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School Survey Evidence for Digital Reproductive Health Education and Implications for Public Health Administration

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ABSTRACT

Public agencies need local evidence to plan adolescent health education that responds to students' information needs. This study examines understanding of birth rate control and its association with reported behaviour as a preliminary needs assessment for digital reproductive health education. A quantitative cross-sectional survey involved 70 students at SMP Negeri 55 Barombong, Makassar, Indonesia. A six-item questionnaire generated understanding and reported behaviour scores; additional questions recorded gender, grade, and trust in health information on social media. Analyses comprised descriptive statistics, internal consistency assessment, Pearson correlation, simple linear regression, and exploratory group comparisons. Mean understanding was 11.94 (SD = 2.413), and mean reported behaviour was 5.99 (SD = 1.280). The scores were positively associated ($r = 0.516$, $p < 0.001$), with the regression model accounting for 26.6% of observed behavioural score variance. Moderate or high trust in social media health information was reported by 90.0% of participants. Understanding differences by grade and gender were not statistically significant. Modest questionnaire consistency, incomplete recruitment and scoring documentation, and only one grade IX participant limit interpretation. For public health administration, the findings suggest priorities for locally adapted content, guided source appraisal, and coordination between education and health services. These are programme planning implications rather than tested administrative outcomes. The survey does not establish intervention effectiveness, actual contraceptive behaviour, or birth rate reduction; stronger measures and prospective evaluation are required before wider programme implementation.

Keywords: adolescent health; digital health education; school survey; evidence-informed policy; public health administration

INTRODUCTION

Digital reproductive health education poses a public administration question: how can education and health agencies identify local information needs and translate them into appropriate services? Evidence-informed policymaking requires decisions to draw on relevant research and data while recognizing their limits (OECD, 2020). A school survey can contribute to this process by describing participating in students' reported understanding and information trust. Its role is preliminary problem identification; decisions about programme reach and resources also require wider evidence on service access and implementation conditions.

Reproductive health education during early adolescence provides a foundation for understanding bodily development, evaluating health information, and making informed decisions as students grow older. Junior secondary schools occupy an important position because students encounter new social expectations while developing the ability to assess unfamiliar claims. Birth rate control, the focus of the present survey, is situated within this

wider educational context. For school students, the relevant purpose is informed understanding of reproductive health and future family planning, rather than an assumption that students already engage in particular sexual practices. Lee and Yeo (2022) examined reproductive health knowledge among young Malaysian pupils, demonstrating the importance of investigating this developmental stage directly.

Social media expands the settings in which adolescents encounter health messages. Students can receive information outside formal lessons, revisit explanations, and discuss questions through familiar communication platforms. These possibilities depend on the quality of the messages and the support available to interpret them. Kosasih, Solehati, and Maryati (2024) reported improvements after reproductive health education delivered through LINE and WhatsApp to Indonesian senior high school students. Muhlisa et al. (2023) reviewed digital approaches across several educational formats. Their findings support further investigation of digital education, but evidence from older students or structured interventions cannot automatically establish what incidental social media use accomplishes among junior secondary pupils.

Trust is particularly relevant when adolescents rely on online health information. Familiar sources, approachable language, and social endorsement can make content persuasive without confirming its accuracy. Freeman, Caldwell, and Scott (2023) identified multiple considerations shaping adolescent trust in health information on social media. Gazibara et al. (2024) examined factors associated with adolescents reporting that online information influenced their health decisions. Hinoveanu et al. (2026) investigated reproductive health misinformation and contraceptive literacy among Romanian adolescents and young adults. These studies indicate that acceptance of an online message should be examined alongside source credibility. A student who trusts health content may still require support in checking evidence and recognising misleading explanations.

Digital health literacy includes the capacity to locate, evaluate, and use health information. It should not be inferred simply from frequent use of a smartphone or familiarity with social media. Taba et al. (2022) combined self-assessment with practical searches and interviews to examine adolescent capabilities. Lewis et al. (2024) used adolescent participation to develop an educational resource, and Hawkins et al. (2025) subsequently evaluated that resource. Their work illustrates why confidence and demonstrates appraisal skills warrant separate assessment. Reproductive health literacy research in Banda Aceh similarly considers the ability to understand and apply information, extending attention beyond whether students have encountered a message (Khairunnisa, Wardiati, & Agustina, 2023; Yusuf et al., 2025).

