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The role of health literacy in enhancing health promotion efforts: A systematic review

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Abstract

Background: Health literacy is one of the most important factors in improving the quality of life of the community. However, in developing countries such as Indonesia, most people have low levels of health literacy, especially in rural areas. This causes inadequate public health management, so the level of community literacy must be considered when designing health promotion programs.
Purpose: To investigate the role of health literacy in enhancing health promotion efforts.
Method: A systematic literature review study in the context of cervical cancer prevention promotion using techniques based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). This study used the PICOS framework (Population = General, Intervention = Health promotion, Comparison = Using a comparison group and not using a comparison group, Outcome = Health Literacy, and Study Design = Various research approaches, experimental studies, mixed methods, randomized controlled trials (RCTs), longitudinal multicentric prospective intervention studies, included in the study design).
Results: Health literacy plays an important role in health promotion in various countries according to the literature analyzed. The health literacy rate in China increased from 6.48% to 23.1%. The majority of university students in Portugal have limited literacy levels. According to studies conducted in South Korea and Ethiopia, there is a relationship between health information orientation and health behavior. Children and pregnant women in Lithuania and Thailand experienced significant improvements in their health competencies as a result of parental health literacy and participation in special programs. These findings highlight the importance of health literacy improvement strategies implemented at the local level.
Conclusion: Health promotion programs tailored to an individual's health literacy level have been shown to be more effective in increasing community understanding and encouraging behavior changes that support long-term well-being.
Suggestion: Additional research is needed to determine the most effective strategies or approaches that can be used to address health literacy gaps across communities, especially in areas with low health literacy.

Keywords: Health Literacy; Health Promotion; Role of Health.

INTRODUCTION

Health literacy is one of the most important factors in improving the quality of life of the community. Literacy can be defined as the ability of individuals to obtain, understand, and apply health information in everyday life. Health literacy does not only include the ability to read and write, but also includes the competence to evaluate, process, and utilize health-related information to make the right decisions that will help a person maintain good health (Naveed & Shaukat, 2022). Given the increasing prevalence of chronic diseases, recurrent infectious diseases, and mental health problems, efforts need to be made to improve health literacy so that individuals can play an active role in disease prevention, health problem

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management, and participation in easily accessible health promotion programs. Health literacy is an important component in the development of health promotion, a strategy that seeks to improve the well-being of individuals by encouraging them to engage in more beneficial behaviors. Unfortunately, although several health promotion programs have been implemented, many people still do not have a good understanding of the health information offered, resulting in poor assessment of their health (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011). The importance of health literacy in the context of promotional initiatives focused on increasing understanding, engagement, and sustainable behavior change (Sentell, Vamos, & Okan, 2020).

Previous research has shown that poor health literacy is often associated with adverse health outcomes, such as increased rates of disease and inability to effectively manage long-term health problems (Paasche-Orlow & Wolf, 2007). Therefore, to create a more significant and lasting impact, it is important to have a strong understanding of the ways in which health promotion programs can improve health literacy. There are substantial differences in health literacy levels across countries and regions, although health literacy is seen as an essential element. Previous research has shown that at the global level, health literacy remains very low in many developing countries. Furthermore, there are significant differences between developed and developing countries in terms of individuals' capacity to understand health information (Sørensen, Levin-Zamir, Duong, Okan, Brasil, & Nutbeam, 2021).

According to the World Health Organization (WHO), about one-third of people worldwide have inadequate health literacy, meaning that they have difficulty understanding the information currently available about their health (World Health Organization, 2020). According to previous research, about nine out of ten people in industrialized countries, such as the United States, have difficulty understanding health-related information (Kutner, Greenberg, Jin, Paulsen, & White, 2006). This includes not being able to understand medical instructions or information about the treatment of various diseases. As a result, there is a low level of engagement in health services, and individuals are unable to successfully take control of their own health. Inadequate health literacy is commonly associated with difficulty following medical instructions, inappropriate treatment, and poor adherence to treatment. These factors, in turn, can worsen an individual's health condition and increase the burden on the health system as a whole (Vamos, Okan, Sentell, & Rootman, 2020).

