

Demand Preferences and Cognitive Barriers in Adolescent Health Science Communication: A Medical Student Survey

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Abstract: *Objective:* To analyze demand preferences and cognitive barriers in adolescent health science communication using survey data from medical students and to offer empirical evidence for refining delivery strategies. *Methods:* In March 2026, the study conducted a cross-sectional online survey of 390 first-year undergraduates at a Chinese medical college using convenience sampling. The questionnaire captured topic-specific demands, preferred formats and channels, session duration preferences, perceived supply gaps, and underserved populations. Data were analyzed with SPSS 26.0 using descriptive statistics, Pearson correlation, and multiple linear regression. *Results:* (1) The top three demanded topics were nutrition and dietary management (80.51%), mental health (65.90%), and sleep health (60.51%). (2) Short videos (94.36%) were the preferred medium; real-case narratives (62.31%) were rated most memorable, with 77.13% preferring sessions under 10 minutes. (3) Females reported higher coverage than males across most topics, with gaps exceeding 19 percentage points for obesity, sleep, and spinal health. (4) Self-rated health positively predicted active learning frequency ($B=0.27$, $P<0.001$), which in turn negatively predicted preferred session duration ($B=-0.13$, $P=0.019$). (5) Rural adolescents (79.74%) and left-behind children (75.38%) were identified as the most underserved. *Conclusion:* Adolescent health communication demands now cover both physical and mental health. One cognitive barrier persists, however: poorer self-rated health is linked to weaker learning motivation. Delivery strategies should therefore move from passive dissemination to proactive outreach, using narrative-driven short videos as a core tool, tailoring content to learning behavior, and extending coverage to rural and left-behind adolescents.

Keywords: Health science communication; Demand preferences; Cognitive barriers; Adolescents; Questionnaire survey

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1. Introduction

Adolescence is a key period for physical and psychological development and for establishing health behaviors that often persist into adulthood. Adolescent health therefore matters not only for individuals but

also for the Healthy China initiative. In China, adolescent health problems are becoming more numerous and starting earlier: the myopia rate among children and adolescents has stayed high, and its prevention and control has become a national strategic priority; the detection rate of spinal curvature abnormalities in primary and secondary school students is 4.2% to 6.0%; and more than 30% of adolescents have experienced emotional or psychological distress of varying severity ^[1-3]. These overlapping burdens call for integrated, accessible health communication strategies aimed at this population.

Health science communication is an upstream intervention that puts the “prevention-first” principle into practice, and it has become a main route for improving adolescent lifestyles and reducing health risks. Existing studies have covered mental health, scoliosis, myopia prevention, and reproductive health during adolescence ^[1, 3-5]. New media platforms, especially short videos, have become primary communication channels because they are concise and engaging; VR exhibitions, hands-on training, and gamified science content have also been explored ^[6-7]. Still, a gap remains between what current programs offer and what adolescents actually need. Most programs use uniform lecture-based formats without tiering content to cognitive developmental stage, which lowers adolescents’ active participation; adolescents also tend to avoid sensitive health topics, and fragmented pseudo-scientific information on social media worsens cognitive distortions ^[8-9]. A one-way didactic model cannot deliver the full sequence of knowledge input, behavioral reinforcement, and habit formation, which limits its overall impact ^[10-11].

A review of the literature points to several research gaps. First, most empirical studies have focused on isolated topics, and little work has integrated the full range of adolescent communication needs. Second, the mechanisms behind cognitive barriers to health engagement are not well understood. Third, proposed solutions often stay at the level of broad policy advocacy and lack empirical grounding in survey-based primary data; in particular, evidence from medical students, who are a potential core workforce for health communication, is scarce ^[12-13]. Medical students occupy a dual position: they are in middle-to-late adolescence themselves, so they know adolescent audiences from the inside; at the same time, their preclinical training gives them a basic health knowledge base from which to judge whether communication content is appropriate.

Against this background, the present study draws on the medical field to examine preference profiles and cognitive barriers in adolescent health communication through questionnaire surveys and in-depth interviews with medical students. It aims to build a precision delivery model and an analytical framework that covers demand identification, cognitive intervention, and supply adaptation. The ultimate goal is to provide local empirical evidence for a collaborative communication system involving families, schools, communities, and healthcare institutions.

