Psikoeduko: Journal of Guidance and Counseling
Volume 6, No.1, March 2026: Page 26-38
DOI: https://doi.org/10.17509/psikoeduko.v6i1.95278
Available online at https://ejournal.upi.edu/index.php/Psikoeduko/article

SEXUAL KNOWLEDGE PROFILE OF EARLY ADULTS: PSYCHOMETRIC ANALYSIS BASED ON THE RASCH MODEL

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Submitted	: 25 December 2025	First Available Online	: 25 March 2026
First Revised	: 22 January 2025	Publication Date	: 30 March 2026
Accepted	: 25 February 2025		

Abstract: Sexual and reproductive health issues among young adults remain a critical concern due to high-risk behaviors associated with limited sexual knowledge. This study aimed to measure and map the level of sexual knowledge among young adults aged 18–40 years using Rasch Model analysis. A quantitative cross-sectional survey was conducted with 36 participants selected through accidental sampling. Data were collected using the Sexual Knowledge Assessment Questionnaire (SEKAQ) and analyzed with Winsteps software. The results revealed fragmented sexual knowledge, with strong understanding of normative issues but substantial misconceptions regarding factual and medical information, including sexual violence and HIV-related topics. Overall, sexual knowledge was predominantly declarative and had not reached an evidence-based operational level. These findings highlight the need for comprehensive sexuality education that integrates moral, data, and medical literacy. sexual knowledge remains at a declarative level (norms) and has not yet reached an evidence-based operational level. These findings imply the urgent need to develop Guidance and Counseling services and sexuality education that integrate not only moral aspects but also data and medical literacy holistically.

Keywords: Young Adults, Sexual Knowledge, Rasch Model, The SEKAQ.

Psikoeduko: Journal of Guidance and Counseling
Website: https://ejournal.upi.edu/index.php/Psikoeduko/index

Permalink: https://ejournal.upi.edu/index.php/Psikoeduko
How to cite (APA): Ghazalah, F. R., Astuti, N. M., Muliani, V., Siala, R., & Ahman. (2026). Sexual Knowledge Profile of Early Adults: Psychometric Analysis Based on the Rasch Model. *Psikoeduko: Journal of Guidance and Counseling*, *Vol*(6), 26-38.

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INTRODUCTION

Teenagers are a generation that plays a role in building the future of families, nations, and countries. A common problem among teenagers is the

inability to manage sexual desires or urges. Every normal human being has sexual urges, as this is a natural human trait bestowed by God. If a person's resilience weakens, these sexual urges can lead to negative behavior (Hariyanto, 2016). In Indonesia, adolescents are currently in a concerning situation, in terms of sexual attitudes and behavior. Rapid social change, openness of information, and exposure to digital media have influenced how adolescents understand the meaning of sexuality. In 2017, 18.9% of male and female adolescents in Indonesia aged 15-17 had engaged in sexual intercourse (BKKBN, 2017). Another fact shows that 33.3% of adolescents aged 10-14 in Central Java have started dating. This percentage is large enough to rank Central Java sixth in Indonesia (BKKBN, 2012).

This condition requires serious attention because adolescence is a period of vulnerability and confusion in sexual development. Adolescents often question sexual attraction, how to behave sexually, and imagine their future sexual lives (Santrock, 2007). The World Health Organization (WHO) emphasizes that sexual and reproductive health is an important part of overall individual health and emphasizes the need for comprehensive, accurate, and evidence-based sexuality education as an effort to prevent risky behavior. However, widespread access to sexual information in the digital era is not always accompanied by correct understanding, so that risky sexual behavior is still common among productive age groups (World Health Organization, 2010). The World Health Organization (WHO) states that adolescents are those between the ages of 10 and 19. This period is a time when a person's physical, psychological, and intellectual condition is growing and developing rapidly (WHO, 2018).

From a Guidance and Counseling perspective, this condition is seen as a need for preventive and promotive services, particularly in personal-social guidance. These services aim to help individuals understand sexuality holistically and develop responsible reproductive health behaviors (Santrock, 2007). Psychologically, individuals have basic needs in their lives, such as the need for survival, love and belonging, power or achievement, freedom, and pleasure. Fulfilling these needs significantly influences an individual's behavior in expressing sexual urges (Corey, 2013). The transition to early adulthood (18–40 years) is a complex phase, with individuals assuming responsibility for decisions about intimacy and reproductive health (Anderson et al., 2020). During this period, emotional and social development occurs more rapidly than the ability to think and self-control. As a result, individuals

are more likely to make impulsive decisions if they are not equipped with accurate and reliable information (Feldstein Ewing et al., 2016).

