



Pregnant Women's Health Literacy Promotion Strategies: A Review

Parisa Farzi Karamolahi¹, Zahra Bostani Khalesi^{1*} and Mryam Niknami¹

¹*Social Determinants of Health Research Center (SDHRC), School of Nursing and Midwifery, Guilan University of Medical Sciences, Rasht, Iran.*

Authors' contributions

This work was carried out in collaboration among all authors. Authors ZBK and PFK contributed to the design, review and summarized the studies. Authors MN and ZBK assess the studies for quality. Author PFK contributed to the reviewed of studies. Authors MN and ZBK drafted the study. The study has been read and approved by all authors.

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ABSTRACT

Background: Given the importance maternal health literacy (MHL) level in pregnancy outcome and maternal-child health, Investigating MHL promotion strategies is essential. To this end, the present study aimed to identify and report those interventions that conducted for improving MHL.

Methods: A scoping literature search using PubMed, Web of Science, Social Science Research Network, CINAHL, Psych INFO, Magiran, Iran Medex, Iran Doc, SID and Google Scholar. This review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram. Eligible studies were identified from English and Persian databases, published between 1990 and 2018. Studies were screened independently by two researchers who performed the data extraction.

Results: On the basis of the studies's intervention technique, 2 major health themes emerged: Group-based interventions (Antenatal classes, Small group teaching, The centering pregnancy model, Web-based discussion forums) and individual -based interventions (Counseling intervention, Web-based educations, The workbook and booklet, Multimedia approaches, Graphics-based tool, A theory-based training program).

*Corresponding author: E-mail: z_bostani@yahoo.com;

Conclusion: This review provides insights into existing strategies for MHL promotion. Health policy leaders and health system planners, should support the uptake of these approaches into usual prenatal care.

Keywords: Literacy; health literacy; pregnant women.

1. INTRODUCTION

Health literacy is an important element in health communication [1]. MHL a subset of health literacy, is a specialized literacy because healthy maternity requires particular health literacy skills, such as the ability to detect risks, knowledge of action to take for a healthy pregnancy, and avoidance of an unhealthy lifestyle [2]. Adapted from the WHO definition of health literacy, MHL is defined as the cognitive and social skills which determine the motivation and ability of mothers to gain access to, understand, and use information in ways that promote and maintain their health and that of their children [3]. The goal of promoting MHL is to empower mothers to gain control over personal and child health in three broad domains: disease treatment and health care, disease prevention and health protection, and health promotion, all of which benefit the health of both the mother and the child [4]. The World Bank defines empowerment as the ability to make choices and transform those choices into desired actions and outcomes and is aligned with this conception of MHL [5]. MHL is resulting from the idea of general literacy about health which the effect on pregnancy outcome through improving the maternal health information [6].

Mothers with enough MHL are capable to catch health data and the of positive Health consequences of pregnancy and childbirth [7]. MHL facilitate for mothers understand health information in order to improve health choices [8]. Evidence indicates that high health literacy level in mothers is also important to improve pregnancy outcomes [9]. When mothers are literate and educated, the more likely they are to use a health facility during pregnancy to receive prenatal care services. While deficiency in MHL have often negatively influences their children's health [10]. Limited MHL contributes to substantial increases in morbidity and mortality in mothers and newborns. If MHL improves, use of skilled birth attendants such as a midwife, doctor or nurse will be increased further and maternal and fetal mortality reduced, mother's and child's life could be saved [11].

Pregnant women's with low health literacy show poorer ability to perceive medication labels and

medical instructions [5]. Inadequate MHL can be related to the perception of medication risk, beliefs about medications, medication use, and non-adherence to prescribed Pharmacotherapy during pregnancy [12]. Health providers should take time to improve in their clients' ability to medications perception, in order to promote adherence during pregnancy [13].

Speaking with informed health care professionals offers the opportunity for interactivity between clients and health care providers; however, this method of information transfer poses very challenges related to health literacy [14]. The mis communication between the health provider and a client (mother) is one essential challenge for the continuing problem of low MHL level [6]. To improve MHL, health professionals should have adequate knowledge of the different intervention technique about health literacy promotion and use of the effective strategies.

