

Online Fitness Information-Seeking Behavior's Prevalence Among Californian Arts Schools' Adolescents

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ABSTRACT

Engagement in online health information-seeking behavior has the potential to improve patient-physician relationships. Previous research suggested online fitness information-seeking behavior is generally the most prevalent online health information-seeking behavior amongst Californian adolescents aged 13 to 18 years, making it the most vital online health information-seeking behavior to monitor. Further research into online fitness information-seeking behavior's prevalence amongst specific demographics within Californian adolescents was necessary because previous research showed patient experiences improve when physicians treat patients as unique individuals. One such unexamined demographic was those who received an arts education; this research focused on this gap. After the implementation of an online, quantitative, and cross-sectional survey research method, responses from 155 adolescents aged 13 to 18 years attending one Californian arts school were divided into 4 areas: percent engagement in online fitness information-seeking behavior, relative prevalence of this behavior, perceived importance of fitness, and health literacy. By analyzing the 4 areas with descriptive and inferential statistics and then synthesizing the results into a single understanding, it was concluded there may be a high prevalence of online fitness information-seeking behavior amongst the inquired population. The conclusion also noted the potential for a moderate prevalence instead. This new understanding has implications for beginning to form the foundation of a context physicians can utilize with California's arts-educated, adolescent patients in order to better treat them as individuals. Further research with larger, more random, and more representative samples was recommended.

Introduction and Literature Review

The interactions between a patient and their physician build a relationship, and the quality of this patient-physician relationship (PPR) is vital to patient outcomes. Whilst strong PPRs encourage patients to return for further care, substandard PPRs frequently cause poor patient outcomes, such as anesthesia aspiration and discontinuing critical care (Dang et al., 2016; Stern et al., 2015). These unsatisfactory outcomes are particularly detrimental to adolescents; the World Health Organization reported that 70% of premature adult deaths result from behaviors beginning in adolescence (World Health Organization, 2001). Due to this significant impact, the literature suggested adolescents' PPRs and their impacting factors were crucial to monitor.

One such impacting factor, patient engagement in online health information-seeking behavior (HISB), had notable potential to enrich adolescents' PPRs. Incorporating elements of Mirzaei and others' (2020) network analysis in the *Journal of Medical Internet Research*, this paper defined HISB as attempting to obtain information about illnesses, personal health, health risks, and/or health promotion activities via the Internet. An example of HISB engagement is searching "when to go to the hospital for a fever" on an online search engine like Google. One work firmly establishing HISB's capacity to improve PPRs was Tan and Goonawardene's (2017) peer-reviewed and systematic analysis of 18 scholarly sources. In particular, one examined study reflective of the overall findings concluded that

patients are thrice as likely to describe HISB improving their PPR than they are to detail it damaging it. Tan and Goonawardene's review was also consistent with Gerber and Eiser's (2001) conclusions in the *Journal of Medical Internet Research*; they determined PPRs could benefit from utilizing HISB to collectively share the responsibility of knowledge. This addition was especially relevant to adolescent PPRs because younger patients have a greater desire to be informed and, hence, participate in HISB (Ende et al., 1989). Consequently, the reasoning that HISB enhances adolescents' PPRs arose.

However, other works contended that patient engagement in HISB harms PPRs. For instance, McLellan's (1998) supplement in *The Lancet* asserted that HISB worsens PPRs by causing physicians to have defensive attitudes towards their patients. Ende and others' (1989) correlational study agreed, minimizing any information-seeking behavior's influence. Despite this, the overall literature still indicated HISB improving adolescents' PPRs because Tan and Goonawardene's review was substantially more recent and exhaustive than these sources. Because of this benefit, HISB's prevalence was an area of focus when surveilling adolescent PPRs and their impacting factors.