The results of the European Health Literacy Survey (HLS-EU) show that health literacy levels in European countries differ significantly from each other compared to other countries. Many Scandinavian countries, including Sweden, show quite high levels of health literacy. In particular, around 70% of the population has a comprehensive understanding of health information. However, in some countries, such as Bulgaria and Romania, health literacy levels are much lower. In these countries, more than 50% of the population has difficulty understanding the available health information. This shows that although there is significant variation in health literacy levels across Europe, countries with more established health systems tend to have people who are more knowledgeable about significant health issues (Palumbo, 2021).

As a region that is home to diverse cultures, economies, and healthcare systems, Southeast Asia also faces challenges when it comes to health literacy. Several countries in the Southeast Asian region are known to have very different levels of health literacy, as shown by statistics presented in a study developed by WHO. Countries such as Singapore and Malaysia have very advanced programs in terms of health literacy, and there are many efforts made by the government and the private sector to improve individual health awareness. In Singapore, for example, health literacy is actively integrated into the medical education and training system. As a result, the country has achieved a relatively high level of health literacy with some urban areas reaching around 75% (World Health Organization, 2020).

On the other hand, health literacy levels are still quite poor in a large number of other Southeast Asian countries, such as Indonesia, the Philippines, and Cambodia. In Indonesia, a survey conducted by the Ministry of Health of the Republic of Indonesia revealed that around 40-50% of the adult population has a low level of health literacy, especially in rural and remote areas (Ministry of Health of the Republic of Indonesia, 2018). This problem is compounded by the fact that there are gaps in access to good health

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education, as well as language barriers and difficulties in understanding the information offered in health materials, which are often too technical or not appropriate to the local context. Public health decisions can be influenced by a lack of awareness about health issues, chronic disease management, and inadequate understanding of how to access health services. This can contribute to the high incidence of preventable diseases in the region (Bröder, Okan, Bauer, Bruland, Schlupp, Bollweg, & Pinheiro, 2017).

Health literacy remains a significant obstacle in Indonesia. According to information provided by the Indonesian Health Literacy Project (IHLP), around 60% of the Indonesian population has very poor or low health literacy (Indonesian Health Literacy Project, 2019). The fact that Indonesia has a very large and diverse population, encompassing various groups with varying levels of education, suggests that this is a major cause for concern. In rural and remote areas with very limited access to health information, these difficulties are more pronounced than in other areas. A large number of people living in these areas do not have access to the knowledge necessary for them to make informed decisions about their health, whether it be about vaccination, diet, or chronic disease management.

According to research findings conducted by the National Health Research and Development Agency, low levels of health literacy are directly related to unhealthy health behaviors. These behaviors include lack of knowledge about how to prevent disease, poor diet, and lack of awareness of the importance of regular health check-ups. In addition, existing health promotion programs in Indonesia are often ineffective in reaching communities with low levels of health literacy. This is because the information provided is often difficult to understand for individuals with low levels of education or who are inexperienced with complex health content (Peters, Dadun, Zweekhorst, Bunders, Irwanto, & van Brakel, 2015).

In order to make significant progress towards improving public health, it is essential to improve health literacy. Individuals with higher levels of health literacy are more likely to make informed decisions, follow medical advice more closely, and have access to needed health services. For health promotion programs to be successful, it is important to consider the health literacy level of the target audience. Some examples of programs that can increase public understanding and engagement in health programs include programs that simplify medical jargon, use clear visualizations, and present information in a more accessible manner (Ayre, Zhang, Mouwad, Zachariah, McCaffery, & Muscat, 2023).

Additionally, higher levels of health literacy are directly linked to disease prevention and long-term disease management (Magnani, Mujahid, Aronow, Cené, Dickson, Havranek, & Willey, 2018). When individuals have a better understanding of the health risks they face, they are more likely to make lifestyle changes, participate in prevention programs, and take an active role in managing their health. Therefore, increasing health literacy is critical to improving overall population health, particularly among those on the fringes of economic opportunity (Lau, Shum, Man, Cheung, Amoah, Leung, & Okan, 2022).

