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Factors Influencing Sexual Behavior Among High School in South Sulawesi

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ABSTRACT

Factors Influencing Sexual Behavior Among High School In South Sulawesi. Sexual behavior among adolescents is a crucial issue in public health and education, particularly among high school students. This study aims to analyze the factors influencing sexual behavior among high school or equivalent adolescents in South Sulawesi. The analyzed variables include knowledge of sexual behavior, media use, parental roles, peer influence, and religious knowledge. This study employs a quantitative approach using a survey method with a cross-sectional design. Data were collected from 1,069 respondents, who were randomly selected using a structured questionnaire. The data analysis was conducted using Exploratory Factor Analysis (EFA). The study results identify five factors comprising 16 indicators. Based on these findings, three main components emerged from the observed indicators: (1) the role of parents in supervision and family interaction; (2) morality and the influence of religious values; and (3) sexual knowledge and media utilization. These three components further led to the formation of three new factors: Parenting, Religiomorality, and Media Literacy. The findings of this study can serve as a foundation for developing programs in schools and communities aimed at providing preventive, curative, and promotive services related to adolescent sexual behavior.

KEYWORDS

Sexual behavior, Adolescents, Parental roles, Religious values, Peers, Media, Knowledge, Exploratory Factor Analysis.

1. INTRODUCTION

The age of adolescents based on the National Population and Family Planning Agency (BKKBN) makes adolescents the largest population compared to other age aggregates. The results of the Indonesian population census are dominated by generation Z or better known as the millennial generation. The proportion of generation Z is 30.84% of the total population and the millennial generation is 24.31% of the total population of South Sulawesi [1].

According to World Health Organization (WHO) data in 2019, every year around 40-60 million women around the world do not want to get pregnant and have an abortion. A total of 28,886 adolescent girls aged 10–19 years died from pregnancy, childbirth, and postpartum complications during 2015. Inadequate qualifications and skills can lead to unsafe abortions. Many induced abortions (safe and unsafe) occur, with an average of 56 million abortions per year. 35 abortions per 1000 women between 15 and 44 years old [2] in Indonesia, there are as many as 1,053 or about 10% of adolescent boys who have practiced premaritime sex [3].

Cases of delinquency in Indonesia are generally identical to adolescents in the age range of 15 years and one form of juvenile delinquency is free sex. According to the Indonesian Child Protection Commission, the phenomenon of free sex and the tendency towards sex among adolescents occurs in the form of watching porn 97%, kissing, petting, oral sex 93.7%, and

high school teenagers who are no longer virgins/virgins 62.7% and adolescents who have had an abortion 21.2% [4]. In 2018, the report of the Population Performance and Accountability Survey, Family Planning and Family Development stated that as many as 3.2% of adolescent boys had had sexual intercourse before marriage. Meanwhile, adolescent girls reached 1.3%. Furthermore, in 2019 the same thing was done, it was obtained that adolescent boys who had sex increased by 2% from the previous year [5].

The results of [6] research show that adolescents with low knowledge are 4.19 times more likely to be at risk, and adolescents with a more permissive attitude towards sex are five times more likely to have risky premarital sex. The development of the young generation is influenced by many factors in their lives, not just one factor. Growth and development are also influenced by your family, peers, schoolmates, religion, and the society you live in. Phenomenological studies from interviews with several teachers in high schools show that there are students who experience pregnancy out of wedlock and have to be dismissed, as well as many students who are dating in the school environment, and there are even students and students who have been caught holding hands in class by their homeroom teachers. These things are a form of sexual behavior that will have a bad impact if done continuously.

2. LITERATURE REVIEW

2.1 Matrix

Definition 2.1. A matrix is defined as a rectangular arrangement of numbers

$$A = \begin{pmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \cdots & a_{mn} \end{pmatrix} \tag{1}$$

Where a_{ij} is a scalar, called the entry or component of the matrix. The size or dimension of a matrix is defined as $m \times n$, where m is the number of rows and n is the number of columns.

Definition 2.2 (**Equality of Matrices**)**.** Two matrices are said to be equal if they have the same size and corresponding entries are equal. Precisely, if $A = [a_{ij}]$ and $B = [b_{ij}]$ are matrices of size $m \times n$, then $A = B$ if and only if $a_{ij} = b_{ij}$ for all $i = 1, 2, \ldots, m$ and $j = 1, 2, \ldots, n$.

Definition 2.3 (**Square Matrix**)**.** A matrix of size $n \times n$ is called a square matrix. In other words, a matrix is said to be square if it has the same number of rows and columns.

