increase, it is essential to delineate the developmental trajectory of accumulating researches in cutaneous myiasis, aiming for a research landscape. Of note, most of publications associated with cutaneous myiasis either relates to case report or systemic review due to the investigation nature of this disease (6-10).

Based on publications retrieved from the last twenty years, we performed a machine learning-based text mining and bibliometric analysis for cutaneous myiasis, along with a clinical report on two case with severe soft tissue infections regarding the association between cutaneous myiasis and alleviated infection.

Materials and methods

All the publications concerning cutaneous myiasis were retrieved from the PubMed.gov website (https://www.ncbi.nlm.nih.gov/pubmed/) with the following search terms: myiasis (Title/Abstract) AND cutaneous (Title/Abstract) AND English (Language) AND 2001-2021 (Year Published). Search results included title, abstract, MeSH (Medical Subject Headings) terms and others. All included publications were processed by bibliometric analysis and Latent Dirichlet Allocation (LDA) for topic modeling. Topic modeling is defined as an unsupervised classification of words retrieved from publications. This method provides reliable ways to process or automatically organizing

Commented [KU6]: The first paragraph provides a good general definition of cutaneous myiasis and its clinical types. However, it can be significantly improved.

1. **Opening Sentence:** The sentence, "Cutaneous myiasis, one of the most frequently diagnosed myiasis types, is identified as skin or soft tissue of live vertebrate hosts infested by dipterous larvae (maggots), with three major clinical types: furuncular, migratory and traumatic myiasis (1-4)," is a run-on sentence. It is also a bit clunky. Consider rephrasing for better flow and impact. For example, "Cutaneous myiasis, a common form of myiasis, is defined as the infestation of the skin or soft tissue of a living vertebrate host by dipterous larvae (maggots)." This is more concise and academic.
2. **Redundancy and Flow:** The phrase "one of the most frequently diagnosed myiasis types" is a bit weak and could be integrated more smoothly. The sentence "The infesting fly larvae feed on the dead or living tissue of the host for a certain period" is a bit vague. What is a "certain period"? Can you be more specific, or at least state that the duration varies?
3. **Clarity and Conciseness:** The final sentence, "The disease is commonly noticed in both veterinary and travel medicine, particularly in tropical climates. Indeed, it has been recorded as one of the most common skin diseases associated with travel (2)," is fine but could be more impactful. Consider combining these ideas to avoid repetition. For instance, "While a global disease, cutaneous myiasis is particularly prevalent in tropical and subtropic ...

Commented [KU7]: This paragraph attempts to set the context for the study, but it has several issues with clarity, logic, and structure.

1. **Logical Connection:** The transition from the first to the second paragraph is weak. The first discusses the general definition and location of myiasis, while the second abruptly jumps to "increasing numbers" in developed countries. You need a better bridge between these ideas.
2. **Vague Claims:** "Although myiasis is a global disease, an increasing number of reported cases were noticed to be associated with travel and developed countries (5)." The phrase "were noticed to be" is informal and passive. A more academic phrasing would be "has been increasingly reported" or "is more frequently being identified."
3. **Ambiguous Objective:** "As investigations increase, it is essential to delineate the developmental trajectory of accumulating researches in cutaneous myiasis, aiming fo ...

Commented [KU8]: This single sentence attempts to describe the entire methodology and scope of your paper, but it is deeply flawed. It's too long, grammatically incorrect, and reveals a significant structural issue with the study itself. Here is a breakdown of the specific problems:

1. **Grammar and Phrasing:** The phrase "a clinical report on two case" is grammatically incorrect. It should be "two **cases**." Additionally, "text miningand" is a typo and should be "text mining and." The overall sentence is a run-on and very difficult to parse.
2. **Lack of Coherence:** The biggest issue is the combination of two completely different types of studies within one paper: a large-scale **bibliometric analysis** and a small-scale **clinical case series**. These two approaches serve different purposes. A bibliometric analysis provides a broad, quantitative overview of a research field, while case reports offer a detailed, anecdotal description of a specifi ...

Commented [KU9]: This paragraph is too descriptive of the methods in general and not prescriptive about how you applied them. It reads more like a textbook entry on bibliometrics and LDA. The lack of detail on the search strategy, data processing, and specific model parameters makes the study difficult to replicate and undermines its scientific rigor.

large electronic publications, helping in discovering rising themes, or making categorizing in the collections. LDA as one of commonly used methods in topic modeling, is a probabilistic generative model for text corpora, first introduced by David Blei and his colleagues in 2003.

R software (version 4.1.1) was employed for data cleaning, processing and visualization of results (https://www.r-project.org/) (11-15).

In addition, two diabetes patients with serious cutaneous wound were admitted to the Emergency Department of the Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine between April to May in 2022. Both patients received standard clinical therapy, and clinical data was retrieved with patients' consent.

Commented [KU10]: Logical Disconnect: As mentioned in my previous comments, the connection between this paragraph and the first is absent. How do these two specific cases relate to the broad bibliometric analysis? You should state this connection explicitly in the introduction and again here. For example, "These cases were identified while the primary author was conducting clinical duties, and their unique presentation prompted the broader bibliometric analysis to investigate the research landscape of similar clinical phenomena."

Commented [KU11]: This paragraph is a skeleton. It provides no meaningful clinical data about the cases, fails to mention institutional ethics approval, and makes no attempt to connect the cases to the rest of the study. It must be significantly expanded to provide a clear, detailed, and ethically sound account of the clinical findings.

Commented [KU12]: Ethical Considerations: You state that "clinical data was retrieved with patients' consent." This is essential, but it is not enough. You must specify that the study was approved by an institutional review board (IRB) or ethics committee and provide the approval number. This is a fundamental requirement for any study involving human subjects.

Results

Bibliometric analysis

Using the search terms, a total of two hundreds and eleven results were identified from PubMed. By analysis of MeSH, the top twenty were shown in order. The keywords, myiasis, humans, animals, Diptera, male, female, larva and travel noticeably increased from 2001 to 2021(Figure 1).

A total of fifty topics relevant to cutaneous myiasis were determined by LDA algorithm with the publications' abstracts. Each specific topic enabled a more detailed perspective upon the growth in this field. Topics of uncommon fly species, nasal infection and physician discussion of cutaneous myiasis were consistently common over the last 20 years (Figure 2). All the topics were visualized by heatmap and clustered based on a posterior distribution value. Therefore, some topics may show close association over the years, such as uncommon infestation species and nasal infection and physician discussion of cutaneous myiasis were all in high value across last twenty years. Meanwhile, several years showed higher topic distribution values than the rest, such as 2006-2007, 2009, 2013,2016 and 2018-2021.

However, specific association among the interested topics was not clarified. Therefore, a network for topics similarity and clustering analysis was established. Remarkably, fifty topics were categorized into four major clusters. However, three out of four were

Commented [KU13]: This paragraph presents the initial findings of your literature search and MeSH analysis.

1.**Vague Numbers:** "two hundreds and eleven results" should be written as **"211 results"** or "two hundred and eleven results." The current phrasing is grammatically incorrect.

2.**Missing Context:** You state that the "top twenty were shown in order" based on MeSH terms, but you don't actually list them. This is a critical omission. A results section needs to present the data, not just describe its existence. You should either list the top terms in the text or refer to a table that does.

3.**Weak Trend Descriptions:** You mention that keywords like "myiasis," "humans," and "travel" "noticeably increased." This is a weak statement. A more professional way to phrase this is to provide the actual trend or rate of increase, or at least a more specific descriptor like "showed a significant upward trend" or "increased in frequency." Also, the reference to "Figure 1" should be more specific and integrated into the text.

4.**Inconsistent Terminology:** You refer to "keywords" and "MeSH," but these are distinct concepts. MeSH terms are standardized terms from a controlled vocabulary, while keywords are author-provided. Clarify which you are referring to.

Commented [KU14]: The explanation of the LDA results is repetitive and lacks clarity. It reads like a list of disconnected observations rather than a coherent narrative of the findings. The discussion of the network analysis is also very brief and doesn't reveal much about what was actually discovered.

remarkable, including case report related, disease type and development, tropic travel and skin disease. The central role of case report had been highlighted (Figure 3). Admittedly, given the rarity of the disease, most of the publications relating to cutaneous myiasis either related to case report or systemic review. Constantly, our LDA model also highlighted the central role of case report. Therefore, we retrospectively analyzed two cases with soft tissue infection, one with myasis and the other without, to compare the infection features in-between.

Clinical study

A 70-year-old paraplegic woman with decades of diabetes and years of being bed-ridden was admitted to the emergency department, as a suspected case of fever, sepsis and massive decubitus ulcer. On examination, the woman was found to have been suffering from a massive decubitus ulcer for two months, resulting from long term pressure sores, with a sleepy, sweaty and afebrile condition. When the covering tissue was debrided, the decubitus ulcers showed hundreds of larvae crawling within, with a measured ulcer area of 10*10cm and necrotizing soft tissue around 3-4 times larger, across the lumbosacral area (Figure 4A). Initial visual evidence indicated that it may belong to *Calliphora Calliphoroides*, *Calliphoridae*. Similarly, a 51-year-old man with long-term diabetes who have been suffering from massive cutaneous wound for 1.5 months was admitted but without myasis. He was diagnosed as a confirmed case of massive neck/back wound infection with severe septic shock and unstable vital sign. On examination, the ulcer neck/back wound was around 5*10cm with necrotizing tissue with no sign of fly larvae (Figure 4B).

Laboratory tests and initial vital signs indicated that, the case with cutaneous myiasis may suffer from sepsis, with comparable low blood pressure and elevated heart rate and abnormal levels of white blood cells (WBC 13.19*10^9/L), blood glucose (GLU, 6.8 mmol/L) and c-reactive proteins (CRP, 105.65 mg/L). However, the case without cutaneous myiasis presented a sepsis and shock, with unstable vital sign and low potassium (K+, 0.87 mmol/L), extremely high levels of glucose (34.9 mmol/L), CRP (270.43 mg/L) and WBC (48.30*10^9/L) (Figure 5). Meanwhile, the total CO_2 and

Commented [KU15]: This paragraph attempts to summarize the findings and transition to the clinical cases.
1. **Repetitive Findings:** The sentence "Remarkably, fifty topics were categorized into four major clusters. However, three out of four were remarkable..." is clunky and redundant. The word "remarkable" is used twice. The clusters should be presented as the main finding.
2. **Grammatical Errors and Weak Statements:** "The central role of case report had been highlighted (Figure 3)" is passive and weak. "Had been highlighted" should be a more active voice, such as "Our analysis highlighted the central role of case reports."
3. **Flawed Logic:** The final paragraph attempts to justify the inclusion of the case reports, but the logic is flawed. You say, "given the rarity of the disease, most of the publications... either related to case report or systemic review." This is a generalization that you then state your model "constantly" confirmed. This is circular reasoning. The transition to a retrospective analysis is abrupt and does not logically flow from the bibliometric findings. The phrase "compare the infection features in-between" is also awkward. Why compare a myiasis case to a non-myiasis case? This is a fundamental flaw in the experimental design that needs a much stronger rationale.