Behavioural interpretation requires a further distinction between knowing, intending, and acting. The health belief perspective links action to perceived vulnerability, expected benefits, practical barriers, and cues that prompt a response. Setyaningsih, Yudianti, and Mansur (2022) examined these considerations among Indonesian female high school students. Ryskeldiyeva et al. (2023) studied reproductive health knowledge, attitudes, and practices among adolescent girls in Kazakhstan. Arifah, Safari, and Fieryanjodi (2022) examined health literacy and reproductive health service use among Indonesian high school students. These outcomes are related but not interchangeable. A questionnaire describing reported responses cannot, by itself, demonstrate a change in actual health practices or establish that knowledge preceded behaviour.

Educational settings and social relationships also influence how health messages are interpreted. Salafas et al. (2026) identified educational needs and barriers involving junior high school students, teachers, and other stakeholders. Such a qualitative needs assessment describes implementation conditions rather than testing a statistically null educational effect. Noegroho et al. (2026) explored peer counselling and digital communication in Indonesian

reproductive health promotion. Olamijuwon and Odimegwu (2022) examined acceptance and intentions to interact with sexuality information on social media among young adults. The relevance of these studies lies in their attention to social support, access, and engagement. Their populations and outcomes still differ from those of a survey of younger school students.

The analytical framework links school-level needs assessment to programme planning, intersectoral coordination, and subsequent evaluation. Digital health guidance identifies feasibility, resource use, acceptability, and equity as relevant implementation considerations (World Health Organization [WHO], 2019). In this study, these considerations guide the discussion of possible administrative responses rather than constitute measured variables. The empirical analysis concerns students' questionnaire scores and trust ratings; the proposed administrative implications require further investigation.

The administrative research problem concerns how limited school survey evidence can inform service planning without being mistaken for an evaluation of policy effectiveness. Indonesian evidence on younger adolescents already includes intervention research (Pinandari et al., 2023) and studies of reproductive health decision-making (Widjanarko et al., 2023). The present study contributes a local needs assessment concerning reported understanding, reported behaviour, and trust in online health information. It cannot establish unmet needs throughout Makassar or compare administrative arrangements. Instrument validation remains important: Ma et al. (2021) demonstrate the need for measures matched to the intended population and construct. Sampling coverage and measurement quality determine how much weight administrators should place on the resulting evidence.

This study describes understanding and reported behaviour concerning birth rate control among participating students at SMP Negeri 55 Barombong, assesses the association between these scores, and reports trust in health information on social media, with exploratory comparisons by grade and gender. Higher understanding scores are expected to be associated with higher reported behaviour scores. A second, interpretive objective is to identify implications for planning digital reproductive health education within public health administration. The contribution lies in connecting bounded school-level evidence with proposed content priorities, coordination responsibilities, and evaluation requirements. Social media is the educational context rather than a separately measured predictor, and administrative capacity, service access, policy implementation, and programme effects are not directly measured.

METHODS

A quantitative cross-sectional questionnaire survey was conducted at SMP Negeri 55 Barombong in Kelurahan Barombong, Makassar, South Sulawesi, Indonesia. The sample comprised 70 students in grades VII, VIII, and IX. The available study documentation does not specify the total eligible population, recruitment procedure, or participants' ages. The sample is consequently described as the participating school students without claiming probability sampling or representation of a defined age range. The survey is also reported by Syaekhu et al. (2026); that publication identifies the same dataset and is not treated as independent corroboration.

The questionnaire contained six Likert items concerning understanding and reported behaviour related to birth rate control in the context of educational social media content. Understanding denotes the questionnaire score representing students' reported comprehension of the topic. Behaviour denotes the questionnaire score for their reported responses concerning the topic, rather than independently observed actions. Demographic

information recorded gender and grade; a separate question assessed trust in health information on social media. The complete item wording, scoring allocation, and score conversion procedure were not documented sufficiently to reproduce the measurement. No separate measure of exposure frequency, content quality, or platform use was available for analysis.