RESEARCH METHOD

A systematic literature review study in the context of cervical cancer prevention promotion using techniques based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). This study used the PICOS framework (Population = General, Intervention = Health promotion, Comparison = Using a comparison group and not using a comparison group, Outcome = Health Literacy, and Study Design = Various research approaches, experimental studies, mixed methods, randomized controlled trials (RCTs), longitudinal multicentric prospective intervention studies, included in the study design).

Articles were searched using databases from PubMed, Google Scholar, and ScienceDirect. The selected articles were written in English and published between 2019-2025. The researchers decided to combine studies from different geographic locations and scenarios, including various health care infrastructures, to reduce the possibility of bias, such as publication bias or selection bias.

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RESEACH RESULTS

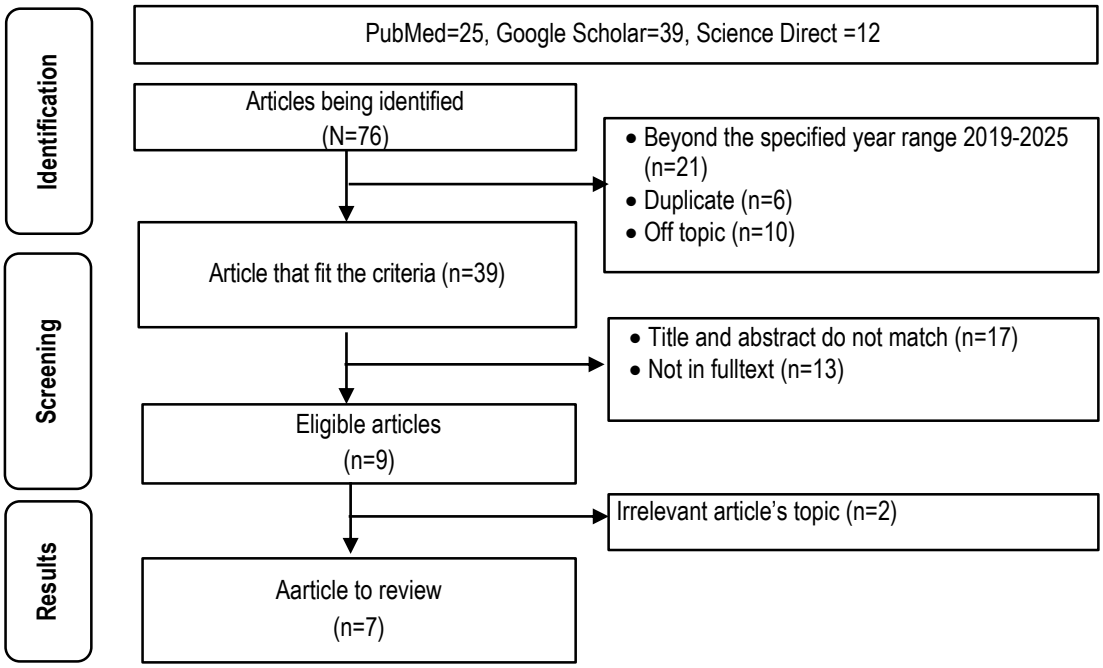


Figure PRISMA Flow Diagram

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Article Data Mapping Results Table