2. Subjects and methods

2.1. Study design

This study used a cross-sectional questionnaire design to analyze demand preferences, content interests, access channels, and cognitive barriers in adolescent health communication among medical students, and to provide empirical evidence for a precision communication delivery model. The study followed the ethical principles of the Declaration of Helsinki, and all participants took part voluntarily.

2.2. Study participants

The survey targeted first-year undergraduate students enrolled in selected majors at a medical college. Participants were recruited via convenience sampling, and questionnaires were administered through an online platform. Inclusion criteria were: (1) current enrollment in a medical college, and (2) voluntary participation with completion of all questionnaire items. Exclusion criteria were an excessively short completion time (<60 seconds) or evidently patterned response behavior. A total of 390 valid questionnaires were retrieved.

2.3. Research instrument

A self-administered questionnaire, the Questionnaire on Adolescent Health Communication Needs, was developed for this study. Its design was informed by a review of the literature and by similar instruments used in China and abroad, with modifications for medical student respondents. The questionnaire consisted of 13 items covering the following domains: demographic characteristics, self-rated health and learning behaviors, needs across 14 health communication topics, preferred formats and access channels, expected session duration and preferred time slots, perceived supply inadequacies, identification of underserved populations, and open-ended suggestions. Item formats included single-choice, multiple-choice, and fill-in-the-blank questions.

2.4. Survey administration

The questionnaire was distributed via the Wenjuanxing platform to class-based group chats and campus social networks. The first page included an informed consent statement that explicitly clarified the anonymous nature of the survey, its academic purpose, and participants' right to withdraw at any time. System-level measures included IP-based restrictions and mandatory-response logic to prevent duplicate submissions and minimize missing data.

2.5. Statistical analysis

Data were analyzed using SPSS version 26.0. Categorical variables were summarized as frequencies and constituent ratios (%). For multiple-response items, both the endorsement rate (number of respondents endorsing a given option / total respondents) and the response rate (frequency of endorsements for a given option / total frequency of endorsements across all options) were reported. Gender differences were expressed as rate differences derived from stratified descriptive comparisons.

Inferential analyses consisted of: (1) Pearson correlation analysis to examine bivariate associations among three core variables—self-rated health, active learning frequency, and expected session duration; and (2) multiple linear regression using the enter method, with Model 1 specifying active learning frequency as the dependent variable and self-rated health and gender as independent variables, and Model 2 specifying expected session duration as the dependent variable and active learning frequency and self-rated health as independent variables. Multicollinearity was assessed using the variance inflation factor (VIF); a two-sided *P*-value of <0.05 was considered statistically significant.

3. Results

3.1. Baseline characteristics of respondents

A total of 390 valid questionnaires were included in the analysis, comprising 133 males (34.1%) and 257

females (65.9%). The majority of participants ($n=379$, 97.18%) were aged >18 years, while 11 (2.82%) were aged 15–17 years. Self-rated health status was distributed as follows: “very good” in 97 (24.87%), “relatively good” in 192 (49.23%), “fair” in 96 (24.62%), and “relatively poor” in 5 (1.28%). Regarding active learning frequency, 195 respondents (50.00%) reported “occasional browsing,” 108 (27.69%) reported “1–2 times per month,” 75 (19.23%) reported “multiple times per week,” and 12 (3.08%) reported “almost no engagement.”

3.2. Ranking of health communication topic demands

Among the 14 predefined topics (Table 1), nutrition and dietary management ($n=314$, 80.51%) and mental health ($n=257$, 65.90%) ranked first and second, respectively. Sleep health ($n=236$, 60.51%), eye health ($n=207$, 53.08%), and obesity ($n=205$, 52.56%) occupied the third through fifth positions. The three least endorsed topics were basic human organ structure ($n=115$, 29.49%), sports injury prevention ($n=137$, 35.13%), and sex education ($n=139$, 35.64%). The ranking by response rate paralleled that by endorsement rate.