2. METHODS

The current review included all resources that focused on published studies indexed in MEDLINE, Web of Science, CINAHL, Social Science Research Network (SSRN), Psych INFO, electronic databases for English literature. The comprehensive search was conducted using SID, Magiran, Google Scholar, Iran Doc and Iran Medex, electronic databases in Persian literature. Bibliographies of selected studies were searched to find supplementary related studies were missed in the electronic investigate. Also, for gray literature were performed a search using OpenDOAR, WHO Global Health Library, ProQuest Dissertations, The New York Academy of Medicine (NYAM), Scopus, Popline and PAIS. The search terms consist of a combination of key words as Health, Literacy, Health literacy, Pregnant, Women, Pregnant Women, Maternal Educational Status, and Adult health literacy according the medical subject headings (MeSH).

A literature review was conducted based on the PRISMA flow chart as diagnostic test accuracy studies to improve the reporting, validity and applicability of this review [14].

The search criteria included randomized controlled trial studies about MHL, written in

Persian and English language, peer-reviewed, and published between January 2000 and January 2019. Exclusion criteria included the topic of studies was irrelevant to the MHL.

Every record was assessed and graded for evidential quality by two independent reviewers using the standardized critical appraisal tools and a third author adjudicated when disagreement occurred. The checklist of Critical Appraisal Skills Program (CASP) used for evaluating randomized controlled trial studies [15]. This instrument included three parts to evaluate the internal validity and the outcomes. According to these factors, we were able to recognize strengths and weaknesses of studies. The title and abstracts of the studies screened for eligibility, then, cause of studies deletion was recorded.

“Health literacy”, was limited to the title or abstract in other instances. All duplicates studies were removed. The comprehensive literature search identified 53 relevant records that Fourteen of which met the eligibility criteria.

3. RESULTS

The result of current study report a comprehensive literature review to describe different strategies of MHL.

A total of 53 records was excluded from screening the title and abstract. Of the remaining 26 records, full text were seeking an Fourteen records were retained. Records were removed for the subsequent reasons: fail to meet the inclusion criteria (n=27), Were no MHL measure (n=2), incomplete information (n=5), a letter or conference abstract (n=2), and unable to obtain full text (n = 3) (Fig.1).