(Author, Year) (Country)	Purpose	Method	Results
(Li et al., 2022) (China)	To provide a concise overview of the key milestones and specific practices in health literacy in China	Literature review research on health literacy features in China from 2008-2020. The search was based on government department website data, including the State Council of the People's Republic of China, the National Health Commission of the People's Republic of China, the National Bureau of Statistics of the People's Republic of China, and the provincial Health Commissions of China. In addition, to better develop the intervention framework, a Pubmed search was conducted and Spearman's rank correlation analysis was used.	China has made significant strides in recent decades to improve health literacy. The percentage of the population literate in health care increased from 6.48% in 2008 to 23.15% in 2020. Compared with the Central and Western regions, the Eastern region is better in terms of health literacy, and urban areas have better health literacy rates than rural areas. In addition to age and education level, the social development index was found to have a strong correlation with health literacy.
(Wang et al., 2021) (China)	To sort out the research focus in the field of e-health literacy, analyze research topics and development trends, and provide relevant research references in this field in the future.	The literature search resulted in a total of 431 articles retrieved from the Web of Science core dataset. The keywords "e-health literacy," "e-health literacy," and "e-health literacy" were used in the search. CiteSpace was used to perform the bibliometric analysis.	The thematic evolution of e-health literacy is broken down into three stages. Evaluation, linkage to health-promoting behavior, influencing factors, and intervention approaches for improvement are the four areas examined in relation to the research focus.
(You & Ahn, 2025) (South Korea)	To determine the influence of health literacy and health information orientation on health-promoting behavior in adolescents through a systematic cross-sectional approach.	A cross-sectional study involving 149 high school students from an urban city in South Korea was conducted through convenience sampling. Health information orientation was measured using the Health Information Orientation Instrument (Cronbach's α = 0.86). Health literacy was assessed using the Korean Adolescent Health Literacy Scale (KR-20 = 0.66), and health promotion behavior was evaluated using the Adolescent Health Promotion Scale-Short Form (Cronbach's	There are significant differences in health promotion behavior based on perceptions of health status, economic status, primary health information providers, and health literacy. Health information orientation shows a strong positive correlation with health promotion behavior. Factors that influence health promotion behavior are health information orientation,

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(Author, Year) (Country)	Purpose	Method	Results
		α = 0.89). Analysis methods included independent t-test, one-way ANOVA, and multiple regression.	primary information providers, economic status, and health literacy.
(Rosário et al., 2024) (Portugal)	To identify the level of health literacy and analyze its relationship with determinants such as socio-demographic variables, chronic diseases, perceived health status, and availability of money for expenses among higher education students in the Alentejo region of southern Portugal.	Observational, descriptive, and cross-sectional study using an online structured questionnaire consisting of the Portuguese version of the European Health Literacy Survey Questionnaire—16 items (HLS-EU-PT-Q16). Data were analyzed using independent sample t-test, one-way ANOVA, Gabriel post-hoc test, and multivariate logistic regression analysis at a significance level of 0.05. Regression models were used to investigate the association between health literacy and various determinants.	Analysis of the HLS-EU-PT-Q16 showed that 82.3% of the 1228 respondents had limited health literacy. The mean health literacy score was 19.3 ± 12.8 on a scale of 0 to 50, with subscores of 19.4 ± 13.9 for health care, 19.1 ± 13.1 for disease prevention, and 19.0 ± 13.7 for health promotion. Higher health literacy was associated with the absence of chronic diseases. Regression analysis showed that lower health literacy was associated with not attending health-related courses, not living with a health professional, perceiving limited availability of money for expenses, and having an unsatisfactory health status.
(Daniuseviciute-Brazaite & Draudviliene, 2025). (Lithuanian)	To examine health literacy and how preschool educators and parents view the development of sustainable health competencies within a sustainability framework.	The research design included three stages and different objectives: In the first stage, the aim was to determine the health literacy levels of parents/guardians and educators using the European Health Literacy Survey Questionnaire (HLS-EU-Q47). In the second and third stages, the attitudes towards health education of parents/guardians and educators were determined.	Higher education levels were found to be associated with higher levels of health literacy. After evaluating the values of preschool educators and parents towards the development of children's health competencies, it was found that both groups equally understood the importance of their role in the development of children's health competencies. However, most parents only devoted up to 2 hours per week to the development of these competencies, which caused difficulties in the child's educational process. A fairly strong correlation was found between health literacy

