

Adolescent Health Literacy in Thailand: a Narrative Review of Competencies, Associated Factors, and Intervention Approaches

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Abstract

Evidence on adolescent health literacy in Thailand is dispersed across health topics, populations, and measurement instruments. To synthesize reported competency patterns, associated factors and contextual conditions, and the approaches and outcomes of interventions among Thai adolescents. This narrative review used a targeted search of ThaiJO, PubMed, Google Scholar, and institutional repositories conducted from February to July 2025. Thai- and English-language studies published in 2016–2025 concerning adolescents aged 10–19 years were synthesized across general, oral, and sexual health domains. General health literacy was commonly described as moderate, but scores from different instruments were not directly comparable. Access and comprehension were more consistently evident than appraisal, communication, decision-making, and sustained application. Individual characteristics and family, school, information, and service environments were associated with literacy or related behaviors in specific settings. School-based, online, and skills-oriented interventions reported improvements in selected competencies, self-efficacy, behaviors, or health measures; differences in design, outcomes, and follow-up limit comparison. Programs should combine transferable literacy skills with topic-specific content and support. Current evidence does not establish a superior delivery mode, long-term effectiveness, or transfer of skills across health domains; stronger comparative and longitudinal evaluations are needed.

Keywords: adolescent health literacy; health information; health behavior; health promotion; Thailand

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Introduction

Adolescence is a formative stage during which individuals develop greater autonomy over health-related choices while encountering increasingly complex information from families, schools, peers, health services, and digital media. Health literacy the capacity to access, understand, appraise, and apply health information is therefore fundamental to informed decision-making and health promotion.⁽¹⁾ In Thailand, the Ministry of Public Health has identified health literacy as a national priority and has operationalized it through six interrelated competencies: access, understanding, appraisal, application, communication, and media literacy.^(2,3) The V-Shape Model similarly links these competencies with decision-making and self-management in health-promotion programs.^(4,5) Together, these frameworks position adolescent health literacy as a transferable set of abilities rather than knowledge about a single disease or health topic.

This broad perspective is particularly relevant because adolescents must make decisions across multiple, often interconnected areas, including nutrition, physical activity, mental health, substance use, tobacco and alcohol, hygiene, oral health, sexual health, injury prevention, and appropriate use of health services. The 2021 Global School-based Student Health Survey illustrates the coexistence of several health risks among Thai students aged 13–17 years: 28.2% reported current alcohol use, 14.4% current use of a tobacco product, 6.9% lifetime marijuana use, and 3.9% lifetime amphetamine or methamphetamine use; only 10.6% were physically active for at least 60 minutes on all seven days, whereas 18.9%

were overweight and 64.3% reported at least three hours of sedentary leisure time per day.⁽⁶⁾

These indicators do not establish inadequate health literacy, but they demonstrate the range of situations in which adolescents must locate credible information, assess risks, communicate with others, and translate knowledge into action.

Available Thai studies generally indicate moderate overall health literacy and recurring limitations in higher-order competencies such as critical appraisal, communication, decision-making, and sustained self-management.^(7–10)

Research conducted within particular topics including mental, oral, and sexual health also suggests that the application of health information is shaped by topic-specific demands, family communication, school support, service accessibility, socioeconomic conditions, and the credibility of digital information.^(11–25) However, the evidence is dispersed across health topics, study populations, measurement instruments, and intervention approaches. This fragmentation makes it difficult to distinguish transferable health-literacy competencies from contextual barriers and supports, or to determine which approaches may strengthen adolescents' ability to make informed health decisions across situations. A general synthesis is therefore needed to integrate the available evidence without assigning priority to any single health domain.

This review aims to synthesize the available evidence on health literacy among adolescents in Thailand across the health domains represented in the literature. Specifically, it seeks to characterize reported levels and competency patterns; identify individual, family, school, social, digital, and health-service factors associated with health literacy, including barriers and enabling

conditions; summarize the approaches and reported outcomes of relevant interventions; and derive implications for future research, health education, public health practice, and policy. Data sources were collected from studies conducted in Thailand, published between 2016–2025 using ThaiJo, PubMed, Google Scholar, and institutional repositories.

Reported levels and patterns of health-literacy competencies

Across the Thai studies, general health literacy was usually described as moderate, although the studies used different instruments and cutoffs and their scores should not be treated as directly comparable.^(7–9) The most consistent pattern was uneven performance across competencies: access to and understanding of health information were more evident than critical appraisal, communication, decision-making, and self-management.^(7,8) Among secondary-school students in Samut Songkhram, more than half had good COVID-19 health literacy, yet fewer than half consistently practiced preventive behaviors; literacy and behavior were positively correlated ($r=0.656$, $p<0.001$).⁽²⁶⁾ This association illustrates that a favorable literacy score does not ensure routine application.