For interpretation, the term “birth rate control” is used here as a broad educational topic related to reproductive health understanding and future family planning. It does not denote respondents’ current fertility decisions or contraceptive practices. The available questionnaire documentation does not provide item-level wording sufficient to identify precisely which reported responses represent actions, attitudes, or intentions. Accordingly, the behaviour variable is treated strictly as a self-reported questionnaire score, without equating it with verified preventive conduct.

The statistical outputs were generated using SPSS. Frequencies and percentages summarised participant characteristics and trust; means, standard deviations, and observed ranges described the two scores. Corrected item-total correlations and Cronbach’s alpha assessed item consistency. Pearson correlation examined the association between understanding and reported behaviour. Simple linear regression summarised the variance accounted for by understanding, while one-way analysis of variance and an independent-samples t-test compared understanding across grades and gender. The null hypothesis specified no association between the two scores. Reported significance was interpreted at 0.05, and an output displayed as 0.000 was expressed as $p < 0.001$. These analyses describe associations and exploratory differences; the design contains no intervention allocation, baseline assessment, comparison condition, or follow-up capable of establishing educational effects.

RESULT AND DISCUSSION

The 70 participants comprised 28 boys and 42 girls. Grades VII and VIII accounted for 69 students, while grade IX contributed only one student (Table 1). This imbalance is central to interpreting the grade comparison. The survey cannot provide a stable description of grade IX, and the combined results primarily describe the first two grades. Gender coverage was less uneven, although the school sample remains too specific to represent junior secondary students throughout Makassar or Indonesia.

Table 1. Participant Characteristics

Characteristic	Category	n	%
Gender	Male	28	40.0
Gender	Female	42	60.0
Grade	VII	38	54.3
Grade	VIII	31	44.3
Grade	IX	1	1.4

Source: School survey statistical outputs.

Trust in health information on social media was common. Fifty-four students reported moderate trust and nine reported high trust. Together, these categories comprised 63 participants, or 90.0% of the sample. Six students expressed doubt and one reported no trust. The distribution indicates receptiveness to online health information, but it does not establish the reliability of the sources students encountered. The survey did not compare students’ trust ratings against an independent assessment of content accuracy.

The trust item measures perceived trust only. The survey did not record frequency of social media use, particular platforms, content encountered, or its independently assessed quality. Therefore, the distribution cannot establish exposure to effective education, accurate information, or any effect of social media on students' understanding and responses.

Understanding scores averaged 11.94, with a standard deviation of 2.413 and an observed range of 4 to 16. Reported behaviour scores averaged 5.99, with a standard deviation of 1.280 and an observed range of 2 to 8 (Table 2). Both summaries included all 70 cases. The values describe the score distributions without assigning qualitative categories such as good or poor, because validated interpretation thresholds were not available. The different observed ranges also prevent direct comparison of the two means as if they measured the same quantity.

Table 2: Understanding and Reported Behaviour Scores

Score	n	Observed range	Mean	SD
Understanding	70	4–16	11.94	2.413
Reported behaviour	70	2–8	5.99	1.280

Source: School survey statistical outputs.

Cronbach's alpha for the six-item questionnaire was 0.676. Corrected item-total correlations ranged from 0.219 to 0.584 (Table 3). Items 3 and 5 fell below the report's screening threshold of 0.30. Deleting item 5 would produce an alpha of 0.690, according to the existing output, but no revised analysis of the construct scores was available. The six-item results are therefore retained with a qualification concerning modest internal consistency. This screening does not establish content validity or confirm that understanding and behaviour constitute two independently validated scales.

Table 3: Questionnaire Item Consistency

Item	Corrected item-total correlation	Alpha if deleted
1	.343	.659
2	.584	.575
3	.269	.676
4	.474	.610
5	.219	.690
6	.569	.576

Source: School survey statistical outputs.

Understanding and reported behaviour were positively associated, with Pearson's $r = 0.516$ and $p < 0.001$ (Table 4). The regression model yielded $R^2 = 0.266$, adjusted $R^2 = 0.255$, and a standard error of estimate of 1.104. Understanding accounted for 26.6% of observed behavioural score variance within this model. The grade comparison was not statistically significant, $F(2, 67) = 0.898$, $p = 0.412$. The gender comparison likewise yielded $t(68) = -0.040$, $p = 0.968$; its mean difference was -0.024, with a 95% confidence interval from -1.207 to 1.160. Neither comparison establishes equivalence between groups.