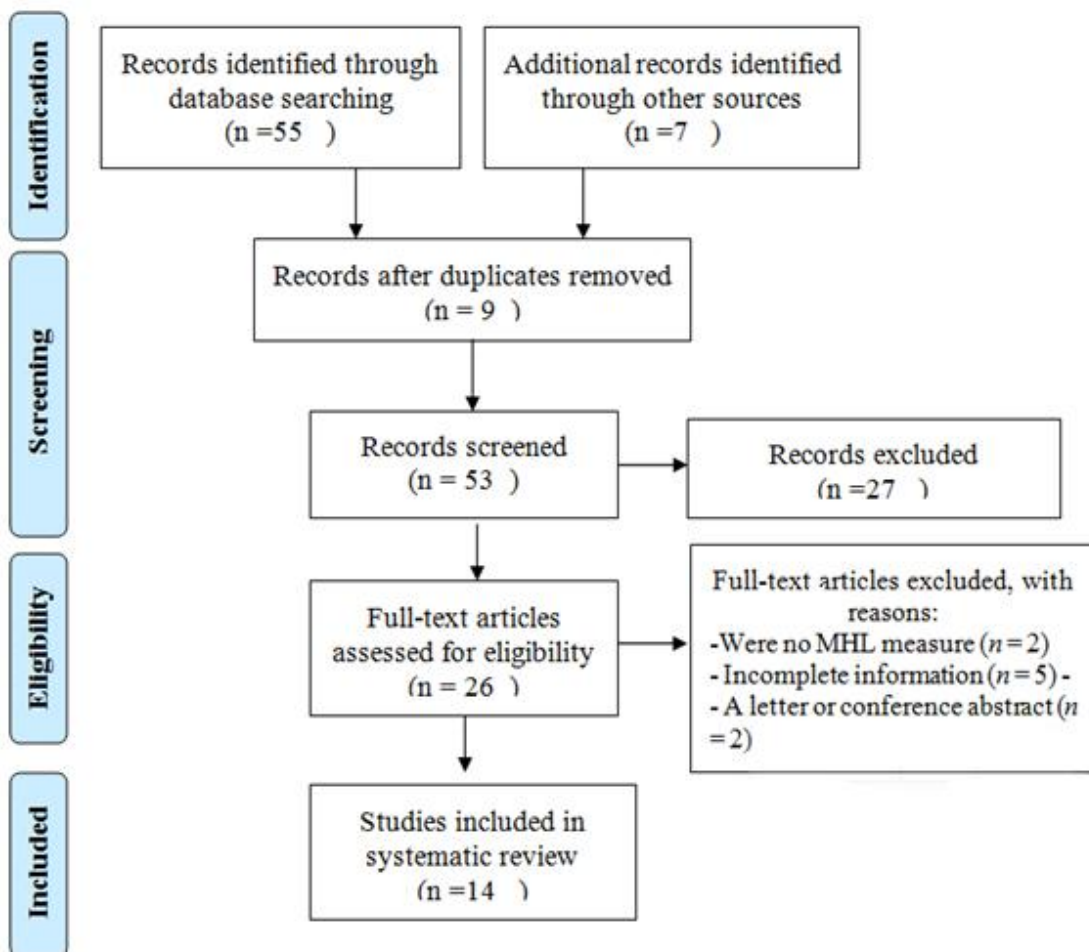


Fig. 1. Flowchart of literature search

On the basis of the studies's intervention technique, 2 major health themes emerged:

1- Individual-based interventions: Counseling intervention, Web-based educations, The workbook and booklet, Multimedia approaches, Graphics-based tool, A theory-based training program.

MHL interventions that use enhanced the handout, booklet and the workbook have been shown to increase health-related knowledge among pregnant women. Also, a can increase pregnant women s' knowledge and capacity to find relevant health information.

Interventions that use multimedia approaches was beneficial and can be improved MHL.

Web-based is the maternal capability to search, detect, realize, and estimate health data from electronic resources and use this information to addressing issues and health problems solving.

Graphics-based tool and educational intervention based on self-efficacy theory can increase MHL.

2- Group-based interventions: Antenatal classes, Small group teaching, The centering pregnancy model, Web-based discussion forums.

Educational programs in antenatal classes also appear to increase knowledge among pregnant women. Small group teaching appears to increase maternal comprehension and appropriate health care use.

The centering pregnancy model was associated with increased MHL. It was a technique to antenatal care by which care is offered by an obstetrician or a midwife in a group setting. It is provided to groups of 8 to 12 women of similar due month of delivery. Each group meets 8 to 10 times throughout the pregnancy period. Every meeting takes about Ninety to one hundred and twenty minutes. Health evaluation occurs within the group, participants should be involved in self-care activities, stability of group leadership is necessary, each meeting has an overall program, attention is given to core content.

Full details of the 14 included records are exposed in Table 1.

4. DISCUSSION

A scoping literature review was conducted to identify and describe MHL promotion strategies,

which encompasses Group-based interventions and individual -based interventions, offers approaches to improving MHL. All the above-mentioned studies indicated the need for education to improve MHL.

There are many different strategies for MHL promotion [3,14,30]. Each strategy has its own strengths and weaknesses. In this review, ten strategies were presented and discussed, but challenges exist for each of these strategies. These challenges also present opportunities for taking a combination of strategies to promote MHL effective [31].

One of the most common strategies leveraged for promoting MHL was the prenatal classes. But prenatal classes cannot probably cover all of the information regarding pregnancy care, childbirth and parenting [32]. Prenatal classes often take a long time, and educators are not accessible for mothers, when they are need to information [33]. Therefore, the MHL concept presents the chance to transfer thinking in prenatal classes away from an easy shift of information, to a better procedure of empowering pregnant women for motherhood.

A number of studies have shown that counseling intervention influence MHL, so that mothers who receive counseling have a higher level of health literacy [8,22,34]. However, the results of many studies have reported that counseling intervention cannot probably cover all there is to know about motherhood, pregnancy and childbirth [6,11,22].

A traditional strategy for addressing MHL has focused on printed health information in the form of books, articles and brochures help increase the literacy levels of mothers [35]. Health providers can offer booklet to increase MHL levels. The booklet provides opportunities for health programs to improve MHL and offers promising models [36]. Of course, these programs have some limitations, too. Women who cannot frequently visit during pregnancy may not have access to these health contents, and those who do have access may not appreciate content if it is too scientific or complex [37].