Table 1. Ranking of health communication topic demands (N=390, multiple-response)

Rank	Topic	Endorsement rate (%)
1	Nutrition and dietary management	80.51
2	Mental health	65.90
3	Sleep health	60.51
4	Eye health	53.08
5	Obesity	52.56
6~14	Remaining 9 topics	29.49~43.08

Note: The nine remaining topics comprise growth and height concerns, oral health, infectious disease prevention, pubertal physiological changes, spinal health and postural issues, first aid skills, sex education and self-protection, sports and injury prevention knowledge, and basic structure and function of human organs.

3.3. Preferences for format, channel, and timing

Short videos and animations ($n=368$, 94.36%) were the most preferred format, followed by illustrated comics ($n=218$, 55.90%) and VR-based experiences ($n=151$, 38.72%). Real-life case narratives ($n=243$, 62.31%) were rated as the most memorable format. Social media ($n=343$, 87.95%) and school-based curricula ($n=275$, 70.51%) constituted the primary access channels.

Regarding session duration, 5-10 minutes was most favored ($n=172$, 44.10%), followed by <5 minutes ($n=121$, 31.03%); only 24 respondents (6.15%) indicated acceptance of sessions exceeding 20 minutes. In terms of timing, fragmented time slots ($n=190$, 48.72%) and topic-dependent flexible scheduling ($n=97$, 24.87%) were the dominant preferences.

3.4. Perceived deficiencies and identification of underserved populations

Regarding major deficiencies in current health communication, “conflicting and overly complex information” ranked first by endorsement rate ($n=233$, 59.74%), followed by “content being overly specialized and difficult to comprehend” ($n=196$, 50.26%) and “monotonous and unengaging formats” ($n=172$, 44.10%). By response rate, conflicting/complex information similarly ranked highest (19.81%), with overly specialized

content (16.67%) and monotonous formats (14.63%) also among the top contributors. “Questionable authenticity of information” (endorsement rate 40.77%; response rate 13.52%) and “lack of interactivity” (37.18%; 12.33%) were also frequently endorsed.

In identifying underserved populations, rural adolescents (endorsement rate 79.74%; response rate 27.28%) and left-behind children (75.38%; 25.79%) ranked first and second, while students under high academic pressure (66.67%; 22.81%) and adolescents with disabilities (60.51%; 20.70%) were also cited by over 60% of respondents. Together, these results point to three main blind spots in current outreach: geographic resource scarcity, weak family support, and academic pressure.

3.5. Gender differences and marginalized group identification

Gender-stratified comparisons (Table 2) showed that females had higher endorsement rates than males on most topics. The five largest gender gaps were for obesity (+21.57 percentage points), sleep health (+21.08), spinal health (+19.23), oral health (+18.20), and eye health (+14.37). Males showed only a small advantage in sports injury prevention (+1.46), and endorsement rates for organ structure were similar between genders.

Table 2. Top five communication topics with the largest gender gaps

Topic	Female (%)	Male (%)	Gap (Percentage points)
Obesity	59.92	38.35	+21.57
Sleep health	67.70	46.62	+21.08
Spinal health	46.30	27.07	+19.23
Oral health	49.03	30.83	+18.20
Eye health	57.98	43.61	+14.37

3.6. Regression analysis of factors influencing health communication behaviors

Pearson correlation analysis (Table 3) revealed that self-rated health was positively correlated with active learning frequency ($r = 0.25$, $P < 0.001$), while active learning frequency was negatively correlated with preferred session duration ($r = -0.14$, $P < 0.01$).

Multiple linear regression with active learning frequency as the dependent variable and self-rated health and gender as independent variables (enter method) yielded a statistically significant model ($F=12.973$, $P<0.001$, adjusted $R^2=0.058$). Self-rated health emerged as a significant positive predictor ($B=0.27$, $P<0.001$), whereas gender did not ($P=0.398$).

In a separate model with preferred session duration as the dependent variable and active learning frequency and self-rated health as independent variables, the model was also significant ($F=4.448$, $P=0.012$, adjusted $R^2=0.017$). Active learning frequency significantly and negatively predicted preferred session duration ($B= -0.13$, $P=0.019$), while self-rated health did not ($P= 0.229$).