Commented [KU16]: Case Report of the Woman with Myiasis
1. **Opening Statement:** The opening sentence is a long run-on that should be broken down for better readability. "A 70-year-old paraplegic woman...was admitted to the emergency department, as a suspected case of fever, sepsis and massive decubitus ulcer" is a good start, but the flow is awkward.
2. **Clinical Description:** The description of the woman as "sleepy, sweaty and afebrile" is confusing. Afebrile means not having a fever, which contradicts the initial "suspected case of fever" and needs a clear explanation. Was her lack of fever due to an already-diagnosed state of shock?
3. **Myiasis Details:** The sentence "When the covering tissue was debrided, the decubitus ulcers showed hundreds of larvae crawling within..." is good, but the identification of the larvae is speculative. "Initial visual evidence indicated that it may belong to *Calliphora Calliphoroides, Calliphoridae*." This must be stated more formally, perhaps noting that a positive identification was not made, but the larvae's appearance was consistent with this species.
4. **Clarity on Wound Size:** The description of the necrotizing soft tissue as "3-4 times larger" than the ulcer area is vague. Provide an approximate or measured value in square centimeters for both the ulcer and the surrounding necrotic tissue.

Commented [KU17]: Case Report of the Man without Myiasis
1. **Vague Diagnosis:** The diagnosis is described as "a confirmed case of massive neck/back wound infection with severe septic shock and unstable vital sign." This is too general. What was the specific type of infection (e.g., necrotizing fasciitis)? What were the "unstable vital signs"?
2. **Lack of Detail:** The wound description is brief. While you provide the size (5x10cm), you don't describe its appearance as you did for the first case (e.g., presence of pus, odor, color).
3. **Irrelevant Information:** The lack of fly larvae is self-evident since the case is described as "without myiasis." The sentence "with no sign of fly larvae" is redundant.

HCO_3 were found to be comparably high in both cases. Taken together, the case with myiasis might have exhibited a lower level of sepsis.

Discussion

In this study, a machine learning-based algorithm was employed for the text analysis of publications retrieved from the past twenty years. A total of 50 topics were revealed but common topics were uncommon fly species, nasal infestation and physician discussion of cutaneous myiasis. However, the analysis indicated that “case report” was the key term among all the topics. Reasonably, case-specific and the comparatively rare incidence of cutaneous myiasis compare to other malignancies makes it more feasible to case reports as the most effective approach for studies of cutaneous myiasis of humans.

Cutaneous myiasis can be classified into three types, including furuncular, creeping and traumatic myiasis. Furuncular myiasis is commonly diagnosed in tropical America, such as Mexico, Central America (16). Treatment of furuncular myiasis included numerous local therapeutic remedies, such as pork fat, mineral oils, glue, and petroleum jelly, resulting in suffocating of the maggot (17,18). However, some researchers were concerned that incomplete removal of infestations may result in granuloma formation as a portion of the larvae may require surgical extraction (19). For creeping myiasis, as humans are not the ordinary host, development of the larvae was limited. Therefore, they will only make tunnels in the epidermis tissue. At the superficial location, the larvae can be easily removed (20). For traumatic myiasis, tissue debridement and irrigation was required. Removal of the larvae also required proper anesthesia. Some reports indicated a therapeutic value of chloroform and ivermectin (21, 22).

Commonly, maggot debridement therapy is worldly known as profound efficacy in treatment of various types of wounds (23,24). It has been recently embraced by healthcare community as antibiotic resistance is unprecedented increased. Previously,

Commented [KU18]: This paragraph attempts to summarize the bibliometric findings but is disconnected and repetitive.

1.**Redundancy:** The first sentence repeats information from the results section. Start with a statement that interprets the findings, not just lists them.
2.**Weak Wording:** The phrase "but common topics were uncommon fly species, nasal infestation and physician discussion of cutaneous myiasis" is awkward. It's also a repetition of information from the results. It's better to interpret why these topics are prominent.
3.**Flawed Justification:** The reasoning for "case report" being a key term is weak. It's a tautological statement: "case-specific and the comparatively rare incidence...makes it more feasible to case reports." A strong discussion would explain *why* case reports are the primary vehicle for research in this field and what this implies for the research landscape (e.g., a lack of clinical trials or large-scale observational studies). The term "malignancies" is also inappropriate and seems out of place; it should be "diseases" or "conditions."

Commented [KU19]: 1.**Lack of Integration:** This information is a general review of myiasis, but it's not integrated with your study's findings. Why are you discussing these specific types and treatments here? It seems like general knowledge pulled from other sources without a clear purpose in your paper. A discussion should relate back to your own data or hypotheses.
2.**Vague Statements:** "Numerous local therapeutic remedies" and "some researchers were concerned" are weak, non-specific phrases. Name the specific remedies and the researchers who expressed concern, if possible.
3.**Irrelevance:** The detailed discussion of myiasis types and their treatments, including historical ones like pork fat, feels like filler. Unless this information is directly relevant to your case reports or bibliometric findings, it should be removed. For example, did your bibliometric analysis show a trend in the types of myiasis being studied? Did your case reports feature these specific types?

maggot therapy was used as last-resort attempt for certain infections such as gangrene when surgery or antibiotic drugs failed, but nowadays, it is utilized as an adjunct therapy instead of alternative one, covering various types of soft tissues wounds, such as traumatic, surgical-related, diabetic or venous stasis related wounds (23,25). However, life-threatening wound infections was previously thought not to be engaged with maggot debridement as surgical intervention is more likely to be superior (23). Of note, in this study, we reported that a septic patient with myiasis showed a comparable lower level of inflammation than the other patient with septic and shock but without myiasis, indicating a potential protective role of myiasis in alleviating inflammation of sepsis and shock.

Therefore, we propose a hypothesis that medicinal maggots may have beneficial effects on sepsis associated with wounds (Figure 6). Presence of maggot may weaken the sepsis progress, by mainly three mechanisms: 1) Wound debridement or necrotic tissue elimination; 2) accelerated wound healing; 3) antimicrobial therapy. Specifically, across infection develops, the very existence of myiasis mainly targets on the necrotizing tissue, serves to reduce possible inflammation subsequently caused by massive necrotizing soft tissue infection (NSTI), such as necrotizing fasciitis. Proteolytic enzymes, such as collagenases, trypsin or chymotrypsin-like enzymes, are produced for tissue digestions (26-28). For example, N-acetyl-beta-D-glucosaminidase, alpha-d-glucosidase, alpha-D-mannosidase are all produced by *L.sericata larvae* for wound debridement and further sterilization (28). A chymotrypsin-like serine protease released by maggot is also vital to target extracellular matrix proteins, such as fibronectin and collagen, via facilitating the breaking down of necrotic tissue (29). In fact, digestive enzymes for wound debridement are the crucial factors to inflammation control, as it determines not only tissue, but also bacterial digestions, and further serves as immune response target. Moreover, it is estimated that approximately 25mg of necrotic tissue could be eradicated by a single maggot in 24 hours (30). This fast speed debridement considerably reduces the negative impact of inflammation or toxic reactions triggered by necrotic tissues left on living tissues.

Commented [KU20]: Clarity of Hypothesis: The hypothesis is a good idea, but the wording is a bit clunky. "medicinal maggots may have beneficial effects on sepsis associated with wounds" is a solid starting point.
Structural Issues: You present three mechanisms, but they are not well-defined. They are essentially a list of functions. Use a more formal structure, perhaps with bullet points or numbered lists, to make them clear.
Inaccurate Generalizations: The text states, "across infection develops, the very existence of myiasis mainly targets on the necrotizing tissue, serves to reduce possible inflammation..." This is a broad generalization based on your one case. You cannot state this as a fact. It's your hypothesis based on your case study, and you must state it as such.
Citations and Evidence: The numerous references (26-30) are good, but you need to connect them directly to your claims. Explain *how* the cited studies support your hypothesis. For example, cite the specific enzymes that *Lucilia sericata* produces and explain how they might contribute to your observed effect.
Technical Wording: The use of complex enzyme names is good, but you need to explain their function in simpler terms for a broader audience.

The significant antibacterial effects from maggot therapy are mainly from both physical digestion and production of antibacterial proteins (31). Some research found that gram-positive bacteria is more sensitive to this therapy than gram-negative one. Meanwhile, antifungal effect is observed as well. Several types molecular masses were identified among the antibacterial proteins, including lucifensin, lucilin, lysozymes and many others (32-35).

Some researchers may hold the view that the accelerated growth of wound may only because of wound debridement (36). However, more researches believe that ammonium bicarbonate, allantoin and urea are responsible for the promising healing speed of wound management (37).

In addition, it remains unknown whether maggot therapy have further systemic impact on the host, such as systematic antibiotic/metabolic effects or immune regulation. Interestingly, the case without myiasis also developed uncontrolled hyperglycemia which further exacerbated the NSTI and further into septic shock.

The role of myiasis, either beneficial or harmful to human and animals, has always been one of the rising multidiscipline interests in research practice as previously described (23, 38). Hall et al. reported that given the inadvertent introduction and global spread, the incursion of fly larvae into many tropical and subtropical regions is notable and resulted in heavy cost (38). Eradication program of such target might be both difficult and expensive, as a three-year eradication program costed around near eighty million US dollars in Libya (39). Meanwhile, Old world screwworm fly (OWSF) associated myiasis remains one of the common types of myasis in India, causing serious medical problem, with human cases occurred continuously (40).

Conclusion

Key topics have been modeled among the increasing popularity of maggot therapy. Maggot debridement therapy may show beneficial to soft tissue infection-related sepsis.

Commented [KU21]: The phrasing "Some researchers may hold the view" and "more researches believe" is weak and lacks academic rigor. It presents the information as a matter of opinion rather than scientific consensus. A stronger, more authoritative tone is needed. Instead of "Some researchers," identify the scientific viewpoints directly, for example, "The role of maggot debridement in accelerated wound healing is a subject of debate in the literature."

Commented [KU22]: Irrelevance: The discussion of myiasis as a public health concern, its costs, and eradication programs in Libya and India is entirely unrelated to your study's findings on bibliometrics and the potential therapeutic role of myiasis. This information belongs in a review article, not in the discussion of a specific study.