The topic-specific findings show how that pattern appears in different settings. A rural junior-high-school study reported moderate oral health literacy in 70.9% of participants, alongside moderate caries-prevention behavior.⁽¹²⁾ Another study found a positive association between oral health literacy and self-care behavior ($r=0.584$, $p<0.05$).⁽²¹⁾ In sexual health, only 4.11% of female vocational students in one study had high

pregnancy-prevention health literacy, while more than half had inadequate literacy⁽¹³⁾; a separate secondary-school study reported low literacy in 53.6% of participants.⁽²⁵⁾ Mental-health research identified limitations in recognizing early symptoms and offering appropriate support to peers.⁽¹⁸⁾ These estimates describe distinct populations and measures; they do not establish that one health domain has a lower national prevalence of literacy than another.

Across domains, the reviewed studies repeatedly described difficulty moving from information to action. Oral-health studies reported gaps in daily hygiene and prevention practices,^(12,21,23) while sexual-health studies identified uncertainty about risk appraisal and practical decision-making even where basic prevention messages were known.^(14,15,25) The evidences therefore point to an uneven competency profile rather than a single, comparable level of health literacy across all Thai adolescents.

Associated factors, barriers, and enabling conditions

Individual and educational characteristics were associated with literacy in the reviewed studies. Age or grade level, academic achievement, motivation, health beliefs, and self-efficacy were reported as relevant to information seeking or the use of health information.^(7,8,10,16) The direction and strength of associations cannot be combined across studies because populations, measures, and analytic approaches differed. Most of these findings are observational and do not identify causes.

Family, school, and service settings shaped opportunities to apply literacy skills. Among rural junior-high-school students, living with parents and access to school dental services were associated with caries-prevention behavior⁽¹²⁾; family routines and access to dental care were also relevant to oral self-care in other school settings.^(21,23) School-based learning offered opportunities to practice information management and decision-making.⁽²⁰⁾ For sexual health, the evidence identified the availability of trusted information, communication with relatives or parents, and the ability to discuss sensitive topics as salient contextual conditions.^(15,17,25) These findings concern specific settings and should not be read as evidence that a particular family arrangement or school service independently causes better literacy.

Barriers also differed by health topic. Across studies, limited appraisal of information sources and difficulty applying knowledge in real situations were recurring concerns.^(7,8,14,15) Oral-health practices depended on repeated daily routines and practical access to dental services.^(12,21,23) Sexual-health decisions additionally involved privacy, social sensitivity, and access to credible, nonjudgmental guidance.^(15,17,25) Digital media provided a channel for information and learning, but access to content alone did not establish the credibility or usability of that information.^(15,19) Thus, shared literacy competencies operated under different social and service conditions.

Intervention approaches and reported outcomes

The intervention evidence covered school-based instruction, online learning, and

skills-oriented activities; studies measured different outcomes and did not provide a common basis for estimating an overall effect. A school-based health-literacy model reported gains in information management, decision-making, media appraisal, and self-management.⁽²⁰⁾ In oral health, a structured education program improved functional literacy more clearly than communicative or critical literacy.⁽²²⁾ An online oral-health learning model reported improvement across six measured literacy components and plaque-related outcomes.⁽⁵⁾ These studies suggest that the competencies measured and the opportunities to practice them matter when interpreting an intervention's reported result.

An eight-week online mental-health-literacy program was associated with lower depression scores among high-school students.⁽¹⁹⁾ A sexual-health skills-training program reported improved perceived self-efficacy for safer sexual behavior.⁽¹⁶⁾ The reviewed interventions therefore reported changes in selected literacy components, self-efficacy, behaviors, or health measures, rather than a uniform outcome. Variation in designs, comparison conditions, instruments, and follow-up periods limits conclusions about the durability of benefit or the relative effectiveness of school, digital, and participatory delivery.

Cross-domain synthesis relevant to practice and policy

The three domains share a need to access, understand, appraise, communicate, and use health information, but applying these skills requires different support. Oral-health findings emphasize reinforcement of daily routines and access to preventive dental services.^(12,21,23)

Sexual-health findings emphasize credible and confidential information, sensitive communication, and opportunities to practice decisions.^(15–17,25) General and mental-health findings point to information appraisal, symptom recognition, and appropriate help-seeking or peer support.^(18–20,26) This synthesis identifies transferable competencies and topic-specific conditions that programs can address; it has not been tested as a causal framework.