Table 4. Associations and Exploratory Group Comparisons

Analysis	Reported statistic	p
Understanding and behaviour	Pearson $r = 0.516$	$< .001$
Simple regression	$R^2 = .266$; adjusted $R^2 = .255$	n/a
Understanding by grade	$F(2, 67) = 0.898$	.412
Understanding by gender	$t(68) = -0.040$	.968

Source: School survey statistical outputs.

The positive association indicates that students reporting greater understanding also tended to report higher behavioural scores. It is compatible with the broader proposition that comprehension contributes to informed responses, but its causal direction remains unresolved. Setyaningsih et al. (2022) show why health beliefs and barriers deserve consideration alongside knowledge, while Ryskeldiyeva et al. (2023) address distinct knowledge, attitude, and practice domains. Shared questionnaire format may also contribute to the association. The present survey cannot determine whether understanding influenced behaviour, behaviour encouraged information seeking, or both reflected family guidance and other unmeasured conditions.

The outcome labelled “reported behaviour” must be interpreted within the limits of the original questionnaire. It reflects students’ self-reported responses to survey items and should not be taken as evidence of contraceptive use, sexual activity, health-service utilisation, or independently observed behaviour. Without the full item wording, it is not possible to distinguish particular behaviours reliably from attitudes and future intentions. This distinction is especially important for junior secondary school respondents.

The regression result should be understood as a description of variation across students. It does not indicate that 26.6% of behaviour changed after viewing social media content. The remaining variance is not an estimate of the contribution of specific external causes. Arifah et al. (2022) examined service utilisation as a separate outcome, and Yusuf et al. (2025) identified difficulties in applying reproductive health information despite generally adequate literacy. These distinctions help explain why knowledge scores should not substitute for actual preventive practices, sustained health decisions, or demographic outcomes. No birth rate, pregnancy, or verified contraceptive behaviour was measured here.

Structured intervention research offers a different level of evidence. Kosasih et al. (2024) assessed scores before and after education through messaging platforms, while Pinandari et al. (2023) used an intervention and comparison design among younger Indonesian adolescents. The current cross-sectional association cannot reproduce those educational effects. Kosasih et al. also found no statistically significant difference between LINE and WhatsApp on the measured improvements. That result concerns comparative platform performance, rather than an absence of improvement within either group. Reviews such as Muhlisah et al. (2023) provide useful context, but variation in programme design must remain visible when comparing findings.

The trust distribution suggests a practical need to accompany health messages with source evaluation. Freeman et al. (2023) and Gazibara et al. (2024) describe the importance of trust and familiarity in adolescents’ use of online information. Hinoveanu et al. (2026) address misinformation in a different national setting, underscoring the value of assessing credibility rather than assuming that receptive audiences have accurate knowledge. Schools could discuss authorship, evidence, publication dates, and the difference between personal experiences and general health advice. Such teaching is a recommendation arising from the findings and literature, not an intervention tested in this survey.

Implications For Public Health Administration

For programme planning, the trust distribution supports considering source appraisal alongside reproductive health information. It does not identify which individual students hold misconceptions, because factual knowledge and the accuracy of encountered content were not independently assessed. A reasonable next step would be a small, locally reviewed educational pilot developed with students, teachers, and health professionals. Its content priorities should be confirmed through validated questions and consultation before administrators make wider resource commitments.

A feasible first programme priority is supervised appraisal of health information, because 63 of 70 students reported moderate or high trust in social media health information. Schools and puskesmas could jointly pilot age-appropriate lessons on recognising credible sources, checking claims with qualified health personnel, and seeking confidential clarification. A second priority is to review reproductive health and future family-planning concepts with students and teachers before preparing digital materials. These are practical proposals informed by the observed trust distribution and the literature; the survey did not test their feasibility or effectiveness.

Coordination could assign complementary responsibilities to participating institutions: schools could organise learning opportunities and identify questions requiring clarification; qualified health personnel could review content and provide appropriate referral information; education and health administrators could agree on delivery arrangements and review results. These are proposed responsibilities, not findings about existing practice at the study site. Any delivery plan would need to assess teacher preparation, access to devices, and availability of non-digital learning options. The survey did not measure these implementation conditions.