Table 3. Multiple linear regression analysis of factors influencing communication behaviors

Dependent variable	Independent variable	Unstandardized coefficient B	Standardized coefficient β	t value	P value
Active learning frequency	Self-rated health	0.27	0.25	4.95	<0.001
	Gender	0.07	0.04	0.85	0.398
Preferred session duration	Active learning frequency	-0.13	-0.12	-2.35	0.019
	Self-rated health	-0.07	-0.06	-1.21	0.229

Note: Model 1 (active learning frequency): adjusted $R^2=0.058$, $F(2, 387)=12.973$, $P<0.001$; Model 2 (preferred session duration): adjusted $R^2=0.017$, $F(2, 387)=4.448$, $P=0.012$. Variance inflation factors were all below 1.1, indicating no substantial multicollinearity.

3.7. Qualitative feedback from open-ended responses

The open-ended item (Question 13) soliciting suggestions for communication improvement yielded 259 valid substantive responses (66.41% of the total sample). These were coded into eight thematic categories. The three most frequently mentioned themes were: use of plain and accessible language (≈ 60 responses), enhancing interest and engagement (≈ 40 -45 responses), and diversifying presentation formats (≈ 30 -35 responses). Additional themes included provision of real-life case examples, opportunities for interactive participation, broader dissemination coverage, targeted content for specific subgroups, and improved information integration and categorization.

4. Discussion

4.1. Summary of key findings

Based on survey data from 390 medical students, this study used descriptive statistics and multiple linear regression to examine demand preferences, cognitive barriers, and their influencing factors in adolescent health communication. The main findings are: (1) communication demands showed a “holistic physical-mental” pattern, with nutrition and dietary management (80.51%), mental health (65.90%), and sleep health (60.51%) ranking as the top three topics; (2) short videos (94.36%) and real-life case narratives (62.31%) were the most preferred and the most memorable formats, respectively, and fragmented time slots (48.72%) were the primary access period; (3) female respondents had higher endorsement rates than males for obesity, sleep health, and spinal health, with gender gaps all above 19 percentage points; (4) rural adolescents (79.74%) and left-behind children (75.38%) were seen as the most underserved populations; and (5) regression analysis showed that self-rated health positively predicted active learning frequency ($B=0.27$, $P<0.001$), which in turn negatively predicted preferred session duration ($B=-0.13$, $P=0.019$), indicating that poorer self-rated health goes with weaker learning motivation.

4.2. Demand patterns: The transition from “somatic disease prevention” to “holistic physical-mental health”

In the data, nutrition and dietary management, mental health, and sleep health ranked as the top three demanded topics, with endorsement rates of 80.51%, 65.90%, and 60.51%, respectively. The fact that mental health and lifestyle management outranked traditional disease-oriented topics suggests that adolescents’ health perceptions are shifting from “disease prevention” to “holistic physical-mental well-being.”

Two factors help explain this shift. First, the Report on the Development of Mental Health among Chinese Nationals (2021–2022) reported a depression detection rate of 14.8% among adolescents; the high prevalence of psychological morbidity has pushed communication resources toward mental health^[14]. Second, medical students have been exposed to preclinical curricula and have begun to think within the biopsychosocial medical model; their sensitivity to the link between physical and mental health may be higher than that of the general adolescent population, which could raise the priority they give to mental health topics. Because medical students also judge health topics with more professional knowledge, their ranking may be more forward-looking than the general population's. If even medical students place mental health among their top concerns, communication for the broader adolescent population should move from a somatic-centered to a holistic physical-mental orientation.

The low ranking of sex education and self-protection (35.64%) may reflect the long-standing absence of comprehensive sex education during adolescence in China, which has made the topic culturally taboo; even when the need exists, stigma makes it hard to express. The low ranking of basic structure and function of human organs (29.49%) suggests that adolescents already learn basic anatomy in school; communication should therefore go beyond basic knowledge and move toward lifestyle interventions and behavioral skill development.

4.3. Core mechanism of the cognitive barrier: the “poorer self-rated health, weaker motivation” paradox

One core finding is that self-rated health positively and significantly predicted active learning frequency ($B=0.27$, $P<0.001$): each one-level increase in self-rated health corresponded to a 0.27-unit increase in active learning frequency. Among respondents rating their health as “very good,” 36.08% engaged in multiple weekly learning sessions, versus 14.58% among those rating their health as “fair”; conversely, 9.38% of “fair” raters said they “almost never paid attention,” versus 1.03% of “very good” raters. This pattern points to a cognitive barrier: adolescents with poorer self-rated health are less motivated to seek health information actively.