The reviewed programs provide examples of school, online, and skills-based approaches that can inform program design.^(5,16,19,20,22) They do not establish which approach should be adopted nationally or whether improvements transfer between health domains. For education and public health practice, the evidence identifies a rationale for combining competency practice with accessible, credible information and connections to appropriate services. These are implications drawn from the synthesis, rather than measured policy effects.

Discussion

The principal finding is an uneven pattern of adolescent health-literacy competencies across the Thai studies: access to and understanding of information were more consistently evident than appraisal, communication, decision-making, and sustained application.^(7,8,12–15,21,25,26) This pattern is compatible with the distinction between functional, interactive, and critical health literacy.⁽²⁾ It also helps explain why moderate overall scores can coexist with inconsistent preventive behavior, as illustrated by the association between COVID-19 health literacy and prevention practices⁽²⁶⁾ and by the oral-health literacy–self-care association.⁽²¹⁾

Neither correlation establishes that increasing literacy alone will change behavior. Because the studies used different populations, measures, and cutoffs, their percentages cannot be pooled or ranked to compare national literacy levels across health topics.

The associated factors further suggest that literacy is exercised within a social and service context. Age or grade level, academic achievement, motivation, health beliefs, and self-efficacy were reported in relation to literacy or its use^(7,8,10,16), while family support, school learning opportunities, and access to dental or other health services were relevant in specific settings.^(12,15,17,20,21,23,25) The role of context varies by topic: oral self-care requires repeated routines and accessible preventive care, whereas sexual-health decisions also depend on privacy, trusted communication, and credible guidance.^(12,15,17,21,23,25) These are associations or qualitative contextual findings, not established causal determinants. They nonetheless make a purely information-based account of adolescent health literacy incomplete.

The intervention findings are consistent with this interpretation but remain heterogeneous. School programs reported gains in selected information-management, appraisal, decision-making, or functional oral-literacy measures^(20,22); online programs reported improvements in measured oral-health competencies and plaque-related outcomes or lower depression scores^(5,19); and sexual-health skills training reported higher perceived self-efficacy.⁽¹⁶⁾ These outcomes differ in both meaning and clinical relevance. Improved self-efficacy or literacy does not by itself demonstrate sustained safer behavior, and a change in depression scores cannot be attributed specifically to

improved literacy without attention to study design and mediating mechanisms. The evidence therefore supports further evaluation of active, skills-oriented learning, but does not identify a superior delivery mode or establish long-term benefit.

For practice, a reasonable response to the observed competency-to-action gap is to teach adolescents how to check sources, discuss uncertainty, communicate with trusted people, and rehearse decisions, alongside topic-specific content. Schools offer opportunities for repeated practice; family support and links to adolescent-responsive health services can help students use those skills outside the classroom.^(12,15-17,20-23,25) The Thai health-literacy competencies and V-Shape-related approaches provide locally relevant organizing concepts.^(3-5,20) Their application should be adapted to adolescents' developmental needs and evaluated with outcomes appropriate to each topic. In particular, confidential and nonjudgmental access matters for sexual health, while oral-health programs must address daily routines and access to dental care.

For policy, the cross-domain synthesis offers a rationale for coordination between education and health services, credible digital information, teacher preparation, and referral pathways. These are evidence-informed design implications rather than effects directly tested by the reviewed studies. Digital delivery may broaden opportunities for learning, but the included programs do not show that it is more effective or equitable than in-person teaching.^(5,19) Evaluation should therefore examine access, privacy, engagement, behavior, and health outcomes across different adolescent groups, as well as unintended effects.

This review has several limitations. Its targeted narrative search may have missed relevant Thai studies, and the included evidence was unevenly distributed across health topics, geographic settings, and school populations. Definitions, instruments, thresholds, and outcomes varied, preventing quantitative comparison across domains. Much of the evidence was cross-sectional or based on self-report; intervention designs, comparison conditions, and follow-up periods also differed. The proposed cross-domain interpretation is consequently a hypothesis for program design rather than a validated causal model. Future studies should specify the literacy competencies and mechanisms being tested, use developmentally appropriate measures and diverse samples, include suitable comparison groups, and follow behavioral and health outcomes long enough to assess maintenance and equity. They should also test whether skills learned in one health domain transfer to another.