Definition 2.4 (**Matrix Addition**)**.** Suppose $A = [a_{ij}]$ and $B = [b_{ij}]$ are two matrices of size $m \times n$. Then the sum $C = A + B$ is defined as the matrix $C = [c_{ij}]$ where $c_{ij} = a_{ij} + b_{ij}$ for all $i = 1, 2, \ldots, m$ and $j = 1, 2, \ldots, n$.

Definition 2.5 (**Eigenvalue and Eigenvector**)**.** If A is a square matrix, then any scalar λ that satisfies

$$Ax = \lambda x \tag{2}$$

The vector x is called the eigenvector corresponding to the eigenvalue λ, and **Equation** (2) is known as the eigenvalue-eigenvector equation of the matrix A.

2.2 Factor Analysis

Factor analysis is based on a model in which the observed vector is divided into an unobserved systematic part and an unobserved error part. The components of the error vector are assumed to be uncorrelated or independent, whereas the systematic part is taken as a linear combination of a small number of unobserved factor variables. This analysis separates the influence of the factors—which is the main focus—from the error.

From another perspective, factor analysis provides a description or explanation of the interdependence among a set of variables in terms of factors, without considering the observed variability. This approach is contrasted with principal component

analysis, which describes or "explains" the observed variability. Factor analysis was originally developed to analyze mental test scores; however, the method is useful in many other situations, such as analyzing a series of attitude tests, a series of physical measurements, or a series of economic data. When a set of tests is administered to a group of individuals, it is observed that an individual's score on a particular test is more closely related to their scores on other tests than to the scores of other individuals on different tests. In other words, scores of a specific individual are usually interrelated to some degree. This interrelatedness is "explained" by assuming that an individual's test scores consist of a part specific to the particular test (called error) and a part that is a function of underlying quantities called primary ability scores or factor scores. Since these primary ability scores affect multiple tests, they account for the relationships among the various test scores. In general, the idea is that a person who is more intelligent in certain aspects will perform better on many tests compared to a person who is less intelligent.

Factor analysis is a statistical method aimed at identifying the underlying factors that explain the relationships among correlated variables. This technique simplifies data by grouping related variables, thereby reducing the number of variables to be analyzed without losing important information. Factor analysis serves to:

1. Identify the basic underlying structure of the data.
2. Reduce the data into simpler main components.
3. Assist in validating theoretical constructs or developing measurement instruments.

2.3 Principal Component Analysis

A latent factor is a variable that cannot be observed directly but is estimated through measurable variables using a linear model in factor analysis. The mathematical relationship can be expressed as:

$$X = \Lambda\xi + \varepsilon \tag{3}$$

where: X: The vector of observed (measured) variables (p-dimensional).
Λ: The factor loading matrix (p × m), where each entry indicates the contribution of the corresponding latent factor to the observed variable.
F: The vector of latent factors (m-dimensional).
ε: The vector of residual errors (p-dimensional).

Latent factors act as unobserved variables that account for the majority of the variance in the measured (observed) variables. The latent variables ξ are estimated by minimizing the residual errors ε.

3. METHODOLOGY

This type of research is a descriptive quantitative research, namely by describing the characteristics of factors that affect sex in adolescents in South Sulawesi Province. The method used is the cross-sectional method. The study population includes all high schools in South Sulawesi Province. The sample in this study is several State High Schools selected from various regions in South Sulawesi Province. The sample selection was carried out randomly to represent the variation in school characteristics. Students who are respondents are randomly taken based on a predetermined sampling technique to obtain representative data regarding the research variables. Data collection is carried out directly by the researcher by distributing a questionnaire containing questions in accordance with the variables to be studied. The distribution of the questionnaire was carried out by distributing it directly to the school to be distributed to students.

4. RESULT & DISCUSSION

The Kaiser-Meyer-Olkin Test (KMO) is used to see if the data can be tested for factor analysis. The **Tabel 1** shows the results of the KMO test analysis.

The KMO test or sample adequacy test with Kaiser-Meyer-Olkin (KMO), obtained a value of $0.512 > 0.5$ which indicates that the data has enough to carry out factor analysis. Furthermore, in the Bartlett's Test of Sphericity test which showed a significance value of $0.000 < 0.05$, it means that there was a significant correlation between variables in the dataset. This shows

Table 1. The Kaiser-Meyer-Olkin Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.512
Bartlett's Test of Sphericity	Approx. Chi-Square	1193.721
	Df	15
	Sig.	0.000