Properly examining HISB required subspecializing. This is because the literature included multiple types of HISB: online nutrition information-seeking behavior, online puberty information-seeking behavior, etc. Similar to how data aggregated from the U.S. National Library of Medicine listed the country's leading causes of death, cardiovascular disease and cancer, with the highest clinical trial volumes, more widespread HISBs are more vital to monitor than uncommon HISBs because of their larger impacts (Definitive Healthcare, 2019; National Center for Health Statistics, 2022). Online fitness information-seeking behavior (FISB) was an example of a pervasive HISB. Referencing the HISB's definition, this study defined FISB as attempting to obtain information about physical activity and/or related illnesses, health risks, and/or health promotion activities via the Internet. Examples of FISB engagement include searching "necessary parts of an exercise routine" or "effects of crunches on the body" on an online search engine. Multiple sources substantiated FISB's high prevalence. For example, a peer-reviewed survey from Northwestern University, "Teens, Health, and Technology" (THT), documented 42% of adolescents aged 13 to 18 years engaging in FISB, the highest percentage of any HISB studied there (Wartella et al., 2015). Moreover, 80% of THT's subjects described the topic "fitness and exercise" as either "very important" or "somewhat important" (Wartella et al., 2015). This suggested a high prevalence of FISB because a meta-analysis from SAGE Journals and *Technology and Adolescent Mental Health*, a book with 31 citations reported by Springer Nature, agreed that information utility and relevance are associated with higher levels of HISB engagement (Ou & Ho, 2021; Colditz et al., 2018). Placed importance implies information utility and relevance, so this statistic from THT aligned with FISB's status as the most prevalent studied HISB. Considering the research collectively, this position indicated that FISB was the most pertinent HISB to study when monitoring them due to its likely higher impact on adolescents' PPRs.

Observing FISB necessitated measuring it. In this study, it was assumed research instruments utilized to study HISB and trends related to factors influencing HISB can be applied to FISB. As there were few established and accessible scales for HISB, studies often incorporated alternate methods to measure it. Whilst studies like THT asked original questions, studies like "Online Health Information Seeking Behavior Pattern" integrated health literacy scales instead (Wartella et al., 2015; Maon et al. 2017). Health literacy was defined by the U.S. Department of Health and Human Services as "the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others" (U.S. Department of Health and Human Services, 2020). Health literacy was distinguishable from yet related to HISB because health literacy involves the capacity to perform HISB rather than the behavior's actual performance. Lee and others' (2021) study in the *Journal of Medical Internet Research* confirmed this relationship; it showcased higher health literacy levels' correlation with increased HISB participation. Due to the assumed connection between HISB and FISB, the literature indicated that these are respectable ways to measure FISB. Accordingly, select questions from THT and a health literacy scale served as quantitative tools for this study, as elaborated upon in the method.

Despite previous research and limitations in measuring FISB, there was still a need to monitor FISB. It is true that the previous discussion of THT highlighted significant, scholarly knowledge about FISB's general prevalence amongst American adolescents aged 13 to 18 years. Furthermore, the survey's six focus groups in California indicated

there was increased information about Californian adolescents' general engagement in FISB (Wartella et al., 2015). However, this general knowledge was not sufficient because better patient experiences require viewing patients as unique individuals (Johnson, 2014). According to *The Primary Care Companion for CNS Disorders*, these experiences are directly connected to patient satisfaction and PPRs (Chipidza, 2015). Because of the established relationship between PPRs and HISBs like FISB, these findings implied that a complete understanding of FISB's prevalence amongst Californian adolescents requires studying that population's subgroups.

One subgroup was arts-educated adolescents. This study's definition of arts education included all art forms: fine arts, performing arts, culinary arts, etc. Arts education impacts minors in numerous ways. ArtsEdSearch, a national hub for arts education research, illuminated one benefit relevant to FISB's prevalence amongst adolescents: increased awareness of social and cultural issues (Harland et al., 2000). FISB is related to social issues because scholars have framed obesity as a social issue. Obesity is inherently related to fitness as exercise is a common means of reducing obesity, so California's arts-educated adolescents could have a greater awareness of fitness's cruciality. (Smith, 2009; Niemi et al., 2021). So, because the literature asserted the relationship between information utility and HISBs like FISB, California's arts-educated adolescents may participate in FISB more than other adolescents. However, no previous studies have examined FISB engagement amongst this subgroup, so there was a gap in the body of knowledge.

This study aimed to fill that gap. Therefore, the guiding research question emerged: how prevalent is FISB amongst adolescents aged 13 to 18 years attending a Californian arts school?