Additionally, there are serious limitations in Graphics-based tool [19]. Unfortunately, these attempts at promoting health-related information are highly dependent upon the geographic location and level of public funding and rural and poorer mothers are at an increased disadvantage [38].

Table 1. Characteristics of included studies

Author and year	Sample size (pregnant women)	Intervention	Data collection technique	Main outcomes
Baldwin (2006)[16]	98	The Centering Pregnancy model	Questionnaire	The Findings indicate the effect of a standard care model and standard educational model on MHL.
Oves (2013)[17]	91	Educational sessions and training manual	Interview	Educational sessions and training manual aids in improving MHL.
Kakkilaya et al (2011)[18]	80	Counseling intervention	Questionnaire	The findings showed that counseling intervention affecting on health literacy promotion.
You et al (2012)[19]	120	Graphics-based tool	Questionnaire	The Findings suggest that the graphics-based tool is more effective than a pamphlet on MHL.
Yee et al (2014)[20]	150	The centering pregnancy	Questionnaire	Women receiving the interactive tool had greater HL in comparison with those receiving standard care.
Trotman et al (2015)[21]	100	The centering pregnancy	Questionnaire	The results showed that using "centering pregnancy" vis a vis traditional model of prenatal care is effective for progress mothers' safe conduct during pregnancy.
Fredriksen et al (2016)[22]	11	Web-based discussion forums	Interview	The results indicated that web-based discussion increase MHL.
Jody (2017)[23]	184	Group antenatal care	Interview	Group antenatal care as compared to individual care is more effective on MHL.
Vilella et al (2017)[24]	175	Standard oral (spoken), written	Questionnaire	Research findings explore the standard, spoken oral health intervention can be effective on MHL.
Steiner et al (2017)[25]	171	Booklet and workbook	Questionnaire	Findings indicate that booklet is feasible to promote MHL.
Solhi et al (2018)[26]	80	Educational sessions and group counseling	Questionnaire	The results indicated there was a significant difference between the mean scores of MHL before and after the intervention.
Kamali et al (2018)[27]	59	Small group teaching	Questionnaire	The results showed that using small group teaching is effective on MHL.
Kharazi et al (2018)[28]	76	Educational intervention based on self-efficacy theory	Questionnaire	The results indicated that the educational intervention based on self-efficacy theory improve MHL.
Gharachourlo et al (2018)[29]	84	Counseling	Questionnaire	Research findings showed that counselling by midwives can improve MHL.

A previous study reported on the effect of the Web-based discussion forums on MHL in pregnant women [22]. Also, majority of prior research confirmed the link between MHL and group teaching [39]. This indicated that the group teaching has led to the promotion of MHL and increased self-care during pregnant women [40]. Therefore, it is recommended to develop a plan to promote MHL.

Since, MHL increase through the theory-based training program, therefore more comprehensive the targeted training approaches and developed evidence-based intervention will provide a better view of the MHL promotion strategies [16].