Previous research has shown that a lack of adequate sexual knowledge contributes to high rates of sexually transmitted infections and unplanned pregnancies in those of childbearing age (Brown et al., 2021). Adolescents and young adults under the age of 25 still face high rates of sexually transmitted infections (STIs) and unintended pregnancies, highlighting the need for better education. However, researchers believe that basic sexual knowledge is insufficient, as limited knowledge may not necessarily lead to appropriate and responsible reproductive health behaviors (Lucero et al., 2020).

Comprehensive sexual knowledge encompasses biological, psychological, social, and moral aspects and has been shown to play a crucial role in developing healthy sexual behaviors (Mugabi et al., 2023). Comprehensive sexuality education is also effective in reducing risky sexual behavior and increasing sexual health literacy, particularly among the productive age group (Mollen et al., 2025). However, the success of such education depends heavily on accurately measuring individual understanding, ensuring that evaluation results truly reflect the actual state of knowledge (Gibbs et al., 2022). Without appropriate measurement tools, health interventions risk being misdirected (Safari et al., 2024).

Historically, measurement efforts in the field of sexual knowledge have generally been dominated by the Classical Test Theory (CTT) approach, which measures respondents' abilities based on total scores without considering item difficulty or individual ability variations. Classical Test Theory (CTT) assumes that all items have equal weight, so that the interpretation of measurement results tends to be global and less able to describe the structure of knowledge in depth. In the classical theory paradigm, item statistics are highly dependent on the characteristics of the sample of subjects being tested (sample dependent). This means that the level of item difficulty can change when tested on groups of respondents with different abilities. Furthermore, estimates of participant ability are also highly dependent on the specific items being worked on, and the resulting information is often limited to raw scores (right/wrong) without considering in-depth response patterns. This limitation causes data generated from CTT-based instruments to be often ordinal and not have equal intervals, making

them less accurate for measuring complex psychological attributes such as self-determination (Prieto et al., 2003).

As a result, score interpretation is limited and does not provide adequate information regarding specific knowledge aspects that have been mastered or require reinforcement. This limitation has the potential to produce a biased knowledge profile and hinder the use of evaluation results as a basis for designing more targeted sexuality education interventions based on students' actual needs (Clark & Watson, 2019).

This study uses the Rasch Model analysis to examine sexual knowledge in greater depth through the Sexual Education Knowledge Assessment Questionnaire (SEKAQ) instrument. The Rasch Model allows for more objective measurement by considering the difficulty level of each item and the individual abilities of respondents. The use of the Rasch Model allows for a more accurate mapping of the structure of sexual knowledge, including identifying areas of knowledge that have been mastered and those that still need strengthening (Martínez & Junco, 2025). This study uses the Rasch Model to determine sexual knowledge in early adult respondents (18-40 years). This method was chosen because of its efficiency in reaching the digitally dispersed early adult population (Bandyopadhyay & Mukherjee, 2021). Thus, this study helps understand sexual knowledge in early adulthood in greater depth and forms the basis for a more appropriate and appropriate understanding of sexuality.

This study aims to comprehensively measure and map the level of sexual knowledge in early adults aged 18–40 years using the Rasch Model approach, thus obtaining a more accurate and objective picture of respondents' abilities. This approach not only assesses knowledge based on a total score, but also considers the level of difficulty of each instrument item and the specific abilities of the individual. Thus, this study is able to identify areas of sexual knowledge that have been mastered and those that still need strengthening, and provides a strong empirical basis for the development of sexuality education and guidance and counseling services that are more targeted and based on real needs (Bond, 2015).

METHOD

The study employed a quantitative approach with a survey method. A cross-sectional design was applied to identify the level of sexual knowledge

among early adult respondents aged 18–40 years. The study participants consisted of 36 early adults aged 18–45 years. Sampling was conducted using an accidental sampling technique utilizing social media networks to identify respondents who met the inclusion criteria.

The instrument used in the study was The SEKAQ (Sexual Knowledge Assessment Questionnaire). The SEKAQ is an instrument created by school-based health professionals to evaluate sexual knowledge in junior high school, high school, and early college students as future health professionals and educators (Martínez et al., 2025). The instrument used consisted of 11 questions representing the biological, psychological, and sociological dimensions of sexuality. Data collection was conducted online via the Google Forms platform using a dichotomous response format, with a score of 1 for correct answers and 0 for incorrect answers.

The data were processed using Rasch Modeling analysis assisted by Winsteps software version 3.73. The analysis procedures included: (1) Item Fit test to validate the question construction; (2) Estimation of respondent and item reliability; and (3) Wright Map Analysis (Variable Map) to visualize the distribution of respondents' abilities vis-a-vis the level of question difficulty, so that knowledge gaps can be identified visually and statistically.