Methods

A quantitative, cross-sectional survey was conducted online utilizing Google Forms. A survey research method intends to generalize results from a sample to a population, so choosing this method allowed the deriving of FISB's prevalence from an attainable data standard whilst simultaneously maintaining consistency with past research on FISB and HISB, such as Wong and Cheung's study in the *Journal of Medical Internet Research* (Ponto, 2015; Wong and Cheung, 2019). Population-based surveys like this one typically have cross-sectional designs, and the online format gave greater access to the studied population's members. Moreover, not only did the quantitative focus further this access because quantitative surveys do not require typing and, hence, are more mobile-friendly, but it also enabled alignment with prior research on health information-seeking behavior like "Health Information Seeking Among University Students Before and During the Corona Crisis—Findings From Germany" (Schäfer et al., 2021).

The survey was divided into 3 sections: demographics, select questions from THT, and a health literacy scale. These sections were labeled "Research Survey: Section 1," "Research Survey: Section 2," and "Research Survey: Section 3," respectively, on the Google Form and will henceforth be referred to as Section 1, Section 2, and Section 3.

Section 1 consisted of 2 original demographic questions that were reviewed and approved by the Institutional Review Board (IRB). These questions were necessary to ensure the subjects met the eligibility criteria for the study: being aged 13 to 18 years and receiving an arts education. Regarding Section 1 Question 1 (S1Q1), subjects who responded "I am under 13 years old" or "I am over 18 years old" had their responses discarded and not considered in analysis. As to S1Q2, subjects who responded "None" also had their responses discarded. A variety of other answer choices for S1Q2 were necessary to monitor variability in the types of arts education received. Data from S1Q2 was analyzed with a chi-square test to evaluate the extent to which the sample's arts background distribution was representative of the studied school.

Section 2 consisted of 4 select questions from THT. THT was selected as a reference study for this survey because its 6 focus groups in California provided a focus on the region of inquiry not seen in other studies. Moreover, as a part of the study's eventual publication in the journal *Media and Communication*, THT became peer-reviewed. Questions from THT were chosen based on their specific connection to FISB and HISB. 3 of the questions utilized 4-point Likert scales and/or Likert-type scales because Likert scales examine the strength and intensity of attitudes

(McLeod, 2019). This enabled a nuanced view of FISB's prevalence. The 4-point structure was also consistent with THT's answer choices.

Section 3 consisted of 24 questions based on a health literacy scale. As discussed in the literature review, health literacy is often utilized as a proxy for HISBs like FISB because higher levels of health literacy were correlated with a greater prevalence of HISB (Lee et al., 2021). The current body of knowledge had limited instruments to evaluate any type of HISB, so an application of a health literacy scale was necessary to attain a more detailed understanding of FISB's prevalence amongst adolescents attending a Californian arts school. The scale applied was based on the research study "Findings Toward a Multidimensional Measure of Adolescent Health Literacy" (MMHL) found in the *American Journal of Health Behavior* (Massey et al., 2013). MMHL's scale was chosen due to its Californian sample and adolescent concentration aligning with this study's focus on Californian adolescents. All 24 questions from MMHL's scale utilized 5-point Likert and/or Likert-type scales; this structure was maintained in this study for consistency. The full list of questions and answer choices incorporated into this study's survey is located in Appendix A.

The subjects responding to this survey were adolescents aged 13 to 18 years attending a particular secondary arts school in Southern California. To maintain confidentiality, the school's name is not disclosed in this study and will henceforth be referred to as the studied school. The studied school was chosen because of the depth and breadth of its arts education offerings; students receive 3 hours of daily arts instruction as a member of 1 of 16 conservatories ("Academic Profile: 2021-2022," 2021). These conservatories were the answer choices to S1Q2. However, specific program names were omitted, and the 4 dance conservatories were consolidated into 1 listing. The diversity in arts education offerings allowed for the prevalence of FISB to be determined for adolescents who received any type of arts education rather than a specific one, aligning with the topic of inquiry. Adolescents were surveyed due to their singular ability to provide first-hand information about the prevalence of FISB amongst their demographic, and 13 to 18-year-olds were centralized upon because THT excluded adolescents outside of that age range.