Figures legend

Figure 1. Yearly publication of MeSH (Medical Subject Headings) relating to myiasis studies retrieved from the Pubmed (https://www.ncbi.nlm.nih.gov/pubmed/). Top twenty keywords were displayed from 2001 to 2021. Dark blue indicated low publication, light blue indicated high publication.

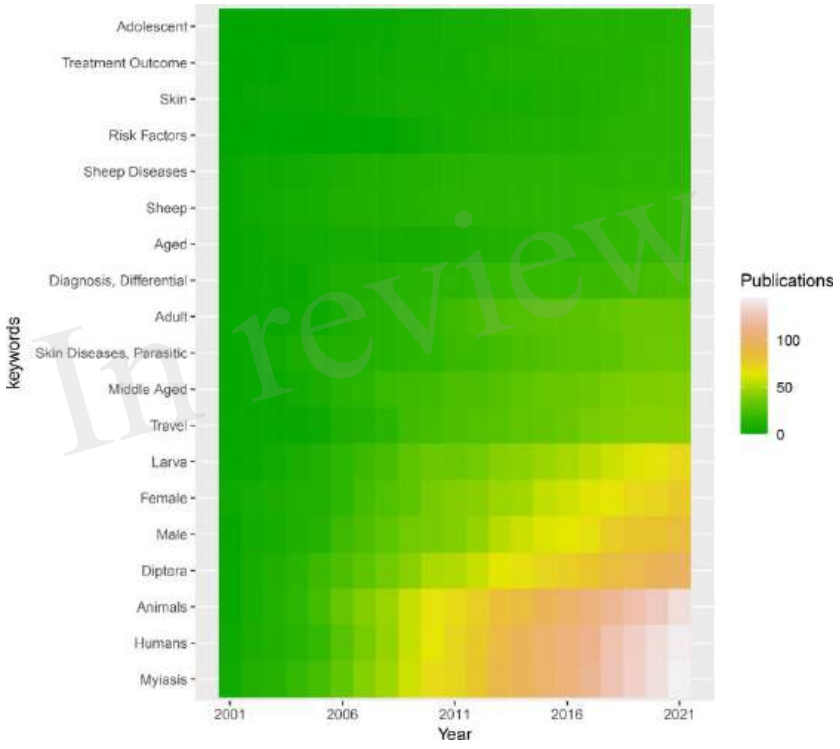


Figure 2. Distribution value of Latent Dirichlet Allocation (LDA) - determined fifty topics from 2001 to 2021. Topics including uncommon infestation species, nasal infection, physician discussion of cutaneous myiasis were consistently intensively

studied during the last twenty years. Topics of case report and subtypes and causes were noticed in 2021. Red indicated high value, white indicated low value.

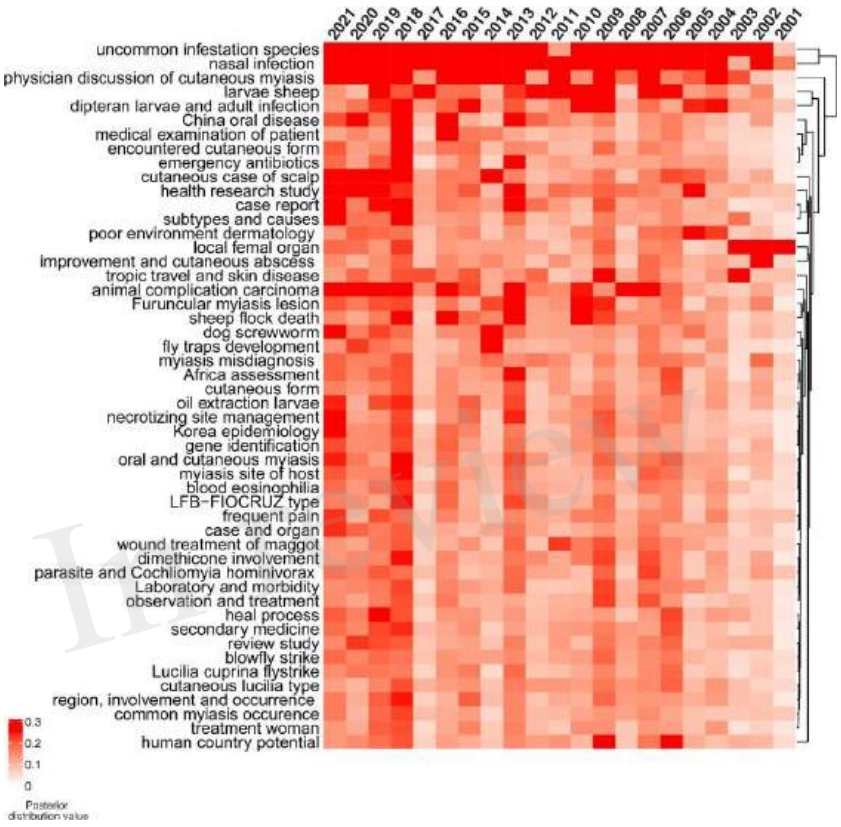


Figure 3. LDA research topics cluster network. Four clusters had been determined, including case report related (pink), disease type and development (green), tropic travel and skin disease (blue) and others (black).

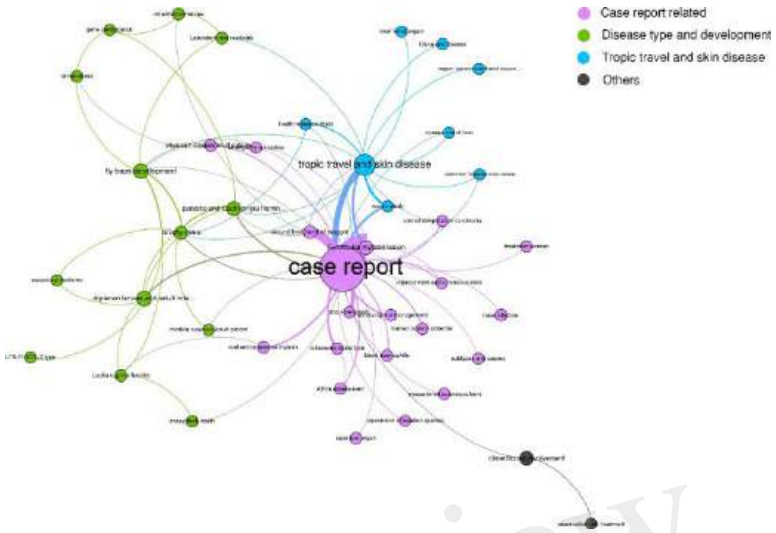


Figure 4. Two patients with cutaneous wounds and long-term diabetes were presented. A. a 70 year-old woman presented with a massive decubitus ulcer infested with maggots and necrotizing soft tissues at the lumbosacral area; B. a 51 year-old man presented with a massive wound infection in neck and back area.

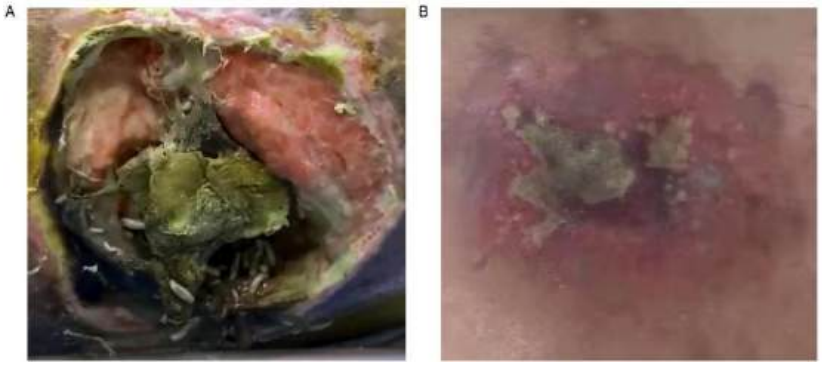


Figure 5. Comparison of clinical variables between the patient with maggot and patient

without maggot. A. White blood cell count (WBC, 10*9/L); B. blood potassium (K, mmol/L); C. C-reactive protein (CRP, mg/L); D. blood glucose (GLU, mmol/L); E. blood neutrophils percentage (NEUT, %); F. blood lactate (LAC, mmol/L); G. CO2 blood test (Total_CO2, mmol/L); H. Bicarbonate (HCO3, mmol/L); red dash line indicated normal value threshold.

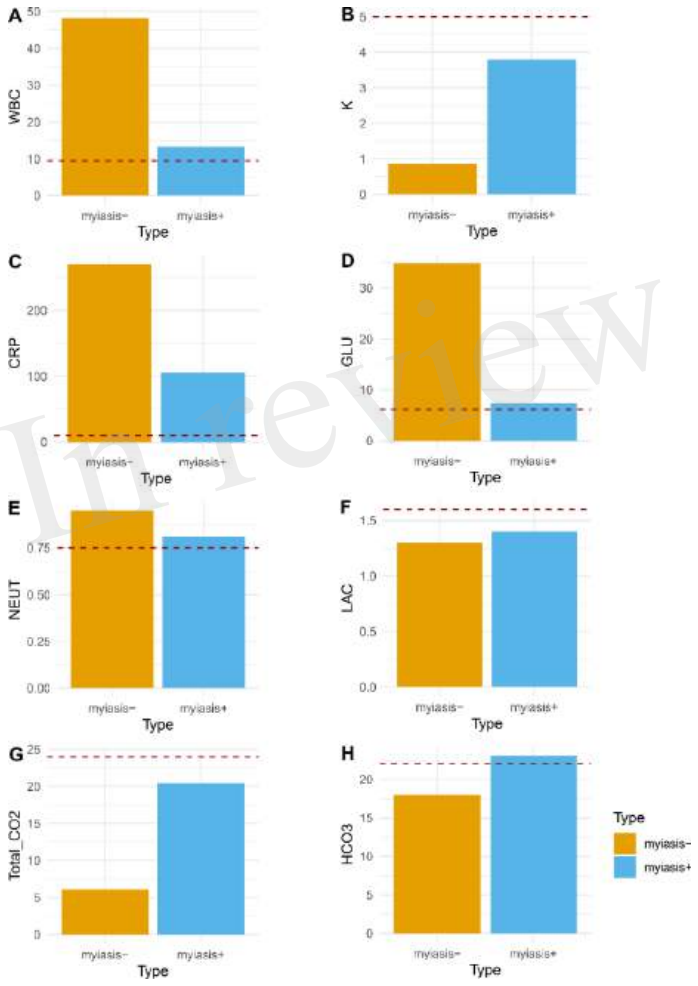
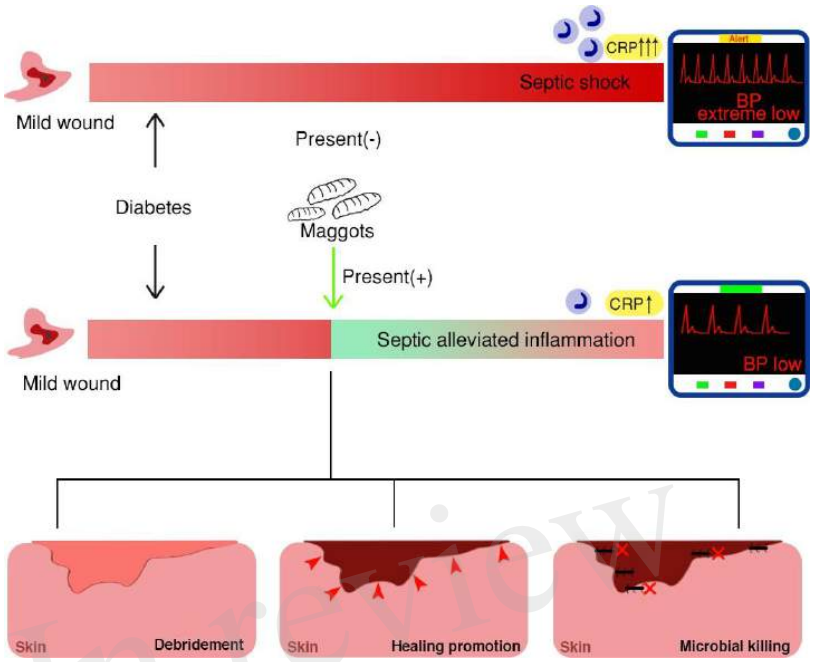