5. CONCLUSION

The current review provides insights into strategies that can be improved MHL. Additionally, further studies are recommended to evaluate the ways to Improve Health Literacy Useful interventions aimed to design and creating an empowering environment, offering easy-to-understand health education materials, and offering communication training is necessary for pregnant women with low health literacy. The result of this study contributes to advance the science of health literacy research and serve as an engine to promote professional development in the field. We expect with the publication of this article will health providers increase their commitment to improving education, research, and practice to pregnant women.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ohnishi M, Nakamura K, Takano T. Improvement in MHL among pregnant women who did not complete compulsory education: Policy implications for community care services. *Health Policy*. 2005;72:157–164.
2. Medley N, Vogel JP, Care A, Alfirevic Z. Interventions during pregnancy to prevent preterm birth: An overview of Cochrane systematic reviews. *Cochrane Database of Systematic Reviews*. 2018;11:CD012505.
3. WHO recommendation for group antenatal care. Available: <https://extranet.who.int/rhl/topics/improving-health-system-performance/implementation-strategies/who-recommendation-group-antenatal-care>
4. Lumbiganon P, Martis R, Laopaiboon M, Festin MR, Ho JJ, Hakimi M. Antenatal breastfeeding education for increasing breastfeeding duration. *Cochrane Database of Systematic Reviews*. 2016;12:CD006425.
5. Ferguson B. Health literacy and health disparities: The role they play in maternal and child health. *Nurse Womens Health*. 2008;12:286–98.
6. Smith SA, Carroll LN. Data-driven Maternal health literacy promotion and a postscript on Its implications. *Stud Health Technol Inform*. 2017;240:144-165.
7. Lori JR, Dahlem CH, Ackah JV, Adanu RM. Examining antenatal health literacy in Ghana. *J Nurs Scholarsh*. 2014;46(6):432–40.
8. WHO. Counselling for maternal and newborn health care: A handbook for building skills; 2013. Available: http://www.who.int/maternal_child_adolescent/documents/9789241547628/en/ [Accessed 30 Sept 2016]
9. Ghanbari S, Majlessi F, Ghaffari M, Mahmoodi Majdabadi M. Evaluation of health literacy of pregnant women in urban health centers of Shahid Beheshti Medical University. *Daneshvar Medicine*. 2012;19:1–12. (Persian).
10. Pirdadeh Beiranvand S, Behboodi Moghadam Z, Salsali M, Alavi Majd H, Birjandi M, et al. Prevalence of fear of childbirth and Its associated factors in prmetatimigravid women: A cross-sectional study. *Shiraz E-Med J*. 2017;18(11):e61896.
11. Darvishvand M, Rahebi SM, Bostani Khalesi Z. Factors related to maternal-infant attachment, *Shiraz E- Med J*. 2018; 19(12):e80369.
12. Lupattelli A, Spigset O, Nordeng H. Adherence to medication for chronic disorders during pregnancy: Results from a

- multinational study. *Int J Clin Pharm* 2014;36:145–53.
13. Sawicki E, Stewart K, Wong S, Leung L, Paul E, George J. Medication use for chronic health conditions by pregnant women attending an Australian maternity hospital. *Aust N Z J Obstet Gynaecol*. 2011;51:333–8.
 14. Moher D, Liberati A, Tetzlaff J, Altman DG. PRISMA group preferred reporting items for systematic reviews and meta-analyses: the PRISMA Statement. *BMJ*. 2009;339: 2535.
 15. Guyatt GH, Sackett DL, Cook DJ. Users' guides to the medical literature. II. How to use an article about therapy or prevention. A. Are the results of the study valid? Evidence-Based Medicine Working Group. *JAMA*. 1993;270(21):2598-601.
 16. Baldwin KA. Comparison of selected outcomes of Centering Pregnancy versus traditional prenatal care. *J Midwifery Womens Health*. 2006;51:266-72.
 17. Oves, Danielle, Impact of maternal health literacy training in the knowledge of women who have been homeless. Thesis, Georgia. State University; 2013. Available: https://scholarworks.gsu.edu/iph_theses/304
 18. Kakkilaya V, Groome LJ, Platt D, et al. Use of a visual aid to improve counseling at the threshold of viability. *Pediatrics*. 2011;128:e1511–e1519.
 19. You WB, Wolf MS, Bailey SC, Grobman WA. Improving patient understanding of pre eclampsia: A randomized controlled trial. *Am J Obstet Gynecol*. 2012;206:431. e431–e435.
 20. Yee LM, Wolf M, Mullen R, et al. A randomized trial of a prenatal genetic testing interactive computerized information aid. *Prenat Diagn*. 2014;34: 552–557.
 21. Trotman G, Chhatre G, Darolia R, Tefera E, Damle L. The effect of centering pregnancy versus traditional prenatal care models for improved adolescent health behaviors in the perinatal period. *J Pediatr Adolesc Gynecol*. 2015;28:395-401.
 22. Fredriksen EH, Harris J, Moland KM. Web-based discussion forums on pregnancy complaints and maternal health literacy in Norway: A qualitative study. *J MED Internet Res*. 2016;18(5):e113.
 23. Jody R, Henrietta O, Carol J, Tanima B, Richard A. Improving health literacy through group antenatal care: a prospective cohort study. *Pregnancy and ChildbirthBMC series*. 2017;17:228.
 24. Vilella KD, Fraiz FC, Benelli EM, Assunção LR. Oral health literacy and retention of health information among pregnant women: A randomized controlled trial. *Oral Health Prev. Dent*. 2017;15:41–48.
 25. Steiner K. Impact of beginnings pregnancy guides on maternal health literacy among medicaid patients in group prenatal care. A thesis submitted in partial fulfillment of the requirements for the degree of Master of Public Health. University of Washington; 2017.
 26. Solhi M, Abbasi K, Ebadi Fard Azar F, Hosseini A. Effect of health literacy education on self-care in pregnant women: A randomized controlled clinical trial. *Int J Community Based Nurs Midwifery*. 2019;7(1):2-12.
 27. kamali Z, abedian Z, Sabermohammad A, Mohebi Dehnavi Z. The effect of small-group teaching on health literacy in pregnant women with nausea and vomiting: A clinical trial. *3 JNE*. 2018;6(6) :25-32.
 28. Kharazi S, Peyman N, Esmaily H. Effect of an educational intervention based on self-efficacy theory and health literacy strategies on pregnancy outcomes: A randomized clinical trial. *The Iranian Journal of Obstetrics, Gynecology and Infertility*. 2018;21(5):33-46.
 29. Gharachourlo M, Mahmoodi Z, Akbari Kamrani M, Tehranizadeh M, Kabir K. The effect of a health literacy approach to counselling on the lifestyle of women with gestational diabetes: A clinical trial. *F1000Res*. 2018;7:282.
 30. Tirkesh F, Bahrami N, Bahrami S. Assessment of achievement to improving maternal health from third millennium development goal in Dezful University of Medical Sciences. *Community Health*. 2016;2(2):98–105.
 31. Ratzan SC. Commissioned paper integrating health literacy in primary and secondary prevention strategies. In: Institute of medicine. *Promoting Health Literacy to Encourage Prevention and Wellness: Workshop Summary*. Washington, DC: The National Academies Press; 2011.
 32. Dadipoor S, Ramezankhani A, Alavi A, Aghamolaei T, Safari-Moradabadi A. Pregnant women's health literacy in the