These eligible subjects were recruited by listing the study on a document posted in all of the studied school's English teachers' Google Classrooms. The English teachers were contacted through email. Prospective subjects were also contacted by emailing students found in the studied school's collective email database. Before gaining access to the survey questions, prospective subjects aged 18 years submitted a consent form (Appendix B). The parents and/or legal guardians of prospective subjects aged under 18 years submitted consent forms for those prospective subjects (Appendix C) before those minors received access to assent forms (Appendix C) and, later, survey questions. Prospective subjects were referred to as potential participants in the consent and assent forms for clarity. The consent and assent forms outlined that the subjects could choose to not answer any individual survey question, so all questions were optional. After answering questions, subjects were debriefed before submitting the survey. Survey responses were stored in Google Forms and Google Sheets. All electronic records were password-protected to protect subject privacy.

The study design and all procedures were reviewed and approved by the IRB to ensure ethicality and non-maleficence.

Results and Discussion

Data was collected between January 24th, 2022, and March 4th, 2022. At the conclusion of the data collection period, 158 survey responses were received. Due to all questions' optional status, the number of responses per question ranged from 153 to 157.

Before data analysis, responses were screened. In accordance with the procedure established in the method, 1 response was omitted from data analysis because the subject responded "I am over 18 years old" to S1Q1, and a second response was omitted because the subject responded "None" when asked about their arts education in S1Q2. A third response was also excluded because it was blank. Following screening, 155 survey responses were considered in data analysis, the number of responses per question ranging from 151 to 155.

In order to extrapolate a nuanced understanding of what the data suggested about FISB, the data was analyzed considering 4 different areas: percent engagement in FISB, relative prevalence of FISB, perceived importance of fitness, and health literacy. Percent engagement in FISB and relative prevalence of FISB were chosen as areas to provide basal numbers. Perceived importance of fitness and health literacy were chosen as areas to supply supplementary insight based on their alignment with the literature review. Each area’s analysis was generalized from the sample to the population inquired about in the research question: adolescents aged 13 to 18 years attending a Californian arts school. This generalization presumed the sample was representative of the population and random. That presumption’s veracity was discussed later in the discussion and in limitations.

Beginning with Area 1, 1 question was considered: S2Q4. In this question, subjects marked what listed health topics they looked for information about online. Out of 155 responses, 140, or 90.32%, marked “fitness and exercise” in their response. This suggests these 140 subjects have engaged in FISB. A chi-square test was conducted to compare these results to an ideal random distribution because that statistical test would determine if the difference wasn’t due to chance and, thus, statistically significant (Appendix D). A t-test was not conducted because a mean was not taken. The chi-square value of 100.80 was greater than the critical value of 3.84 at the 95% confidence interval, indicating that the previously calculated percentage of 90.32% was statistically significantly not random. Moreover, the margin of error for describing the studied school was calculated (Appendix D). It was calculated for the studied school because there was publicly available information on the total student population: 2248 people (“Academic Profile; 2021-2022,” 2021). The relatively narrow margin of error of ±4.492% combined with the aforementioned 90.32% of subjects engaging in FISB indicated that an extremely high proportion of the studied school’s population engaged in FISB. After generalizing this to the population inquired about in the research question, analysis of this basal number suggested there was a very high prevalence of FISB amongst adolescents attending a Californian arts school.

Moving onto Area 2, 2 questions were considered: S2Q1 and the aforementioned S2Q4. In S2Q1, subjects marked how much health information they got online. Out of 155 responses, 3 answered “None,” implying they had never engaged in HISB. This information was used to exclude those subjects’ responses from consideration in Area 2 because Area 2 focuses on FISB’s prevalence relative to other HISBs HISB-engagers performed. This left 152 responses for analysis in Area 2. The data from S2Q4 was utilized to rank HISBs by the percentage of subjects who marked they looked for information about the corresponding health topic online. FISB (90.13%) ranked first, followed by online nutrition information-seeking behavior (86.18%) and online sleep information-seeking behavior (73.68%) (Appendix E). McNemar’s test was then conducted to determine if FISB’s ranking was statistically significant (Appendix E). Although the 9 answer choices for S2Q4 meant there were over 2 groups, requiring the test to be run 8 times, the extended Cochran’s Q test was not conducted because it would have resulted in irrelevant information about the differences between pairs of percentages excluding FISB and required a post-hoc analysis. As seen in Table 1 below, because all 8 *p*-values were less than 0.05, FISB’s ranking was statistically significant. This indicated FISB was the most prevalent HISB amongst the subjects. After generalizing this from the sample to the population inquired about in the research question, analysis of this basal ranking suggested FISB may be the most prevalent HISB amongst adolescents attending a Californian arts school.