The Health Belief Model (HBM) offers one way to interpret this paradox^[15]. The model holds that health-related action depends on perceived threat and perceived severity. Adolescents with poorer self-rated health would, in theory, perceive more threat; the data show that they are in fact the least active learners. Two psychological mechanisms may explain the contradiction. First, avoidant coping: when people see their health as poor but regard the problem as intractable or the cost of change as too high, they may avoid information as a defense against the anxiety of cognitive dissonance^[16]. Evidence from chronic disease and mental health settings supports this mechanism^[17]. Second, a bidirectional cycle between health literacy and self-rated health: people with limited health literacy struggle to appraise their own health accurately and also lack the skills and motivation to seek health information, which perpetuates a cycle of low literacy → inaccurate self-appraisal → weaker learning motivation → further eroded literacy^[18].

This finding has practical implications. Traditional strategies assume that people with health concerns will look for solutions on their own; the results show that those who need health interventions most are the least likely to engage with available content. Delivery therefore has to go beyond the passive model of building platforms and publishing content, and actively reach populations with low health literacy. Mandatory or high-reach channels such as school-based curriculum integration, routine school entry health screenings, and parent-teacher meetings can serve this targeting.

4.4. The inverted duration preference and its implications for communication delivery

Active learning frequency negatively predicted preferred session duration ($B=-0.13$, $P=0.019$): “high-frequency users” preferred shorter sessions, while low-frequency learners tolerated longer ones. The inverted pattern reflects different information-seeking behavior across motivation levels. High-frequency learners are used to picking up information quickly in fragmented time windows and have little tolerance for long or wordy content. Low-frequency learners, without established information-seeking habits, have not formed clear duration expectations.

This finding goes against the intuitive assumption that high-frequency learners want in-depth, long-form content. All user segments, regardless of learning frequency, preferred brief sessions: 77.13% of respondents chose a preferred duration of ≤ 10 minutes. Tiered design should therefore vary content density and cognitive depth rather than duration. For high-frequency learners, short-form content should be information-dense and conceptually rigorous (for example, a 3-minute animation that explains a mechanistic pathway); for low-frequency learners, it should focus on engaging entry points and behavioral prompts (for example, a 1-minute real-life case narrative).

Self-rated health did not significantly predict preferred duration ($P=0.229$), which suggests that duration preferences depend more on information-seeking habits than on health status. This supports stratifying delivery by learning behavior profiles rather than by health risk level.

4.5. Format preferences: narrative primacy over technological novelty

Asked which format they found most memorable, respondents chose real-life case narratives (62.31%), far ahead of 3D stereoscopic displays (14.87%) and experimental demonstrations (8.46%); plain text descriptions received only 1.79% of endorsements. This pattern matches the open-ended feedback, where “incorporating real-life cases” was mentioned in about 20–25 responses. VR-based experiences reached a 38.72% endorsement rate as a “preferred format,” but on memorability (14.87%) they trailed case-based narratives by a wide margin.

Narrative Transportation Theory in communication studies holds that when audiences become absorbed in a story, the story’s internal logic engages their cognitive resources, lowers resistance to persuasive messages, and enables an educational-entertainment (“edutainment”) effect^[19]. 3D visualization and VR can produce visually striking experiences, but without a substantive narrative core, they may stay at the level of spectacle and fail to leave retrievable health knowledge.

For content developers, a sensible allocation of limited resources would follow this path: collect and distill authentic case material → turn cases into 1–3 minute narrative short videos → add illustrated comics for cross-platform dissemination. VR and similar tools can serve as supplements rather than core delivery vehicles, reserved for immersive teaching on specialized topics such as human anatomy.

4.6. Gender disparities and marginalized groups: Dual challenges to communication equity

In the data, females had higher endorsement rates than males on 12 of 14 topics, with the largest gaps for obesity (+21.57 percentage points), sleep health (+21.08), and spinal health (+19.23). This pattern probably reflects gender differences in how willing people are to voice health concerns: adolescent norms put greater bodily scrutiny on females, while males are expected to be strong and stoic, which may suppress both the perception and the expression of discomfort^[20]. Lower expression among males should not be read as lower

risk: male adolescents have higher prevalence rates of unintentional injuries and cardiometabolic risks than females ^[21]. Communication strategies should therefore include “male-friendly” content that embeds health messages in culturally resonant frames such as competitive sports or military technology.