RESULTS

Demographic data analysis shows that the majority of participants were from the first phase of early adulthood (18–25 years old) and were predominantly female. Details of the distribution are presented in Table 1.

Table 1
Respondent Characteristics

Characteristics	Frequency (f)	Percentage (%)
Age Group		
18-25 Years (Early Adulthood Phase I)	30	83.3
26-33 Years (Early Adulthood Phase II)	5	13.9
> 34 Years	1	2.8
Gender		
Woman	30	83.3
Man	6	16.7
Total	36	100.0

Based on the Winsteps analysis results, the instrument's quality was assessed using reliability and validity indicators. A statistical summary of the analysis results is presented in Table 2.

Table 2
Summary of Rasch Statistics

Statistical Parameters	Mark	Interpretation Category
Person Reliability	0.46	Weak
Item Reliability	0.75	Quite good
Cronbach's Alpha(KR-20)	0.61	Enough
Average Measure (Person)	-0.07 logit	Slightly below average questions
Average Measure (Item)	0.00 logit	Reference Standard

An Item Reliability value of 0.75 indicates that the instrument items have a fairly good ability to represent variations in the level of difficulty of the material. Conversely, a relatively low Person Reliability (0.46) indicates that respondents' responses tend to be homogeneous, or that the instrument still needs to add more items to improve the ability to differentiate between individuals.

The main analysis in this study focused on mapping the hierarchy of item difficulty levels based on logit values. Table 3 presents the order of topics from the most difficult to understand, indicating the highest level of misconceptions, to the easiest topic for respondents.

Table 3
Level of Difficulty of Sexual Knowledge Questions

Ranking	Item Code	Question Topic	Correct Percentage	Measure (Logit)	Difficulty Category
1	Q6	Percentage of Sexual Violence Case Detection (Iceberg)	19%	+1.42	Very difficult
2	Q7	Clinical Impact of Depression on Sexual Function	39%	+0.45	Difficult
3	Q2	How HIV is Transmitted (Myths vs. Penetration Facts)	42%	+0.34	Difficult
4	Q8	Affirmative Action/Positive Action for Sexual Diversity	44%	+0.22	Currently
5	Q4	Availability of HPV and Hepatitis Vaccines	47%	+0.11	Currently
6	Q10	Definition of Sexual Harassment	47%	+0.11	Currently
7	Q11	Peer Pressure & Virginity	47%	+0.11	Currently
8	Q3	Symptoms of Sexually Transmitted Infections (Asymptomatic)	56%	-0.22	Easy
9	Q1	The Relationship Between Alcohol/Drugs and Sexual Violence	58%	-0.34	Easy

10	Q5	Menstrual Stigma and Sexism	61%	-0.45	Easy
11	Q9	The Impact of Pornography on Sexual Behavior	81%	-1.42	Very easy

The data reveals a significant gap in understanding. Item Q9, which discusses the negative impacts of pornography, received the lowest logit score (-1.42), indicating that this issue was easily understood by respondents. Conversely, item Q6, which concerns the tip of the iceberg of sexual violence, received the highest logit score (+1.42), indicating a low level of factual literacy among most respondents.

FINDINGS AND DISCUSSIONS

The results of the Rasch modeling analysis indicate that early adult sexual knowledge is uneven and fragmented between normative understanding, empirical data literacy, and medical literacy. This pattern confirms that internalization of moral and social values does not always go hand in hand with mastery of factual, data-based, and health knowledge. This finding aligns with a study by Goldfarb and Lieberman (2021), which asserts that sexual education that overemphasizes moral aspects without a strong scientific basis tends to produce partial understanding and is prone to misconceptions. The high success rate of respondents on item Q9 regarding the impact of pornography on sexual behavior (logit -1.42; 81%) indicates that the issue has become a dominant normative discourse that is easily internalized. This pattern is consistent with findings that suggest that sexual topics that are frequently socialized morally and socially are easier to understand than issues that require structural understanding and empirical data literacy (Leung et al., 2019; Pound et al., 2017). In other words, respondents are relatively strong on the evaluative-moral aspect, but weak on the analytical aspect.

In contrast, the low rate of correct answers to item Q6 concerning the "iceberg" phenomenon of sexual violence (logit +1.42; 19%) indicates respondents' limited understanding of the nature of sexual violence as a latent and systemic phenomenon. Studies show that sexual violence, particularly in the context of power relations and value-based institutions, is often not explicitly recognized by individuals due to being obscured by norms, authority, and a culture of silence that hinder the process of recognition and reporting (Bin Mohamad et al., 2024). This condition explains why

respondents more easily recognize behavior that is clearly considered "violating norms" compared to patterns of violence that are hidden, layered, and invisible.