Table 1. Statistical Significance of the Differences in Prevalence Between FISB and Other HISBs

HISB Being Compared to FISB	<i>P</i> -Value ²
Online nutrition information-seeking behavior	0.29
Online sleep information-seeking behavior	0.00078
HISBS ranked 4-9 ¹	<0.000005

¹ See Appendix E. ² *p*<0.05 indicated statistical significance and was noted by the color green.

As for Area 3, 2 questions were considered: S2Q2 and S2Q3. In S2Q2, 154 subjects marked how important they perceived fitness and exercise were to teens their age, and, in S2Q3, 155 subjects marked how important fitness and exercise were to them personally. Both questions had the same answer choices: a 4-point Likert-type scale for importance. In order to take the individual means of each question’s responses, the answer choices were converted into numbers: 1 for “not important at all,” 2 for “not too important,” 3 for “somewhat important,” and 4 for “very important.” (Appendix F). Furthermore, 2 chi-square tests were conducted to compare the observed distributions of responses to an ideal random distribution to extrapolate if the responses weren’t due to chance and, hence, statistically significant (Appendix F). A t-test was not conducted because, despite the test’s consideration of standard deviation, it cannot recognize the difference between an ideally random and, thus, uniform distribution and a polarized, bimodal distribution when the data has a small range. As seen in Table 2 below, the mean for S2Q2 was statistically significantly not random because the chi-square value of 100.35 was greater than the critical value of 7.81 at the 95% confidence interval. Because this mean, 3.39, was in between the numbers indicating “somewhat important” and “very important,” this data suggested the subjects perceived teens their age placing a moderate amount of importance on fitness. Still referring to Table 2, the mean for S2Q3 was also statistically significantly not random because the chi-square value of 116.81 was greater than the critical value of 7.81 at the 95% confidence interval. Because this mean, 3.32, was also in between the numbers indicating “somewhat important” and “very important,” this data suggested that the subjects placed a moderate amount of importance on fitness.

Table 2. Means and Statistical Significance For Questions About Fitness’s Importance

Question	Mean ¹	Chi-square Value ²
S2Q2	3.39	100.35
S2Q3	3.32	116.81

¹ Yellow boxes indicated a mean suggesting moderate importance placed on fitness. ² Green boxes indicated a chi-square value greater than the critical value at the 95% confidence interval, also known as a statistically significant response distribution.

Because both questions’ analyses indicated a moderate amount of importance, the data indicated fitness was moderately important to the subjects. After generalizing this from the sample to the population inquired about in the research question, analysis of this supplementary data suggested that adolescents attending a Californian arts school could place moderate importance on fitness. In accordance with the literature review, this could signify a moderate prevalence of FISB amongst the inquired population.

Finally, regarding Area 4, all questions in Section 3 were considered because Section 3 was based on MMHL’s scale. The number of responses per question ranged from 151 to 154. All questions used 5-point Likert or Likert-type scales. The questions were divided into 3 subscores, and the answer choices were translated into numbers to take the mean of the responses for each subscore (Appendix G). Additionally, 3 chi-square tests were conducted to compare the observed distributions of responses to ideal random distributions to ascertain if the responses weren’t due to chance and, hence, statistically significant (Appendix G). As seen in Table 3 below, the mean for Subscore 1, the ability to find health information and sources, was statistically significantly not random because the chi-square value of 488.63 was greater than the critical value of 9.49 at the 95% confidence interval. Because this mean, 3.62, was between the numbers representing “somewhat” or “sometimes” and “fairly” or “often,” this data suggested the subjects had a moderate ability to find health information. Still referring to Table 3, the mean for Subscore 2, the ability to understand health information and sources, was also statistically significantly not random because the chi-square value of 1057.28 was greater than the critical value of 9.49 at the 95% confidence interval. As this mean, 4.23, was between the numbers representing “fairly” or “often” and “very” or “always,” this data signified that the subjects had a high capacity to understand health information. Continuing with Table 3, the mean for Subscore 3, the ability to use health