For implementation, the school could nominate a teacher coordinator to organise sessions and collect anonymous questions; a puskesmas health educator could check medical accuracy and respond to age-appropriate questions; and local education and health offices could approve content, provide safeguarding guidance, and review pilot monitoring reports. An initial pilot should document attendance, content approval, student comprehension, and source-appraisal performance. Wider rollout should depend on subsequent evaluation rather than on the observed correlation alone.

Monitoring should distinguish delivery indicators from educational outcomes. A future pilot could record participation, content review, and availability of support, then assess factual knowledge and demonstrated source appraisal with validated measures. Baseline and follow-up assessments, preferably with a suitable comparison design, would be needed to investigate change. Aggregate survey findings may inform review meetings, but individual questionnaire responses should not be used to infer sexual activity or restrict access to support. These proposed safeguards and indicators require a documented implementation and data management plan; they were not tested by the present survey.

Limitations and Future Research

Measurement limitations are substantial. An alpha of 0.676 across six items and two low item-total correlations warrant instrument review before stronger conclusions are drawn. Ma et al. (2021) provide an example of explicit reproductive health literacy validation, while Taba et al. (2022) combine perceived competence with demonstrated searching. Lewis et al. (2024) and Hawkins et al. (2025) show how adolescent participation and practical tasks can inform educational design and evaluation. Future questionnaires should separate factual knowledge, attitudes, intentions, and reported behaviour, establish content relevance with expert and student input, and evaluate each intended scale rather than relying only on a combined alpha.

The non-significant group comparisons must also be read in light of recruitment. A single grade IX respondent precludes a meaningful claim that educational content works equally across all grades. Widjanarko et al. (2023) investigated a much larger pupil population with comparatively balanced grade and sex coverage, illustrating how sampling composition changes the scope of interpretation. The gender comparison here likewise does not prove equal educational effects. Future school surveys should secure adequate representation in every grade, report age and recruitment clearly, and plan group comparisons around sufficient

sample sizes. Follow-up assessments would be necessary to investigate the persistence of any knowledge gains or reported responses.

School support should connect digital messages with opportunities for clarification. Salafas et al. (2026) identify the importance of age-appropriate content, privacy, teacher capacity, and coordinated support. Noegroho et al. (2026) provide a basis for considering supervised peer counselling, and Olamijuwon and Odimegwu (2022) highlight acceptance and social influences in engagement with online sexuality information. These approaches require adaptation to younger pupils and the local school setting. Lee and Yeo (2022) reinforce the importance of studying developmental needs directly. A useful next step is to test credible educational content with validated measures and follow-up, while treating the present findings as a limited local association rather than a demonstrated behavioural intervention.

CONCLUSION

Among 70 participating students at SMP Negeri 55 Barombong, understanding of birth rate control was positively associated with reported behaviour ($r = 0.516$, $p < 0.001$), and the regression model accounted for 26.6% of observed behavioural score variance. Moderate or high trust in social media health information was reported by 90.0% of students. As a preliminary local needs assessment, these findings offer a basis for considering credible educational content and guided appraisal of digital health information. Their relevance to public health administration concerns the proposed use of school evidence in programme planning, coordination between education and health services, and the design of future monitoring. Those administrative processes were not observed or evaluated. Modest internal consistency, undocumented recruitment and scoring details, and only one grade IX respondent constrain the strength and transferability of the evidence. Non-significant group comparisons do not establish equivalence or justify excluding any group from support. Administrators should combine these findings with validated assessments, student consultation, and service information before allocating resources or expanding programmes. Future research should document sampling and ethics procedures, validate distinct constructs, examine implementation conditions, and use prospective comparative designs to evaluate educational outcomes. No causal effect of social media, verified contraceptive behaviour, or reduction in birth rates can be inferred.

In this article, birth rate control refers to age-appropriate understanding of reproductive health and future family planning, not actual fertility regulation among participating pupils. The reported-behaviour measure captures questionnaire responses rather than verified actions, and the study did not assess social media exposure or platform effectiveness. Thus, the principal administrative contribution is a preliminary school-level needs signal supporting a carefully evaluated, school-puskesmas educational pilot with credible information and guided source appraisal.

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