Rural and left-behind adolescents: structural blind spots in communication equity. 79.74% of respondents identified rural adolescents, and 75.38% identified left-behind children, as the populations whose communication needs are most underserved; this consensus ranked highest among all options. Rural adolescents face a triple disadvantage: weak school-based health education, weak family-level health literacy support, and limited access to health information on new media. Left-behind adolescents carry the added burden of mental health risks linked to parental separation, yet dedicated support resources are almost absent ^[22]. The most underserved populations also show the strongest cognitive barriers: lower self-rated health and weaker learning motivation. The authors therefore suggest adopting “health communication into schools” as an institutional mechanism, with rural schools and boarding schools as the basic delivery units, supported by a three-part supply framework of curriculum integration, periodic on-site outreach, and push-based digital resource distribution.

4.7. Limitations

This study has several limitations. First, the sample came from a single medical college, so the findings should be generalized to the broader adolescent population with caution. Second, the cross-sectional design does not allow causal inference; reverse causality or confounding by unmeasured variables cannot be ruled out, especially for the relationship between active learning frequency and self-rated health. Third, the regression models had modest adjusted R^2 values, which means important explanatory factors remain unidentified. As an exploratory study, its value lies in identifying patterns, quantifying associations, and generating testable hypotheses rather than in reaching definitive conclusions. Future work should run confirmatory surveys in general adolescent populations, use longitudinal designs to track behavioral change after communication interventions, and add socio-contextual variables such as family health literacy and school-based curriculum quality.

5. Conclusion

Using survey data from medical students, this study examined demand preferences and cognitive barriers in adolescent health communication. Adolescent communication needs have expanded from somatic disease prevention to include mental health and lifestyle management; at the same time, a cognitive barrier persists, in which poor self-rated health goes with weak learning motivation. Short videos and real-life case narratives were the most preferred formats, and duration preference showed a counterintuitive pattern: high-frequency users favored shorter sessions. Females expressed a higher need than males on most topics, and rural and left-behind adolescents were the most underserved groups. On this basis, the study proposes a multi-dimensional strategy covering content, format, duration, reach, and stratification, offering empirical support and actionable guidance for allocating communication resources precisely.

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Disclosure statement

The authors declare no conflict of interest.

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References

- [1] Wei RH, Zhang HM, Liu SX, et al., 2023, Strengthening the Scientific Prevention and Control of Myopia in Children and Adolescents in China. *Recent Advances in Ophthalmology*, 43(1): 1–6. <https://doi.org/10.13389/j.cnki.rao.2023.0001>
- [2] Xie TA, Huang XR, Wu ML, et al., 2025, Investigation and Analysis of Satisfaction and Needs for Spinal Health Science Popularization Education among Adolescents in Shenzhen. *Shenzhen Journal of Integrated Traditional Chinese and Western Medicine*, 35(21): 21–24 + 42. <https://doi.org/10.16458/j.cnki.1007-0893.2025.21.005>
- [3] Wu YJ, 2025, Children's Voices Need to be Heard: Mental Health Science Popularization for Children and Adolescents. *Health Required Reading*, 2025(35): 72.
- [4] Guo J, Liu R, Zhang Y, et al., 2024, Stand Straight, Grow Healthy: Science Popularization and Prevention of Adolescent Scoliosis. *Disease Surveillance and Control*, 18(5): 418–420. [https://doi.org/10.19891/j.issn1673-9388.\(2024\)05-0418-03](https://doi.org/10.19891/j.issn1673-9388.(2024)05-0418-03)
- [5] Zhang TM, Zhang ZH, 2025, Development and Exploration of Adolescent Sexual and Reproductive Health Science Popularization Courses under the Concept of Science Popularization with Ideological-Political Education. *Tianjin Science & Technology*, 52(S1): 28–31. <https://doi.org/10.14099/j.cnki.tjkj.2025.s1.012>
- [6] Liu J, 2025, The Role and Impact of Short Videos in Health Knowledge Dissemination Among Adolescents. *Yun Duan*, 2025(43): 63–65.
- [7] Wang X, Wang LL, Zheng J, et al., 2026, Analysis of the Current Status and Trends of Research in the Field of Health Science Popularization from the Perspective of Bibliometrics. *Journal of Lanzhou University (Medical Sciences)*, 52(4): 76–82. <https://doi.org/10.13885/j.issn.2097-681X.M20250913>
- [8] Lu B, 2025, The Inevitable Value, Realistic Situation and Proper Strategies of Cultivating Active Health Literacy of Adolescents under the Background of Healthy China. *Bulletin of Sport Science & Technology*, 33(2): 181–186. <https://doi.org/10.19379/j.cnki.issn.1005-0256.2025.02.044>
- [9] Xu ZS, 2025, The Dilemma and Solution of Legal Regulation of Health Science Popularization Self-media — Taking Douyin Platform Health Science Popularization Self-media as an Example, thesis, Southwest Medical