- south of Iran. *J Family Reprod Health*. 2017;11(4):211-218.
33. Javadzade SH, Sharifirad G, Radjati F, Mostafavi F, Reisi M, Hasanzade A. Relationship between health literacy, health status and healthy behaviors among older adults in Isfahan, Iran. *J Educ Health Promot*. 2012;1:31.
 34. Mobley SC, Thomas SD, Sutherland DE, Hudgins J, Ange BL, Johnson MH. Maternal health literacy progression among rural perinatal women. *Matern Child Health J*. 2014;18(8):1881-92.
 35. Haerian A, Moghaddam MHB, Ehrampoush MH, Bazm S, Bahsoun MH. Health literacy among adults in Yazd, Iran. *J Educ Health Promot*. 2015;4:91.
 36. Thomas SD, Mobley SC, Hudgins JL, Sutherland DE, Inglett SB, Ange BL. Conditions and dynamics that impact maternal health literacy among high risk prenatal-interconceptional women. *Int J Environ Res Public Health*. 2018;15(7): 1383.
 37. Aboumatar HJ, Carson KA, Beach MC, Roter DL, Cooper LA. The impact of health literacy on desire for participation in healthcare, medical visit communication, and patient reported outcomes among patients with hypertension. *J Gen Intern Med*. 2013;28(11):1469–76.
 38. Yin HS, Dreyer BP, Vivar KL, MacFarland S, van Schaick L, Mendelsohn AL. Perceived barriers to care and attitudes towards shared decision-making among low socioeconomic status parents: role of health literacy. *Acad Pediatr*. 2012;12(2): 117–24.
 39. Archambault PM, Bilodeau A, Gagnon MP, Aubin K, Lavoie A, Lapointe J, Poitras J, Croteau S, Pham-Dinh M, Legare F. Health care professionals' beliefs about using a wiki-based reminders to promote best practices in trauma care. *J Med Internet Res*. 2012;14 (2):e49.
 40. Zikmund-Fisher BJ, Exe NL, Witteman HO. Numeracy and literacy independently predict patients ability to identify out-of-range test results. *J Med Internet Res*. 2014;16 (8):e187.

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