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(Author, Year) (Country)	Purpose	Method	Results
			and the time spent per week on developing children's health competencies.
(Jatu et al., 2024) (Etiopia)	To determine the level of health literacy and its associated characteristics among adolescents attending public secondary schools in Jimma town, Oromia, Southwestern Ethiopia, 2023.	A facility-based cross-sectional study was conducted in June 2023 among 604 adolescents attending public secondary schools in Jimma Town. Multistage sampling technique was used to recruit study participants. Data were entered into epidata 4.6 and exported to SPSS version 26.0 for analysis. Bivariable and multivariable logistic regression were performed to identify factors associated with health literacy levels. A P-value of less than 0.05 at 95% CI was used to declare a statistically significant association.	The findings revealed that only 35.26% (95% CI; 31.44, 39.09) of the participants had the desired health literacy, while 64.74% of them had limited health literacy. Age 18–19 [AOR = 3.99(2.41, 6.60): p<0.001], being in grade 11–12 [AOR = 2.38(1.44, 3.95); p = 0.001], having a currently employed father [AOR = 4.20(1.98, 8.92); p<0.001] and having a currently employed mother [AOR = 4.54(2.82, 7.31); p<0.001] were factors positively associated with the desired health literacy level.
(Timsin & Wangpitipanit, 2025) (Thailand)	To improve health literacy and risk perception among Thailand pregnant women.	A single-group, pre-test-post-test quasi-experimental study of 31 pregnant women at a health promotion hospital in Thailand. The intervention was a 12-week health literacy program based on the Nutbeam prenatal care model and standards of health literacy, emphasizing cognitive, behavioral, and motivational aspects of health literacy. The program included a care booklet, risk screening manual, assessment stickers, and educational materials. Weekly interactive “4-Checks” sessions (20–45 minutes) and one-on-one counseling every four weeks were the main components. Statistical analyses, including Wilcoxon signed-rank tests, were performed using IBM SPSS Statistics version 29.0.2.0.	The health literacy program effectively improved health literacy and risk perception among Thai pregnant women (0–64 to 40–80; Z = -4.01, P < 0.001) and risk perception scores (10–50 to 33–50; Z = -3.54, P < 0.001).

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DISCUSSION

Health literacy plays a significant role in increasing the efficiency of health promotion efforts in the community (Zhang, Hong, & Zhang, 2024). Health promotion interventions that take into account the audience's health literacy level are more effective in changing health behaviors and increasing participation in health programs. This can be achieved through the use of easy-to-understand language approaches, clear visualizations, or easy-to-understand instructions. Higher levels of health literacy are directly associated with improved individual health-related decision-making, which in turn reduces the risk of chronic health problems and improves overall health management. This is an important reason why health literacy is important (Paasche-Orlow & Wolf, 2007).

Individuals with higher levels of health literacy are better able to obtain, understand, and use health care information successfully. Individuals with lower levels of health literacy tend to have limited understanding of their health conditions, as well as challenges in understanding medical instructions or health information provided by health care providers (Berkman et al., 2011). One example is the finding that over ninety million adults in the United States have low levels of health literacy. This, in turn, leads to poor health management and low adherence to recommended treatments or preventive measures (Kutner et al., 2006). This suggests that a lack of health literacy can have a significant impact on the ability to achieve better health outcomes (Schulenkorf, Krah, Dadaczynski, & Okan, 2021).

Health literacy is more than just the ability to read or write; it also includes the ability to use health information in the context of everyday life. Individuals with high levels of health literacy are better able to manage their long-term health problems, such as diabetes or hypertension, by following the instructions given by their doctor, monitoring their condition, and making decisions related to managing their condition (Sørensen, Pelikan, Röthlin, Ganahl, Slonska, Doyle, & Brand, 2015). Individuals with low levels of health literacy are more likely to take medications that are not appropriate for them, misunderstand the amount of their prescription, and have difficulty understanding warnings or instructions given by health care providers (Paasche-Orlow & Wolf, 2007).

When it comes to effective health promotion, one of the most crucial factors is adapting educational materials to the health literacy level of the audience. This study shows that visual methods, such as the use of photos, infographics, or diagrams, have the potential to improve the comprehension of health information among individuals who have difficulty understanding complex text or medical language. Through the use of visualization, humans are able to connect abstract or difficult concepts with more concrete and therefore more understandable visuals. There is a correlation between delivering information in a more understandable and readily available format and the effectiveness of health promotion initiatives (Schillinger, 2021). Heart disease prevention education programs that use clear infographics about risk factors, healthy eating habits, and exercise routines are more effective in increasing participants' understanding than programs that only use text presentations or oral lectures. These types of programs not only make it easier for the audience to understand the health information, but also make it easier for people to remember it and apply it in their daily lives.