This understanding gap becomes even more complex when linked to medical literacy. Questions Q2, regarding HIV transmission (logit +0.34; 42%), and Q4, regarding HPV and hepatitis vaccines (logit +0.11), indicate persistent medical misconceptions among young adults. The findings suggest that the lack of comprehensive, health-based sexual education directly impacts individuals' low understanding of the biological risks and prevention of sexually transmitted infections (Fonner et al., 2014; Zizza et al., 2021). In fact, the World Health Organization (WHO, 2018) firmly positions medical misconceptions as a key indicator of the failure of sexual education in building long-term health literacy. Furthermore, low medical literacy can also be understood as the impact of sexual education models that do not optimally utilize contextual and technological approaches. Studies show that the integration of digital technology and interactive approaches has been shown to significantly improve sexual health understanding, especially among adolescents and young adults. The absence of these approaches in respondents' learning experiences may explain why their sexual knowledge is fragmented and unintegrated (Brayboy et al., 2018; Decker et al., 2022; Yarger et al., 2024).

Overall, the findings of this study indicate that respondents' sexual knowledge remains at a declarative level, limited to knowing terms, norms, and prohibitions. However, it has not yet developed into operational knowledge that can guide individuals in understanding social realities, understanding health risks, and making responsible decisions. This pattern aligns with psychosocial development theory, which emphasizes that the early adult phase requires educational support that is not only normative but also reflective and evidence-based so that individuals can build a healthy identity and self-regulation (Erikson, 1994; Steinberg, 2008).

In the context of guidance and counseling, this gap between normative understanding, empirical data literacy, and medical literacy has serious implications. Individuals who are equipped only with moral values without factual understanding are at risk of misjudging situations of sexual violence, becoming trapped in stigma, or making inappropriate health decisions. Therefore, guidance and counseling services need to adopt a comprehensive

sexuality education approach that is contextual, based on scientific data, culturally sensitive, and integrated with health literacy (Goldfarb & Lieberman, 2021; Karatana et al., 2025; Rafiq et al., 2025). Thus, the results of this study not only enrich the mapping of the level of sexual knowledge of early adulthood, but also emphasize the urgency of the strategic role of guidance and counseling in bridging norms, empirical data, and medical knowledge holistically.

However, this study still has limitations. The findings primarily reflect the cognitive dimension of sexual knowledge and do not fully describe respondents' attitudes, personal experiences, and sexual behavior practices. Furthermore, the quantitative approach based on Rasch modeling is unable to deeply explore the social and cultural processes underlying the internalization of norms, the emergence of medical misconceptions, and the lack of awareness of latent sexual violence. Therefore, further research using a mixed methods approach and a more diverse sample size is needed to strengthen generalizability and deepen the interpretation of the findings.

CONCLUSION AND RECOMMENDATION

This study concludes that the sexual knowledge profile in early adulthood (aged 18–40) remains fragmentary, with a significant gap between normative understanding and medical literacy and empirical data. Based on the Rasch Model analysis, respondents demonstrated a very high level of mastery of moral topics, such as the negative impacts of pornography, but experienced substantial difficulties in understanding systemic and clinical issues, such as the tip of the iceberg of sexual violence, HIV transmission, and the urgency of vaccination. This indicates that respondents' knowledge is only at the declarative level and has not yet reached a deep operational understanding for responsible health decision-making.

Theoretically and methodologically, these findings provide important contributions to the fields of Guidance and Counseling and Educational Psychology by demonstrating the effectiveness of the Rasch Model in diagnosing areas of misconception that cannot be detected by Classical Test Theory. This research confirms that widespread access to digital information does not necessarily guarantee comprehensive sexual health literacy. Consequently, the paradigm of preventive services in Guidance and Counseling needs to shift from a merely moralistic approach to

Comprehensive Sexuality Education (CSE), which fully integrates biological, psychological, and sociological aspects.

As a recommendation for further research, it is necessary to expand the sample size with a more balanced gender proportion and refine the SEKAQ instrument by adding moderately difficult questions to increase measurement reliability (Person Reliability). Meanwhile, for Guidance and Counseling practitioners, the results of this mapping recommend that intervention program design no longer focus on normative material that has been mastered, but rather prioritize strengthening aspects of medical literacy and understanding of sexual violence data, which have been proven to still be weak points in the early adulthood phase.

A**CKNOWLEDGEMENTS**

The authors would like to thank all individuals who provided assistance and support during the completion of this study. No specific funding was received for this research.

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