University. <https://doi.org/10.27215/d.cnki.glzyu.2025.000399>

- [10] Fan YF, Li YC, Wu XG, 2022, Construction of a New Model of Popular Science Health Education for Adolescents. *Reference for Politics Teaching in Middle Schools*, 2022(13): 91.
- [11] Mi F, 2025, Current Situation and Improvement Strategies of Health Science Popularization. *Chinese Journal of Health Education*, 41(6): 569–574. <https://doi.org/10.16168/j.cnki.issn.1002-9982.2025.06.017>
- [12] Li GT, 2025, Research on Methods to Enhance the Communication Effectiveness of Health Science Popularization in Public Hospitals in the New Media Era. *Journal of News Research*, 16(21): 36–41. <https://doi.org/10.26918/j.xwyjdk.2025.21.008>
- [13] Chen L, Tao YT, Wu YT, et al., 2026, Investigation on the Current Status and Training Needs of Health Science Popularization Practice via All-media among Nursing Undergraduates. *Journal of Qiqihar Medical University*, 47(6): 582–588.
- [14] Institute of Psychology, Chinese Academy of Sciences, 2023, Report on the Development of Chinese National Mental Health (2021–2022). Social Sciences Academic Press, Beijing.
- [15] Rosenstock IM, 1966, Why People Use Health Services. *Milbank Mem Fund Q*, 44(3): Suppl: 94–127. PMID: 5967464.
- [16] Hua J, Howell JL, 2022, Coping Self-efficacy Influences Health Information Avoidance. *Journal of Health Psychology*, 27(3): 713–725. <https://doi.org/10.1177/1359105320965664>
- [17] Zhang LL, 2023, Analysis of the Impact of Chronic Disease Self-efficacy on Leukemia Patients Undergoing Chemotherapy. *Journal of Shanxi Health Vocational College*, 33(4): 123–125. <https://doi.org/10.20281/j.cnki.wjyxb.2023.04.077>
- [18] Qi Q, Pan YY, Zeng LY, et al., 2024, Analysis of the Current Status of Health Information Literacy and Medical Health Education Needs Among Inpatients. *Chinese Nursing Management*, 24(4): 512–518.
- [19] Green MC, Brock TC, 2000, The Role of Transportation in the Persuasiveness of Public Narratives. *Journal of Personality and Social Psychology*, 79(5): 701–721. <https://doi.org/10.1037//0022-3514.79.5.701>
- [20] Zhu KK, Xu YJ, Chen HM, et al., 2022, Investigation on the Diagnostic Capacity of Syphilis and the Consultation Status of Primary and Secondary Syphilis in Hainan Province. *Chinese Journal of Human Sexuality*, 31(9): 132–135.
- [21] Kong H, Yang WJ, Chen YY, et al., 2025, Study on the Prevalence and Influencing Factors of Hypertension among Adolescents Aged 11–17 in Ningbo. *China Medicine and Pharmacy*, 15(10): 166–170. <https://doi.org/10.20116/j.issn2095-0616.2025.10.37>
- [22] Liu H, Zhou Z, Fan X, et al., 2020, The Influence of Left-Behind Experience on College Students' Mental Health: A Cross-Sectional Comparative Study. *International Journal of Environmental Research and Public Health*, 17(5): 1511. <https://doi.org/10.3390/ijerph17051511>

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