In addition, high levels of health literacy depend not only on the dissemination of more understandable information but also on the implementation of interventions aimed at making information more accessible. The effectiveness of health promotion can be hampered by health materials that are too technical or not related to the social and cultural environment of the audience. Consequently, health promotion programs must accurately identify the population they wish to reach and adapt the educational materials used to the culture, social values, and language of the local community.

Higher levels of health literacy are directly related to higher levels of education. Therefore, health education should cover a variety of topics, such as information on disease prevention, healthy lifestyles, and how to access and utilize various accessible health services. The importance of community-based education in improving health literacy can be achieved by involving community leaders or health cadres who have an understanding of the social and cultural factors that apply in the local area. Counseling provided in the community provides individuals with the opportunity to understand and obtain health

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information in a way that is more directly related to their daily lives (Sørensen et al., 2015).

Community-based health education initiatives have been shown to be highly effective in improving community health literacy, particularly in areas with low health literacy (Ji, Dong, Pan, & Yu, 2024). This is especially true in areas where communities have little health education. In Indonesia, for example, the integrated health post program relies on local health cadres to provide counseling to housewives. This is an example of a community-based intervention that has been successful in improving community understanding of diet, vaccination, and personal hygiene. These programs have been successful in improving health literacy levels and positively influencing health behaviors by targeting individuals at the local level, using language that is easy to understand, and leveraging family involvement (Sørensen et al., 2015).

There is a tremendous opportunity to improve health literacy through the use of digital platforms such as mobile applications, websites, and social media, which have become possible as a result of the continued growth of digital technology. The use of easy-to-understand and interactive health applications can make it easier for individuals to track their health issues, remind them to take their prescribed medications, and provide easy-to-understand and straightforward information about specific diseases or medical conditions. In addition, technology has the potential to be a very useful instrument to reach a wider audience, including individuals who have limited access to conventional health facilities or medical information. On the other hand, this requires that the applications or platforms used are easily accessible to people with varying levels of technological and health literacy (Kutner et al., 2006).

Health literacy is an essential factor in determining the success of health promotion policies (Buki, Johnson, Knight, & Walton, 2024). It has been demonstrated that efforts to increase health literacy using more accessible methods, such as using straightforward language, visualisation, or instructions that are easy to understand, are very effective in modifying individuals' health habits and raising their level of engagement in the management of their own health (Jatu et al., 2024). Health promotion that takes into account the amount of health literacy that individuals possess and that modifies materials to meet the social and cultural context of the community would have a greater impact (Mancone, Corrado, Tosti, Spica, & Diotaiuti, 2024). Increasing health literacy through formal and non-formal education, as well as making use of digital technology, should be an essential component of any health promotion program that aims to be successful in enhancing the overall quality of people's health (Timsin & Wangpitipanit, 2025)

CONCLUSION

Health promotion programs tailored to an individual's health literacy level have been shown to be more effective in increasing community understanding and encouraging behavior changes that support long-term well-being. This can be achieved through the use of local language, effective use of visualizations, or clearer instructions. Individuals with high levels of health literacy are better able to understand complex health information, gain access to essential health services, and make more informed choices about managing their own health.

SUGGESTION

One of the most effective ways to increase awareness and encourage active participation in health care is through the implementation of community-based health education programs that engage families and the wider community. In addition, for health promotion initiatives to be effective, it is important to consider the varying levels of health literacy that exist across communities. Individuals with limited health literacy may have an easier time understanding messages delivered in a straightforward manner, with easy-to-understand directions, and with visual-focused teaching resources. In addition, the use of digital technologies, such as mobile health apps or other interactive platforms, has the potential to expand the reach of health education to more individuals. It is important to encourage collaboration between international health organizations, educational institutions, governments, and civil society to improve global health literacy. Additional research is needed to determine the most effective strategies or approaches that can be used to address health literacy gaps across communities, especially in areas with low health literacy.

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