Figure 6. Schematic model of maggot therapy on diabetic wounds with mechanisms, depicting distinct clinical outcomes with or without maggot presentations.



Compliance with Ethical Standards:

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Informed consent: Patients were consent for wound pictures/videos to be used in the study.

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Authors contribution:

CY, ZZ, BL, DY, YH, PW, WM and YL carried out data analysis.

CY ZZ DY ZW YH PW WW and YL drafted the manuscript;

CY ZZ DY ZW YH PW WW and YL participated in study design and data collection.

CY ZZ DY ZW YH PW WW and YL carried out the discussion process and data visualization.

All authors read and approved the final manuscript.

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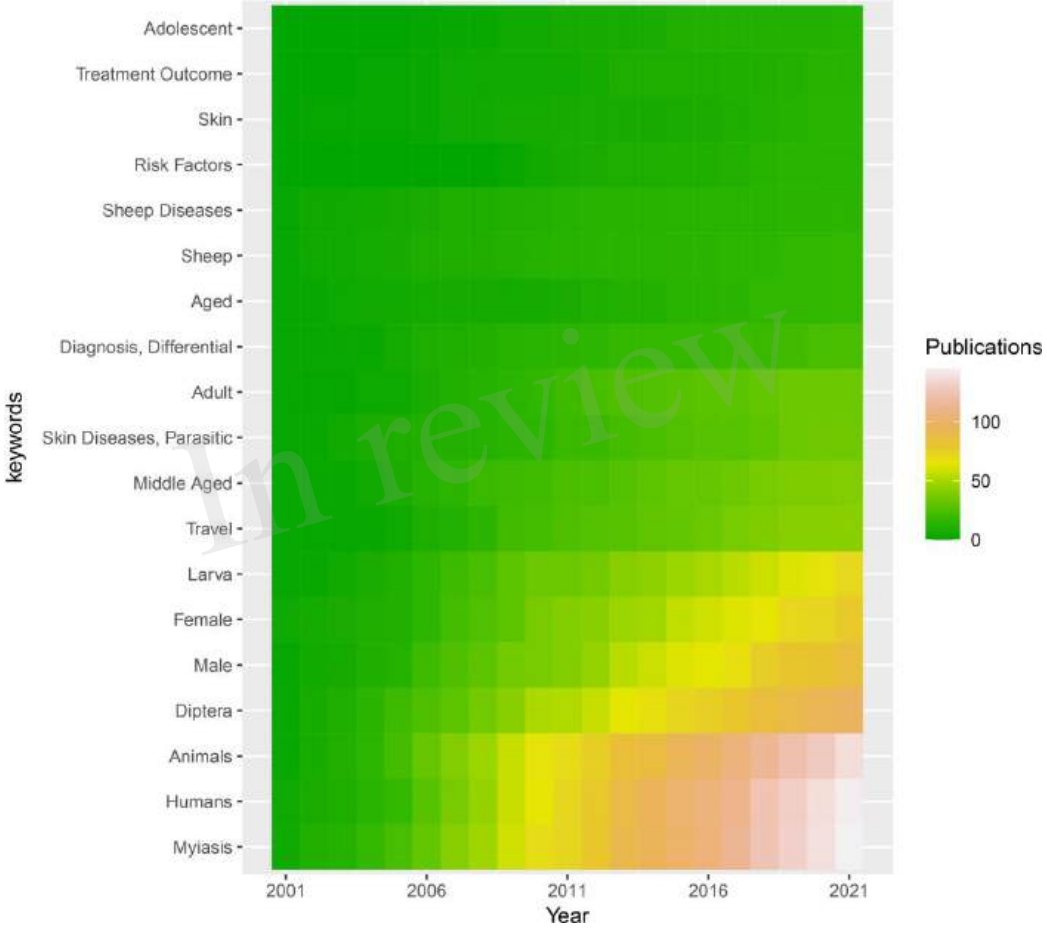

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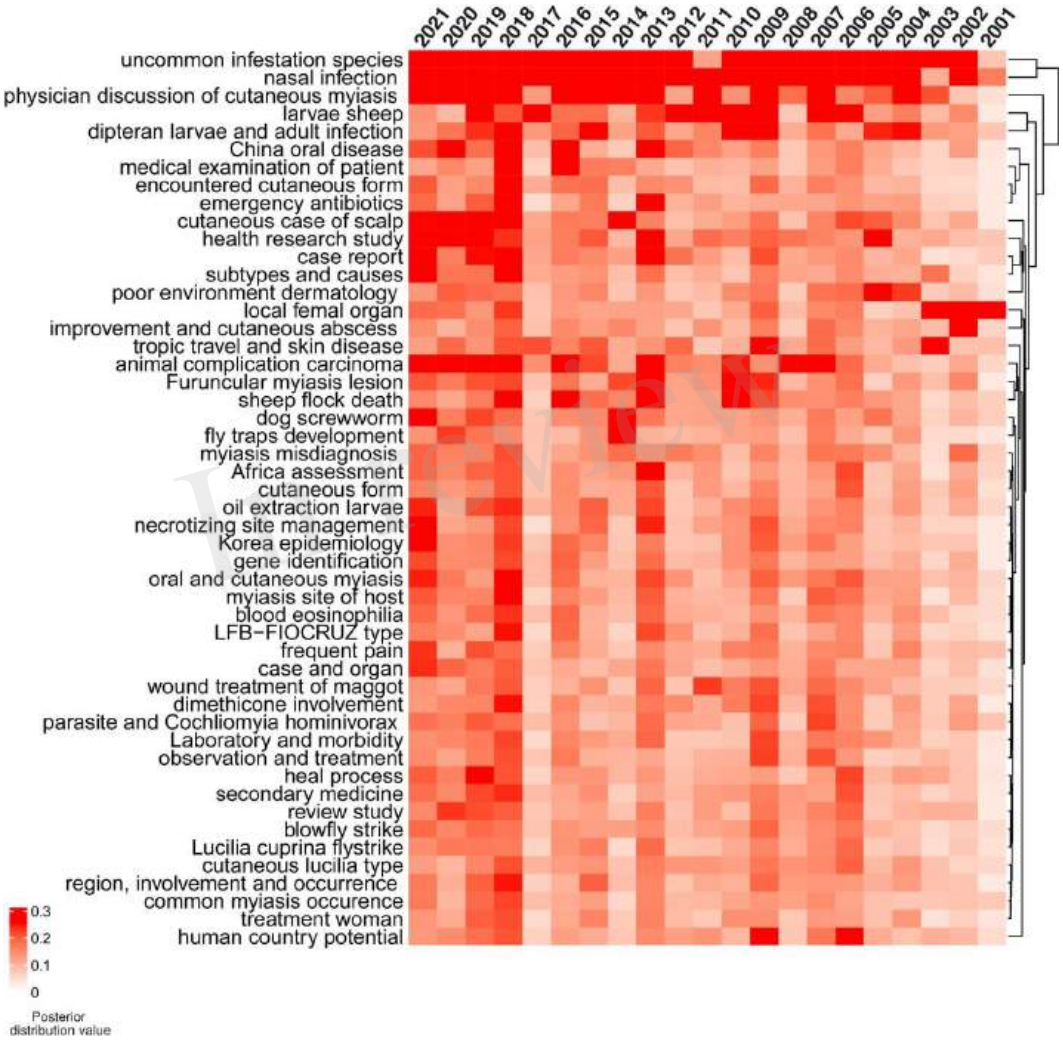
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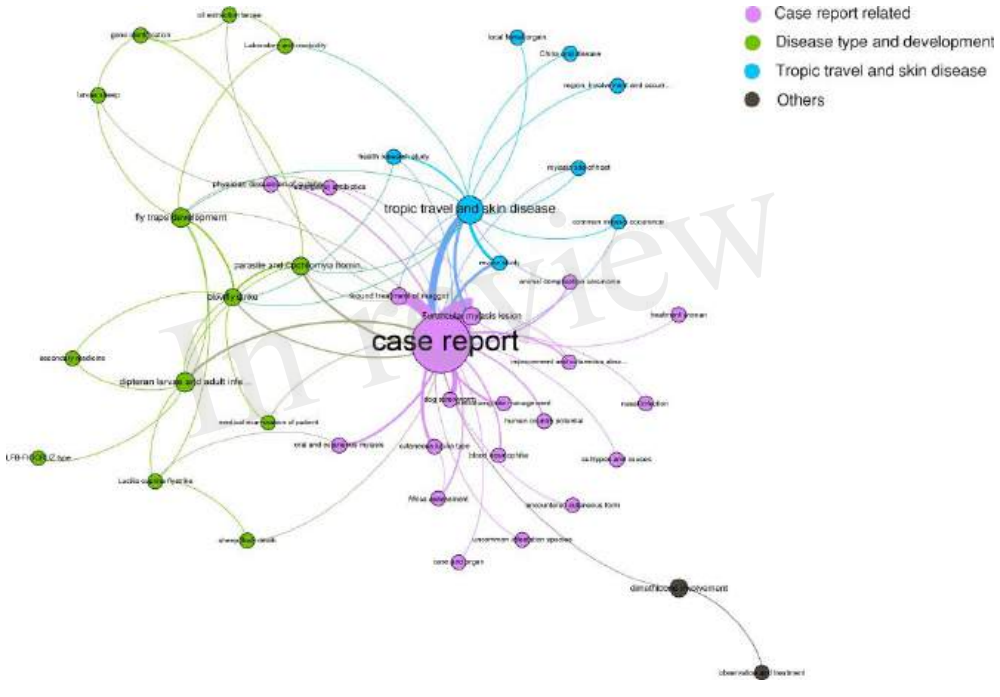