Conclusion

Current evidence portrays adolescent health literacy in Thailand as a broad, context-dependent capacity rather than knowledge about isolated health topics. Adolescents generally appear more proficient in accessing and understanding information than in appraising its credibility, communicating, making decisions, managing behavior, and sustaining action. Addressing this gap requires competency-based learning supported by families, schools, credible digital environments, and adolescent-responsive health services. School-based, digital, participatory, and family-supported approaches are promising,

but available studies do not yet establish which approaches are most effective, sustainable, or equitable. A coordinated national approach should therefore combine transferable health-literacy competencies with context-appropriate

content and support, while future research uses stronger designs and standardized outcomes to determine whether improved health literacy leads to lasting behavioral and health benefits.

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ความรอบรู้ด้านสุขภาพของวัยรุ่นในประเทศไทย: การทบทวนวรรณกรรมแบบบรรยายเกี่ยวกับสมรรถนะ ปัจจัยที่เกี่ยวข้อง และแนวทางการแทรกแซง

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บทคัดย่อ

หลักฐานเกี่ยวกับความรอบรู้ด้านสุขภาพของวัยรุ่นในประเทศไทยกระจัดกระจายตามประเด็นสุขภาพ กลุ่มประชากร และเครื่องมือวัด การทบทวนวรรณกรรมนี้มีวัตถุประสงค์เพื่อสังเคราะห์รูปแบบสมรรถนะที่รายงาน ปัจจัยที่เกี่ยวข้องและเงื่อนไขตามบริบท ตลอดจนแนวทางและผลลัพธ์ของการแทรกแซงในวัยรุ่นไทย โดยสืบค้นข้อมูลแบบมุ่งเป้าจาก ThaiJO, PubMed, Google Scholar และคลังผลงานของสถาบัน ระหว่างเดือนกุมภาพันธ์ถึงกรกฎาคม พ.ศ. 2568 และสังเคราะห์งานวิจัยภาษาไทยและภาษาอังกฤษที่เผยแพร่ระหว่าง พ.ศ. 2559–2568 เกี่ยวกับวัยรุ่นอายุ 10–19 ปี ครอบคลุมด้านสุขภาพทั่วไป สุขภาพช่องปาก และสุขภาพทางเพศ งานวิจัยมักรายงานว่า ความรอบรู้ด้านสุขภาพทั่วไปอยู่ในระดับปานกลาง แต่คะแนนจากเครื่องมือวัดที่แตกต่างกันไม่สามารถนำมาเปรียบเทียบโดยตรงได้ ความสามารถในการเข้าถึงและทำความเข้าใจข้อมูลปรากฏชัดเจนกว่าความสามารถในการประเมินข้อมูล การสื่อสาร การตัดสินใจ และการนำข้อมูลไปใช้อย่างต่อเนื่อง ลักษณะส่วนบุคคล ตลอดจนสภาพแวดล้อมด้านครอบครัว โรงเรียน ข้อมูลข่าวสาร และบริการสุขภาพมีความสัมพันธ์กับความรอบรู้ด้านสุขภาพหรือพฤติกรรมที่เกี่ยวข้องในบริบทเฉพาะ การแทรกแซงในโรงเรียน ทางออนไลน์ และที่เน้นการฝึกทักษะรายงานผลดีต่อสมรรถนะ การรับรู้ความสามารถของตนเอง พฤติกรรม หรือผลลัพธ์ด้านสุขภาพ บางประการ อย่างไรก็ตาม ความแตกต่างของรูปแบบการศึกษา ผลลัพธ์ที่วัด และระยะเวลาติดตามผลจำกัดการเปรียบเทียบระหว่างการแทรกแซง การส่งเสริมความรอบรู้ด้านสุขภาพควรผสมผสานทักษะที่ประยุกต์ใช้ได้หลายประเด็นสุขภาพเข้ากับเนื้อหาและการสนับสนุนที่เหมาะสมกับแต่ละประเด็น หลักฐานปัจจุบันยังไม่สามารถระบุได้ว่าแนวทางการจัดกิจกรรมรูปแบบใดเหนือกว่า มีประสิทธิผลในระยะยาว หรือทำให้ทักษะที่พัฒนาในประเด็นสุขภาพหนึ่งนำไปใช้กับอีกประเด็นหนึ่งได้ จึงจำเป็นต้องมีการประเมินเชิงเปรียบเทียบและการศึกษาติดตามระยะยาวที่เข้มแข็งยิ่งขึ้น

คำสำคัญ: ความรอบรู้ด้านสุขภาพวัยรุ่น; ข้อมูลสุขภาพ; พฤติกรรมสุขภาพ; การส่งเสริมสุขภาพ; ประเทศไทย