information, was another statistically significantly not random value because the chi-square value of 81.20 was greater than the critical value of 9.49 at the 95% confidence interval. Because this mean, 2.94, was between the numbers representing “slightly” or “rarely” and “somewhat” or “sometimes,” the data indicated that the subjects had a low to moderate ability to use health information.

Table 3. Means and Statistical Significance For Health Literacy Subscores

Subscore	Mean ¹	Chi-square Value ²
Subscore 1: Find	3.62	488.63
Subscore 2: Understand	4.23	1057.28
Subscore 3: Use	2.94	81.20

¹The mean suggested a high capacity if the box is blue, a moderate ability if the box is yellow, or a low to moderate ability if the box is orange. ²Green boxes indicated a chi-square value greater than the critical value at the 95% confidence interval, also known as a statistically significant response distribution.

Collectively examining the 3 subscores of moderate ability, high capacity, and low to moderate ability, the data suggested the subjects had a moderate level of health literacy overall. After generalizing this from the sample to the population inquired about in the research question, analysis of this supplementary data indicated that adolescents attending a Californian arts school may also have a moderate level of health literacy. Per the literature review, this could indicate a moderate prevalence of FISB amongst the inquired population.

After considering the 4 areas individually, it was necessary to synthesize them into a single, nuanced understanding of FISB amongst adolescents attending a Californian arts school. First reasserting the individual results seen in Table 4 below, none of the areas suggested a low prevalence of FISB. However, whilst the areas providing basal numbers, 1 and 2, indicated a very high prevalence of FISB, the areas supplying supplementary insight, 3 and 4, proposed a moderate prevalence of FISB.

Table 4. Prevalence of FISB Suggested By Areas

Area	Prevalence Suggested
Area 1: Percent Engagement in FISB	Very High
Area 2: Relative Prevalence of FISB	Most Prevalent (Very High)
Area 3: Perceived Importance of Fitness	Moderate
Area 4: Health Literacy	Moderate

Because the suggested prevalence varied, the significance of each area was weighed. Area 1 and Area 2’s findings were underlined due to their position as non-correlation-based basal numbers. Still, Areas 3 and 4 were given light consideration. Area 3 was less emphasized than Area 1 and Area 2 because its correlation-based findings were more indicative of the FISB’s potential prevalence than its true prevalence. Similarly, Area 4 was given lesser consideration because, as discussed in the literature review and method, health literacy should be only incorporated as a proxy balancing the limited instruments to measure FISB. This means Area 4’s results were less directly indicative of FISB’s prevalence than Areas 1 and 2.

Following the weighing, the synthesized prevalence was derived. If all areas and limitations had been given equal weight, the data would have indicated a moderate to high prevalence of FISB. Conversely, if only Areas 1 and 2 were given influence, the data would have proposed a very high prevalence of FISB. However, ultimately, it was found that the data and limitations suggested there may be a high prevalence of FISB amongst adolescents attending a Californian arts school. There was also the supplementary insight that there was potential for a moderate prevalence instead.

This synthesized understanding was based on results generalized from a sample to a population. As previously stated, the ability to generalize results from a sample to a population requires the sample be both representative and random, so that expectation's veracity's extent influenced the new understanding's significance. The extent to which this study's sample was random was discussed in limitations. However, data from S1Q2 can be used to extrapolate a limited sense of how representative the sample was because the arts education subjects reported in that question can be compared to the studied school's publicly available arts education enrollment information to determine if the sample's art background was consistent with the studied school's distribution. The studied school's enrollment in a particular conservatory was divided by the total number of students enrolled in any conservatory and then multiplied by 155, which was the number of responses to S1Q2. This procedure was repeated for all conservatories to determine the expected distribution for an ideally representative sample (Appendix H). As described in the method, the 4 dance conservatories were considered together. A chi-square test was then conducted to compare the calculated ideal representative distribution to the sample's arts education distribution to determine if the differences were due to chance and, thus, not indicative of an unrepresentative sample (Appendix H). Per those results, the sample's art education distribution was found to not be statistically different from the ideally representative one because the chi-square value of 18.32 was less than the critical value of 21.03 at the 95% confidence interval. This suggests that the difference was due to chance, so the sample's art education distribution was representative of the studied school's. This didn't inherently mean the sample was representative of the inquired population because other Californian arts schools could have different conservatory enrollment distributions. Moreover, this analysis didn't suggest how representative the sample's gender, ethnicity, or age was. However, it provided supporting evidence that the sample could have been representative to an unknown extent, somewhat elevating the significance of the new understanding.