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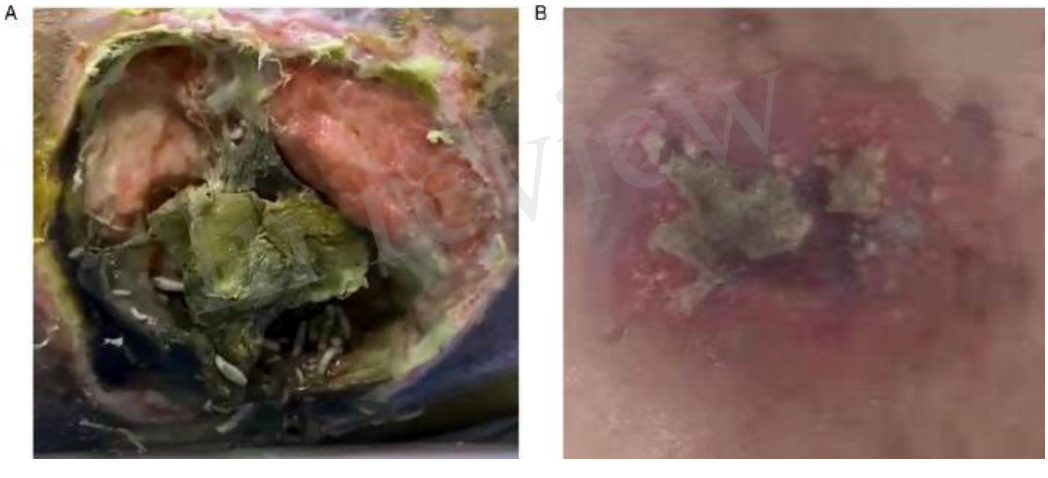

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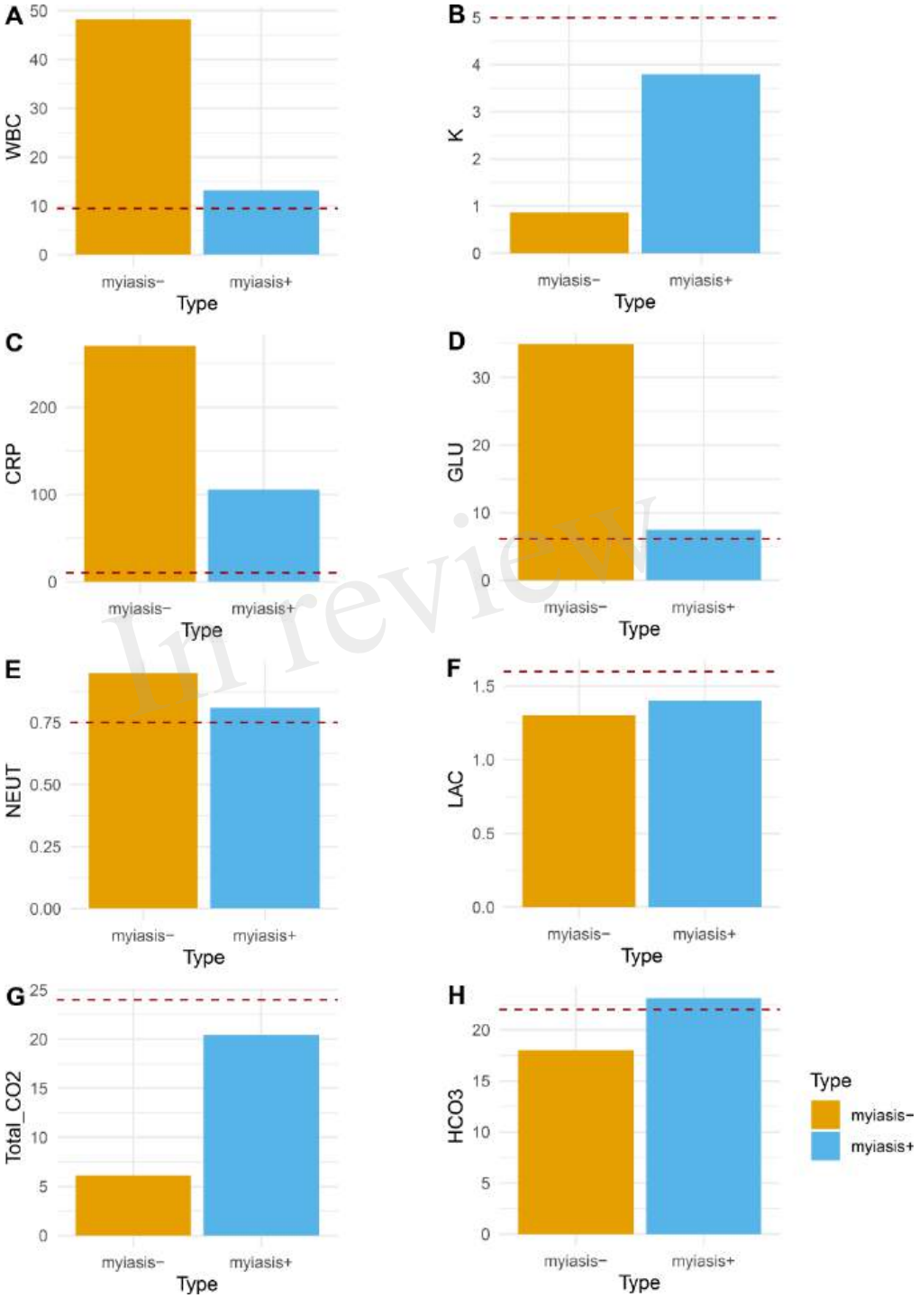

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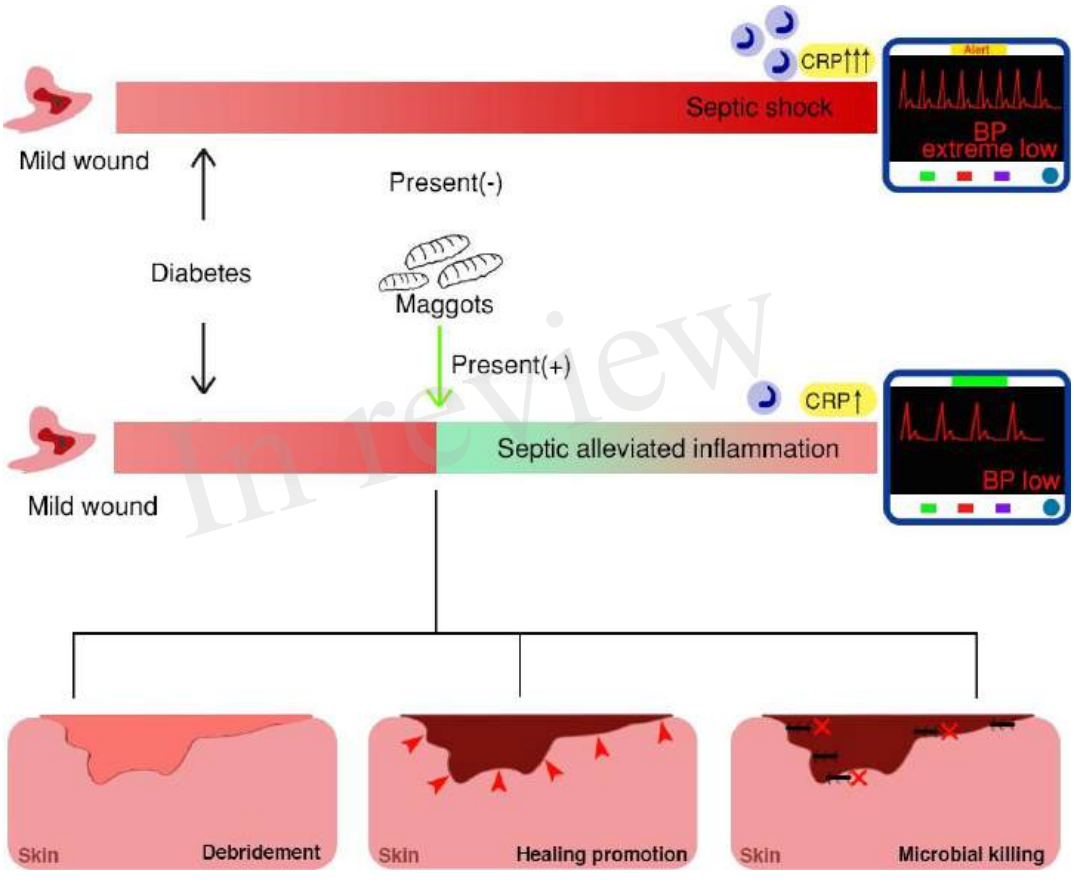

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Machine learning-based text mining for cutaneous myiasis and potential value of an accidental maggot therapy for complicated skin and soft tissue infection with sepsis

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Background: Cutaneous myiasis, one of the most frequently diagnosed myiasis types, is defined as skin or soft tissue on a living host infested by dipterous larvae (maggots). However, bibliometric analysis of this disease remains sparse. Machine learning techniques and updated publications provide an opportunity for such an investigation.

Materials and methods: All the studies were retrieved from PubMed and were processed using R software in the bibliometric analysis and latent Dirichlet allocation (LDA) topic modeling. Furthermore, the clinical management of two diabetes patients with serious soft tissue infection-associated sepsis was analyzed.

Results: A total of 211 results were retrieved and 50 topics relevant to cutaneous myiasis were determined by the LDA algorithm. The topics of uncommon fly species, nasal infestation, and physician discussion of cutaneous myiasis were consistently common over the last 20 years. Case report remains one of the key features in myiasis. Four major clusters were identified, i.e., case report related, disease type and development, travel in the tropics, and skin disease. To further delve into clinical practice, the clinical features of two patients with soft tissue infection-related sepsis were demonstrated, and a distinct beneficial role of myiasis was found. The levels of white blood cell, blood glucose, and C-reactive protein in the case with cutaneous myiasis were more stable than the other case without cutaneous myiasis but with sepsis shock.