Table 2. The Anti-image Correlation Matrices

Anti-image Matrices							
		PP1	PM5	POT2	POT3	PA1	PA2
Anti-image Covariance	PP1	0.929	-0.206	-0.043	0.013	-0.048	-0.083
	PM5	-0.206	0.921	-0.029	0.006	0.125	0.022
	POT2	-0.043	-0.029	0.443	-0.330	0.018	0.011
	POT3	0.013	0.006	-0.330	0.447	0.005	-0.019
	PA1	-0.048	0.125	0.018	0.005	0.791	-0.335
	PA2	-0.083	0.022	0.011	-0.019	-0.335	0.804
Anti-image Correlation	PP1	0.523[a]	-0.223	-0.067	0.020	-0.055	-0.096
	PM5	-0.223	0.538[a]	-0.046	0.010	0.147	0.025
	POT2	-0.067	-0.046	0.506[a]	-0.741	0.030	0.019
	POT3	0.020	0.010	-0.741	0.504[a]	0.008	-0.032
	PA1	-0.055	0.147	0.030	0.008	0.524[a]	-0.420
	PA2	-0.096	0.025	0.019	-0.032	-0.420	0.522[a]

[a] Measures of Sampling Adequacy (MSA)

that the variables in the data are interconnected, so factor analysis can be carried out to explore the underlying structure. The anti-image correlation matrices is given in the **Tabel 2**.

The Measure of Sampling Adequacy (MSA) value is the diagonal of the Anti-Image matrix on the Correlation value. The higher the anti-image correlation value, the better the contribution of the variable/factor to the observed variable. The results of the analysis showed that the Anti Image correlation value for all variables was greater than 0.5. The communalities values are given in the following **Tabel 3**.

Table 3. Communalities Value

Parameters	Initial	Extraction
PP1	1.000	0.666
PM5	1.000	0.658
POT2	1.000	0.871
POT3	1.000	0.873
PA1	1.000	0.702
PA2	1.000	0.688

Extraction Method: Principal Component Analysis.

The value of communalities in each variable indicates the extent to which the variance of each variable can be explained by the factors that have been identified. The table above shows the communalities values of each of the consecutive variables PP1, PM5, POT2, POT3, PA1, and PA2 of 0.666, 0.658, 0.871, 0.873, 0.702, and 0.688. The value of communalities for all variables is greater than 0.5, this indicates that all variables can be explained by the factors studied. The highest value was the POT3 variable = 0.873 or 87.3% of the variance of the POT3 variable could be explained by factors. The eigenvalues are given in the following **Tabel 4**.

Table 4. Eigenvalues

Total Variance Explained			
Component	**Total**	**% of Variance**	**Cumulative %**
1	1.793	29.879	29.879
2	1.482	24.708	54.587
3	1.183	19.719	74.307
4	0.730	12.162	86.469
5	0.557	9.276	95.745
6	0.255	4.255	100.000

Extraction Method: Principal Component Analysis.

Initial eigenvalues in factor analysis refer to the initial eigenvalues generated during the first stage of factor extraction. Extraction is the initial stage in factor analysis where latent factors are identified based on the structure of correlation between variables. The goal is to determine how many factors can explain the variability in the data. Rotation is the next step carried out to make it easier to interpret the extraction results. Rotation does not change the number of factors or the total variants described, but changes the distribution of variants among the factors so that the data structure becomes simpler and clearer. The total value of variance explained is based on an eigenvalue of more than one of 74.587% with three components formed. This indicates that the number of factors extracted is three factors, and is able to explain the data variance of 74.587% on the observed adolescent sexual behavior. Furthermore, the determination of the elements of each component is given in the following **Tabel 5**.

Table 5. Matrices Component Values

Component Matrix			
Parameters	**1**	**2**	**3**
PP1	0.201	0.240	0.753
PM5	0.268	-0.236	0.729
POT2	0.907	0.148	-0.164
POT3	0.892	0.177	-0.217
PA1	-0.221	0.807	-0.032
PA2	-0.122	0.815	0.098

Extraction Method: Principal Component Analysis.
[a] 3 components extracted.

Tabel 5 shows that there are 3 (three) components formed from 6 (six) indicators/variables that are maintained. The determination of members/elements in each component is by paying attention to the highest value of each variable based on its row. The PP1 and PM5 variables are included in component 3 with values of 0.753 and 0.729. The POT2 and POT3 variables are included in component I with values of 0.907 and 0.892. Meanwhile, the PA1 and PA2 variables are included in the second component with values of 0.807 and 0.815.

5. CONCLUSION

Based on the results of data analysis, there are three main components that are new factors in this study. These three factors show a significant influence on the sexual behavior of high school adolescents in South Sulawesi. The first factor, parenting, includes the role of parents in supervision, family interaction, and the formation of basic values in adolescents. The second factor, religious morality, reflects the influence of morality and religious values in directing adolescent behavior, including in decision-making related to sexual behavior. The third factor, media literacy, focuses on adolescents' ability to access, understand, and filter information from the media, which can have a positive or negative impact on their sexual behavior. The combination of these three factors provides a holistic view of the key elements that influence adolescent sexual behavior, as well as providing important insights for intervention.

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