Limitations

First, the sample was not random. As discussed in the method, many prospective subjects were recruited through the studied school's collective email database, so those who checked their emails were more likely to respond. In addition, although it was specified that a lack of FISB engagement was valuable information, those who engaged in FISB were more likely to participate due to the study's title. This led to a convenience sample, which is best for pilot testing, so there is a need for future research. Additionally, as examined in the discussion, the sample was only somewhat representative of the studied school to an unknown extent. Because of the sample's limited representativeness and randomness, the ability to generalize the results from a sample to a population was highly restricted. Moreover, McNemar's test required a random sample, so the lack of one qualified the relative prevalence of FISB suggested by Area 2. There was another limit in the method that qualified Area 2: the exclusion of certain answer choices to S2Q4. The answer choice "COVID-19" was not included to align with THT's answer choices. Certain answer choices in THT like "eating disorders" were also excluded to gain IRB approval by preventing their mention from mentally harming subjects. The HISBs these answer choices corresponded with could be more prevalent than FISB, but S2Q4 couldn't suggest that.

Besides these methodological limitations, there were further limitations in the analysis process. For instance, the chi-squared values and margin of error were calculated with overestimations of the studied school's eligible population. Because there was no reliable method to discern how many of the studied school's students were aged under 13 years or over 18 years, all students were counted to avoid underestimation. This had an unknown effect on the chi-squared values and slightly increased the calculated margin of error. Additionally, because the questions' optional

status caused some questions to have more responses than others, certain questions were unintentionally weighted slightly more than others when calculating Area 4's subscores' means. Its effect is unclear.

Conclusion

This study was designed to address the literature's lack of studies about FISB amongst California's arts-educated adolescents. The new understanding that there may be a high prevalence of FISB with the potential for a moderate prevalence addresses the gap because it spoke to the desired aspect of the inquired behavior within only the population the gap referenced. However, whilst this new understanding filled the gap of there being no studies about FISB amongst California's arts-educated adolescents, it didn't resolve the need for research about FISB in that demographic because of the study's limitations.

Many of these limitations created recommendations for future research into FISB amongst California's arts-educated adolescents. For example, because of self-reporting's flawed nature, future studies should consider conducting content analyses into adolescents' online search histories to identify searches about fitness. For future surveys, researchers should develop a FISB scale to circumvent assuming general trends about FISB apply to FISB. They should also seek to implement school-sponsored studies across California to recruit a larger sample more likely to be representative of the population and to minimize lacking randomness. Outside of addressing limitations, there is potential for future research to expand beyond California to include other states and countries and to examine other characteristics that differentiate adolescents similarly to the presence of an arts education. Examples include participation in sports.

There were additional implications for this study that did not stem from limitations. This study's goal was to contribute to a complete understanding of adolescent FISB in California to help improve PPRs by better equipping physicians to treat adolescent patients as individuals. The new understanding that California's arts-educated adolescents may have a high prevalence of FISB with the potential for a moderate prevalence instead addressed that goal because, if the results are disseminated, this contribution to the understanding of California's adolescents' FISB could provide physicians with the preliminary knowledge that an adolescent patient could be somewhat likely to have knowledge about fitness. This could give physicians helpful context when discussing their patients' engagement in physical activity during appointments. However, physicians should not use this study's results as a definitive indication of FISB's prevalence amongst California's arts-educated adolescents. Instead, they should give the results restricted consideration whilst monitoring the body of knowledge for future study.

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