Conclusion: Maggot debridement therapy may be a promising treatment and beneficial for soft tissue infection-related sepsis. The model analysis of maggot therapy and its clinical advantages shows increasing research value and possible application in future clinical practice.

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Keywords: bibliometric, diabetes, cutaneous myiasis, latent Dirichlet allocation, soft tissue infection

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KEYWORDS

bibliometric, diabetes, cutaneous myiasis, latent Dirichlet allocation, soft tissue infection

Introduction

Cutaneous myiasis, one of the most frequently diagnosed myiasis types, is defined as skin or soft tissue of live vertebrate hosts infested by dipterous larvae (maggots), with three major clinical types: furuncular, migratory, and traumatic myiasis (Mandell et al., 1979; Caumes et al., 1995; McGraw and Turiansky, 2008; Robbins and Khachemoune, 2010). The infesting fly larvae feed on the dead or living tissue of the host for a certain period. The disease is commonly found in both veterinary and travel medicine, particularly in tropical climates. Indeed, it has been recorded as one of the most common skin diseases associated with travel (Caumes et al., 1995). Although myiasis is a global disease, an increasing number of reported cases were found to be associated with travel and developed countries (Solomon et al., 2016).

As the number of investigations increases, it is essential to delineate the developmental trajectory of accumulating research studies in cutaneous myiasis, aiming for a research landscape to screen hotspots or emerging fields or to navigate future studies in association with multidisciplinary treatment. Of note, most publications associated with cutaneous myiasis either relate to case reports or systemic reviews due to the investigatory nature of this disease (Schüpbach et al., 2022; Albano et al., 2023; Alsaedi et al., 2023; Mohsin et al., 2023; Azarmi et al., 2024).

Based on publications retrieved from the last 20 years, we performed a machine learning-based text mining and bibliometric analysis for cutaneous myiasis. The clinical significance of myiasis therapy, also called maggot therapy, was medically valued at least five hundred years ago but this value has risen again during the last decade due to its profound efficacy, simplicity, and safety in the treatment of dead tissues when the performance of antibiotics fails to medical expectation. Nonetheless, the specific therapeutic function and target diseases are yet to be detailed. Thus, in this study, we also present a clinical report of two cases with severe soft tissue infections to elucidate the association between cutaneous myiasis and alleviated infection.

In this study, key research topics and interactions were found using machine learning techniques and bibliometric analysis, and the potential clinical value of maggot therapy was identified for soft tissue infection-induced sepsis, providing insightful contributions to both clinical practice and research fields.

Materials and methods

All the publications concerning cutaneous myiasis were retrieved from the PubMed.gov website (https://www.ncbi.nlm.nih.gov/pubmed/) with the following search terms: myiasis (Title/Abstract) AND cutaneous (Title/Abstract) AND English (Language) AND 2001-2021 (Year Published). Search results included the title, abstract, MeSH (Medical Subject Headings) terms, and others (Supplementary Figure S1). All included publications were processed by bibliometric analysis and latent Dirichlet allocation (LDA) for topic modeling. Topic modeling is defined as an unsupervised classification of words retrieved from publications. This method provides a reliable way to automatically process and organize large collections of electronic publications, helping to discover rising themes or hotspots or categorize the collection. LDA, as one of the most commonly used methods in topic modeling, is a probabilistic generative model for text corpora, first introduced by David Blei and his colleagues in 2003.

R software (version 4.1.1) was employed for data cleaning and processing and the visualization of results (https://www.r-project.org/) (Ihaka and Gentleman, 1996; Hoffman et al., 2010; Aria and Cuccurullo, 2017; Jelodar et al., 2019; Liu et al., 2023).

In addition, two diabetes patients with serious cutaneous wounds were admitted to the Emergency Department of the Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine between April and May 2022. Both patients received standard clinical therapy, and clinical data were retrieved with the patients' consent.

Results

Bibliometric findings

Using the search terms, a total of 211 results were identified from PubMed. After analysis of the MeSH terms, the top twenty were shown in order. The keywords myiasis, humans, animals, Diptera, male, female, larva, and travel noticeably increased from 2001 to 2021 (Figure 1).

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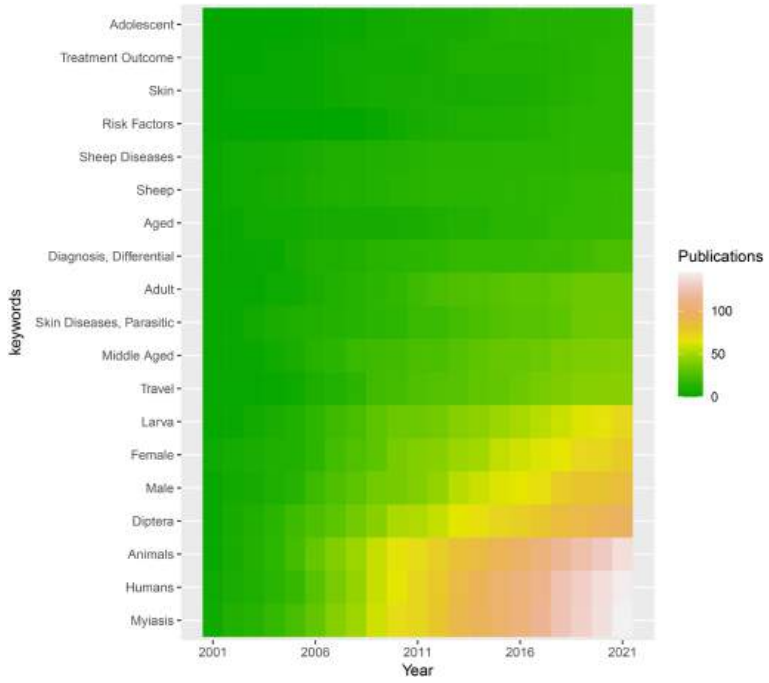

FIGURE 1
MeSH (Medical Subject Headings) relating to myiasis studies retrieved from the Pubmed (https://www.ncbi.nlm.nih.gov/pubmed/). The top 20 keywords are displayed from 2001 to 2021. Dark blue indicates a low number of publications and light blue indicates a high number of publications. .

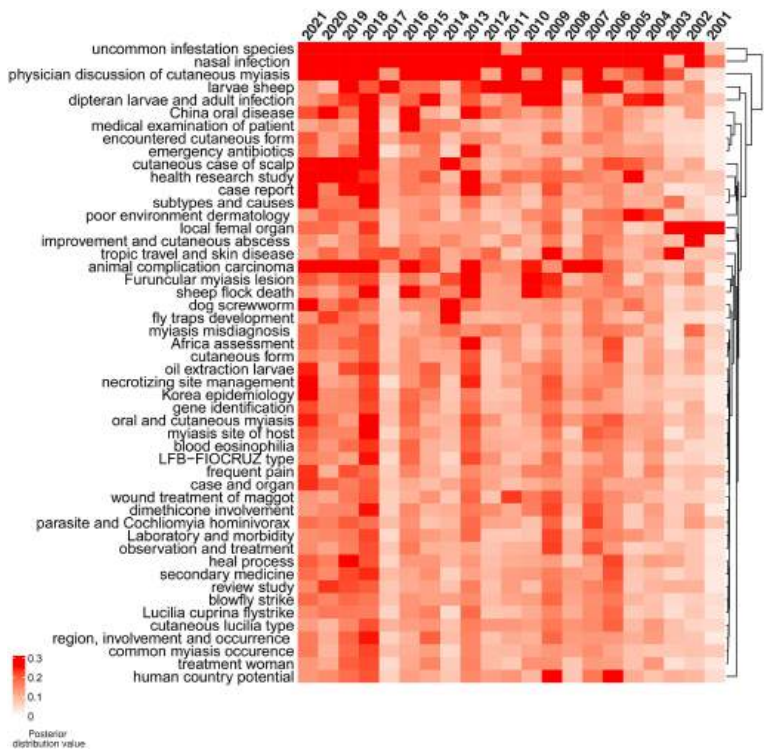

FIGURE 2
Distribution values of latent Dirichlet allocation (LDA) for 50 topics from 2001 to 2021. The topics of uncommon infestation species, nasal infection, and physician discussion of cutaneous myiasis were consistently intensively studied during the last 20 years. The topics of case report, subtypes, and causes were found in 2021. Red indicates a high value and white indicates a low value.

Topic modeling results

A total of 50 topics relevant to cutaneous myiasis were determined by the LDA algorithm from the publications' abstracts. Each specific topic enabled a more detailed perspective on the growth in this field. The topics of uncommon fly species, nasal infection, and physician discussion of cutaneous myiasis were consistently common over the last 20 years (Figure 2). All the topics were visualized by heatmap and clustered based on a posterior distribution value. Therefore, uncommon infestation species, nasal infection, and physician discussion of cutaneous myiasis showed close association over the years, and all had a high value across the last 20 years. Furthermore, 2006–2007, 2009, 2013, 2016, and 2018–2021 showed higher topic distribution values than the rest.

However, a specific association among the topics was not clarified. Therefore, a network for topic similarity and clustering analysis was established. Remarkably, the 50 topics were categorized into four major clusters. However, three out of the four were remarkable, including case report-related, disease type and development, tropic travel, and skin disease. The central role of the case report was highlighted (Figure 3).

Admittedly, given the rarity of the disease, most of the publications relating to cutaneous myiasis were either related to a case report or a systemic review. Consistently, our LDA model also highlighted the central role of the case report. Therefore, we retrospectively analyzed two cases with soft tissue infection, one with myiasis and the other without, to compare the infection features between them.

Clinical case comparisons

A 70-year-old paraplegic woman with decades of diabetes and years of being bedridden was admitted to the emergency department with a suspected case of fever, sepsis, and a massive decubitus ulcer. On examination, the woman was found to have been suffering from a massive decubitus ulcer for 2 months, resulting from long-term pressure sores, with a sleepy, sweaty, and afebrile condition. When the covering tissue was debrided, the decubitus ulcers showed hundreds of larvae crawling within, with a measured ulcer area of 10cm×10cm and necrotizing soft tissue approximately 3–4 times larger, across the lumbosacral area (Figure 4A). Initial visual evidence indicated that it may belong to *Calliphora Calliphoroides*, *Calliphoridae*. Similarly, a 51-year-old man with long-term diabetes who had been suffering from a massive cutaneous wound for 1.5 months was admitted but without myiasis. He was diagnosed with a confirmed case of massive neck/back wound infection with severe septic shock and unstable vital signs. On examination, the ulcer neck/back wound was approximately 5cm×10cm with necrotizing tissue and no sign of fly larvae (Figure 4B).

Laboratory tests and initial vital signs indicated that the case with cutaneous myiasis may have suffered from sepsis, with

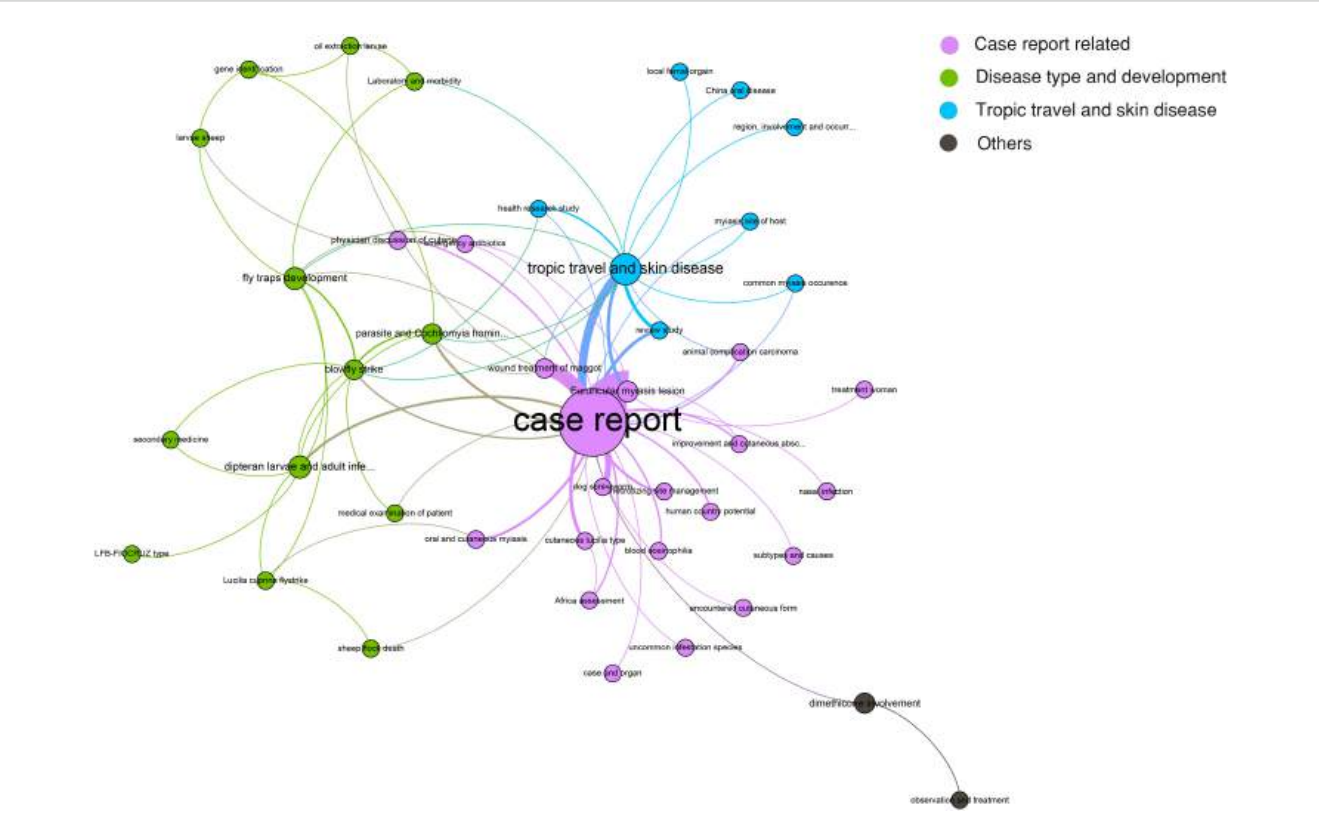

FIGURE 3
Latent Dirichlet allocation (LDA) research topic cluster network. Four clusters were determined, including case report-related (pink), disease type and development (green), tropic travel and skin disease (blue), and others (black).

FIGURE 4
Two patients with cutaneous wounds and long-term diabetes were presented in this article. **(A)** A 70 year-old woman presented with a massive decubitus ulcer infested with maggots and necrotizing soft tissues at the lumbosacral area; **(B)** a 51 year-old man presented with a massive wound infection in neck and back area.

comparable low blood pressure, elevated heart rate, and abnormal levels of white blood cells (WBCs; 13.19×10^9/L), blood glucose (GLU; 6.8 mmol/L). and C-reactive protein (CRP; 105.65 mg/L). However, the case without cutaneous myiasis presented with sepsis and shock, with unstable vital signs, low potassium (K+, 0.87 mmol/L), extremely high levels of glucose (34.9 mmol/L), CRP of 270.43 mg/L, and WBC of 48.30×10^9/L (Figure 5). Furthermore, the total CO_2 and HCO_3 were found to be comparably high in both cases. Taken together, the case with myiasis might have exhibited a lower level of sepsis.

Of note, based on the reported case with accidental maggot therapy and the other case without, we propose a hypothesis that medicinal maggots may have beneficial effects on sepsis associated with wounds (Figure 6).

Discussion

In this study, a machine learning-based algorithm was employed for text analysis of publications retrieved from the past 20 years. A total of 50 topics were revealed but common topics were uncommon fly species, nasal infestation, and physician discussion of cutaneous myiasis. However, the analysis indicated that "case report" was the key term among all the topics. The reason could be that the case-specific and comparatively rare incidence of cutaneous myiasis compared to other malignancies makes it more feasible for case reports to be the most effective approach for studies of cutaneous myiasis in humans.

Cutaneous myiasis can be classified into three types: furuncular, creeping, and traumatic myiasis. Furuncular myiasis is commonly diagnosed in tropical America, such as Mexico and Central America (Goddard, 1996). The treatment of furuncular myiasis includes numerous local therapeutic remedies, such as pork fat, mineral oils, glue, and petroleum jelly, resulting in the suffocation of the maggots (Brewer et al., 1993; Boggild et al., 2002). However, some researchers were concerned that incomplete removal of infestations may result in granuloma formation as a portion of the larvae may require surgical extraction (DeFilippis and Leite, 1997). For creeping myiasis, as humans are not the usual hosts, the development of the larvae is limited. Therefore, they only make tunnels in the epidermis tissue. At the superficial location, the larvae can be easily removed (Manson, 1996). For traumatic myiasis, tissue debridement and irrigation are required. Removal of the larvae also requires proper anesthesia. Some reports indicated the therapeutic value of chloroform and ivermectin (Chodosh and Clarridge, 1992; Gealh et al., 2009). In summary, the various types of cutaneous myiasis have been an emerging field for future research, as such type of infection or therapy has been beneficial to both scientific and clinical practices.

Maggot debridement therapy is known worldwide to have profound efficacy in the treatment of various types of wounds (Sherman et al., 2000; Nigam and Morgan, 2016). It has been recently embraced by the healthcare community as antibiotic resistance has unprecedentedly increased. Previously, maggot therapy was used as a last-resort attempt for certain infections such as gangrene when surgery or antibiotic drugs failed, but currently, it is utilized as an adjunct therapy instead of an alternative one, covering various types of soft tissue wounds, such as traumatic, surgical-related, diabetic, or venous stasis-related wounds (Sherman et al., 2000; Sherman, 2009). However, life-threatening wound infections were previously thought not to be treated with maggot debridement as surgical intervention is more likely to be superior (Sherman et al., 2000). Of note, in this study, we reported that a septic patient with myiasis showed a lower level of inflammation than the other patient with septic and shock but without myiasis, indicating a potential protective role of myiasis in alleviating inflammation of sepsis and shock.

In this study, we hypothesized that medicinal maggots may have beneficial effects on sepsis associated with wounds (Figure 6). The presence of maggots may weaken the sepsis progress, mainly

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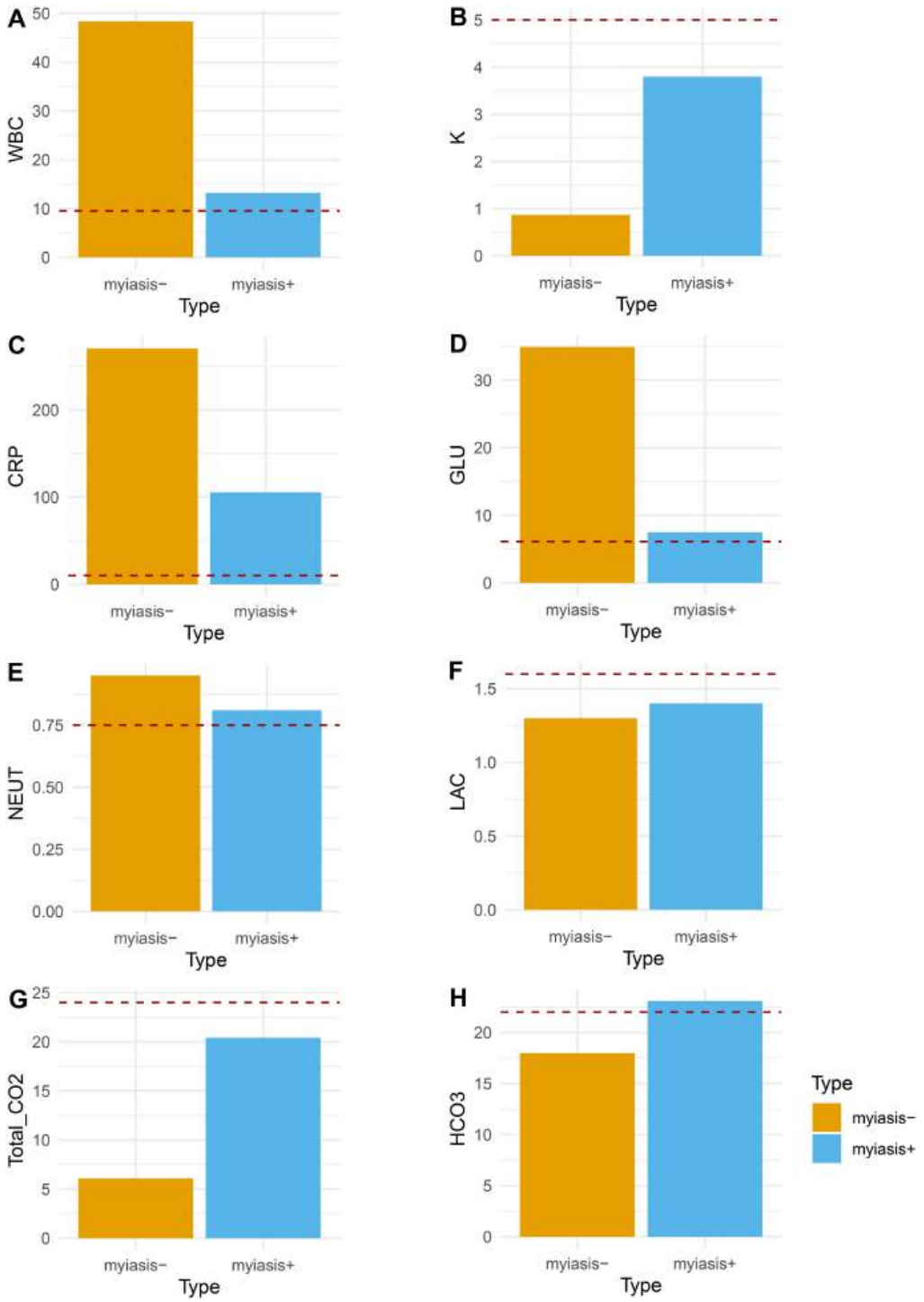

FIGURE 5
Comparison of clinical variables between the patient with maggots and the patient without maggots. **(A)** White blood cell count (WBC, 10×9/L); **(B)** blood potassium (K, mmol/L); **(C)** C-reactive protein (CRP, mg/L); **(D)** blood glucose (GLU, mmol/L); **(E)** blood neutrophils percentage (NEUT, %); **(F)** blood lactate (LAC, mmol/L); **(G)** CO2 blood test (Total_CO2, mmol/L); **(H)** Bicarbonate (HCO3, mmol/L); red dash line indicated normal value threshold.

through three mechanisms: 1) Wound debridement or necrotic tissue elimination; 2) accelerated wound healing; 3) antimicrobial therapy. Specifically, as the infection develops, the very existence of myiasis mainly targets the necrotizing tissue, serving to reduce possible inflammation subsequently caused by massive necrotizing soft tissue infection (NSTI), such as necrotizing fasciitis. Proteolytic enzymes, such as collagenases, trypsin, or chymotrypsin-like enzymes, are produced for tissue digestion (Honda et al., 2011; Isabela Avila-Rodríguez et al., 2020; Filippis et al., 2024). For example, N-acetyl-beta-D-glucosaminidase, alpha-d-glucosidase,

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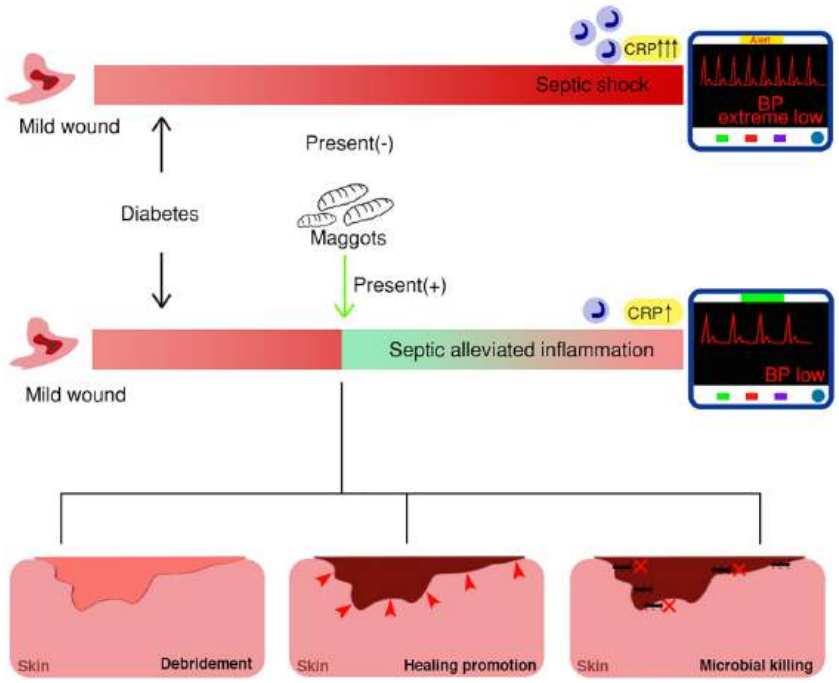

FIGURE 6
Schematic model of maggot therapy for diabetic wounds with mechanisms, depicting distinct clinical outcomes with or without maggot presentation.

and alpha-D-mannosidase are all produced by *Lucilia sericata* larvae for wound debridement and further sterilization (Filippis et al., 2024). A chymotrypsin-like serine protease released by maggots is also vital to target extracellular matrix proteins, such as fibronectin and collagen, by facilitating the breaking down of necrotic tissue (Pöppel et al., 2016). In fact, digestive enzymes for wound debridement are crucial factors in inflammation control, as they determine not only tissue but also bacterial digestion, and further serve as immune response targets. Moreover, it is estimated that approximately 25mg of necrotic tissue can be eradicated by a single maggot in 24 hours (Sherman, 2002). This quick debridement considerably reduces the negative impact of inflammation or toxic reactions triggered by necrotic tissues in living tissues.

The significant antibacterial effects of maggot therapy are mainly from both physical digestion and the production of antibacterial proteins (Yan et al., 2018). Some research found that gram-positive bacteria are more sensitive to this therapy than gram-negative bacteria. Furthermore, an antifungal effect has also been observed. Several types of molecular masses have been identified among the antibacterial proteins, including lucifensin, lucilin, lysozymes, and many others (Cerovský et al., 2010; Valachova et al., 2014a; Valachova et al., 2014b; Yan et al., 2018).

Some researchers may hold the view that the accelerated growth of a wound may only be because of wound debridement (Robinson and Norwood, 1934). However, more researchers believe that ammonium bicarbonate, allantoin, and urea are responsible for the promising healing speed in wound management (Sherman, 2014).

In addition, it remains unknown whether maggot therapy has further systemic impact on the host, such as systematic antibiotic/metabolic effects or immune regulation. Interestingly, the case without myiasis also developed uncontrolled hyperglycemia, which further exacerbated the NSTI and contributed to the septic shock.

The role of myiasis, either beneficial or harmful to humans and animals, has always been one of the rising multidiscipline interests in research practice as previously described (Sherman et al., 2000; Hall et al., 2016). Hall et al. reported that given the inadvertent introduction and global spread, the incursion of fly larvae into many tropical and subtropical regions is notable and resulted in heavy costs (Hall et al., 2016). Eradication programs of such targets might be both difficult and expensive, as a 3-year eradication program cost approximately 80 million US dollars in Libya (Food Agric Organ (FAO), 1992). Meanwhile, Old World screwworm fly (OWSF)-associated myiasis remains one of the most common types of myiasis in India, causing serious medical problems, with human cases occurring continuously (Sankari and Ramakrishnan, 2010).

Currently, non-negative matrix factorization (NMF) and LDA are the most commonly used machine learning techniques for data analysis (Geiger and Park, 2024). The techniques share similar advantages in signal processing, text mining, and bioinformatics by decomposing non-negative data into parts for further modeling. NMF is marked by its constrained optimization problem using linear algebra algorithms, while LDA is characterized more like a generative model in statistics for text words and paraphrases, in order to analyze potential wordy topics and proportions of

paragraphs. Although the predecessor of LDA, probabilistic latent semantic analysis (PLSA) is more closely related to NMF given its algorithms and similar results. LDA demonstrated more advantages for natural language processing than NMF, such as short-text corpora. Rkia et al. reported that the coherence score of LDA for natural language processing was 0.59, which was better than NMF (Rkia et al., 2024).

Up to now, many challenges in maggot therapy remain far from clearly solved, with setbacks either in diagnostic or therapeutic fields (Babazadeh et al., 2023; Sherman et al., 2024). In 2023, Babazadeh et al. reported mistreatment with maggot therapy for a diabetic foot ulcer, resulting in an amputation. In this case, the researchers intensively discussed the indication and contraindications of this case, specifically, *Pseudomonas aeruginosa* infections with tendon exposure may not favor maggot therapy. Other contraindications may include dry wounds or immunosuppressive patients with pyoderma gangrenosum (Babazadeh et al., 2023). However, the key point proposed by Dr. Sherman was sufficient attention to the case and therapy so as to fully understand the benefits and risks associated with maggot infection and maggot therapy (Sherman et al., 2024). A maggot infestation, or maggots in the wounds, is not equal to maggot therapy. Placing a non-therapeutic species into a wound would not be regarded as classic Maggot debridement therapy (MDT). Classic MDT, in fact, is controlled and performed with limited types of maggots, for example, germ-free *L. sericata, L.cuprina, and L.illustris*. Therefore, the introduction of rare myiasis with accidental therapy may greatly contribute to the field.

Reflection and summary

In this study, maggot therapy was found to possibly alleviate the inflammation level of severe soft tissue infections and sepsis. More relevant clinical trials or cohort studies are encouraged to further delineate the specific parameters of maggot therapy, types of maggots, and in which stage maggot therapy achieves the best results. Standardization of maggot therapy will then be established, as well as future therapeutic guidelines. Given the three major mechanisms of wound debridement or necrotic tissue elimination, accelerated wound healing, and antimicrobial therapy, more molecular or enzymatic mechanisms are strongly encouraged to be researched. In the future, the therapeutic spectrum of maggot therapy may expand to sepsis with more solid clinical evidence yet to come. It also bridges the biological value of maggot therapy with the basic science of infection and sepsis.

Conclusion

Key topics have been modeled with the increasing popularity of maggot therapy. Maggot debridement therapy may be beneficial for soft tissue infection-related sepsis.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material. Further inquiries can be directed to the corresponding authors.

Ethics statement

Ethical committee of Shanghai Ninth People's Hospital has approved this study.

Author contributions

ZZ: Formal analysis, Investigation, Methodology, Resources, Software, Supervision, Validation, Writing – original draft, Writing – review & editing. CY: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Software, Writing – original draft, Writing – review & editing. DY: Data curation, Formal analysis, Investigation, Project administration, Software, Supervision, Writing – original draft, Writing – review & editing. ZW: Investigation, Methodology, Project administration, Resources, Software, Supervision, Writing – original draft, Writing – review & editing. YH: Data curation, Formal analysis, Investigation, Project administration, Software, Validation, Writing – original draft, Writing – review & editing. PW: Conceptualization, Data curation, Investigation, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing. WW: Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. YL: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that no Generative AI was used in the creation of this manuscript.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcimb.2025.1568563/full#supplementary-material

SUPPLEMENTARY FIGURE 1
The criteria flowchart of included publications.

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