Journal of Ecohumanism
2025
Volume: 4, No: 1, pp. 3348– 3351
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v4i1.6170

Behavioral Model of the Risk of HIV/AIDS in Gorontalo Transmission Adolescents

Irwan[1], Ayub Irmadhani Anwar[2], Deliyana I Katili[3], Yasir Mokodompis[4]

Abstract

In 2023, a total of 198 HIV/AIDS cases were reported in Gorontalo Province, comprising 89 males and 109 females, with 87% falling within the productive age group of 25-35 years. This observational research employed a cross-sectional approach. Pathway analysis was conducted using Structural Equation Modelling with AMOS 8.50. The study examined variables including beliefs, intention, and risky behavior. A total of 200 samples were collected from Gorontalo City. The pathway analysis model for female teenagers engaging in risky behaviors revealed a significant influence of intention (p = 0.001), which was further influenced by beliefs (p = 0.001) and religious piousness (p = 0.001). The model of risky behavior related to HIV/AIDS in female teenagers was notably influenced by intention and religious piousness.

Keywords: *Adolescents, HIV/AIDS, Risky Behavior, Intention.*

Introduction

In 2023, the majority of people living with HIV/AIDS in Gorontalo Province were within the productive age group of 27-35 years, accounting for 78 cases (87%). Among these, 89 were females, and 109 were males (Ajzen & Fishbein, 1980).

The Theory of Reasoned Action (Ajzen and Fishbein, 1980) suggests that adolescent behaviors aimed at avoiding HIV and AIDS transmission are deliberate and influenced by reasoned goals. These behaviors are shaped by self-determined decisions, attitudes, and subjective norms, which collectively predict the likelihood of engaging in risky or preventive actions related to HIV/AIDS (Jemmott, 2012)(Mizuno et al., 2002).

Adolescents' perceptions play a crucial role in determining their intentions, which may lead to positive or negative actions. These intentions are influenced by attitudes toward personal actions, acting as a guide for their behavior. Consequently, behavioral outcomes reflect these underlying intentions. Furthermore, adolescents' choices are significantly influenced by their beliefs about socially accepted norms and societal expectations, which serve as the foundation for their decision-making processes. During adolescence, a strong drive to engage in specific behaviors emerges. If adolescents view HIV and AIDS prevention as essential, they are likely to take preventive actions. Conversely, if prevention is not deemed important, they may engage that increase the risk of in behaviors HIV and AIDS transmission (Wadunde et al., 2018)(Byrne, 2015)(Irwan, 2021).

Method

This study aimed to identify the risk factors associated with HIV/AIDS contraction among females. It employed an observational approach with a cross-sectional study design. Conducted in Gorontalo City over a period of three months, the research targeted high school female students aged 17 years. The study utilized Random 200 participants. Structural Equation Modeling (SEM) was applied as the pathway analysis framework, using AMOS software version 8.50 to evaluate the relationships among variables (Byrne, 2015)(Irwan, 2021).

[1] Universitas Negeri Gorontalo, Gorontalo, Indonesia. Email: irwan@ung.ac.id (Corresponding Author)
[2] Universitas Hasanuddin, Makassar, Indonesia
[3] Universitas Hasanuddin, Makassar, Indonesia
[4] Universitas Negeri Gorontalo, Gorontalo, Indonesia

Journal of Ecohumanism
2025
Volume: 4, No: 1, pp. 3348– 3351
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v4i1.6170

Results and Discussion

The study identified several risk factors contributing to HIV/AIDS contraction among female teenagers, including cultural influences, knowledge, media exposure, religious piety, and parenting. Risky behaviors observed included engaging in premarital sexual activities, the use of injected narcotics, and tattooing or body piercing (Schumacker & Lomax, 2016)(Mizuno et al., 2002).

The cultural variable analysis revealed that 95% of male teenagers and 81.2% of female teenagers perceived premarital sexual behavior as culturally inappropriate. Regarding religious obedience, 95.05% of male teenagers were more committed to practicing their religion compared to 81.2% of female teenagers. Additionally, 95% of male teenagers viewed media as having a substantial influence, while only 81.2% of female teenagers shared this perspective. Overall, respondents' behaviors were categorized based on three main variables: premarital sex, drug use, and tattooing or piercing. The findings showed that 119 participants (59.5%) exhibited low-risk behaviors, while 60 participants (30%) engaged in high-risk behaviors.

Pathway analysis was conducted using AMOS version 8.50. The validity test of the construct variables against latent variables confirmed that all five tested variables—economy (X1), culture (X2), religious obedience (X3), role of mass media (X4), and teenage knowledge (Y1)—significantly influenced the intermediate variables, including behavior beliefs (Y2), normative beliefs (Y3), control beliefs (Y4), intention (Y5), and risky behavior (Y6) ($p < 0.05$). Constructs were considered valid based on Pearson correlation, with significant values below 0.05. Model of HIV/AIDS risky behavior in male teenagers is presented in the following figure.

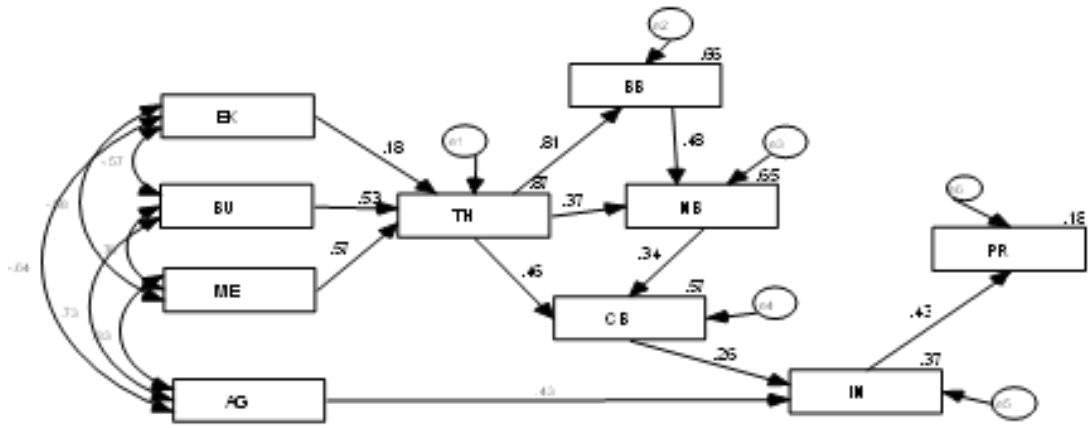

Figure 1 Final Model of Pathway Analysis in Women

The result of path analysis on male teenagers reveals that risky behavior is not influenced by variables within this research framework, hence it is predicted that the risky behavior in male teenagers is influenced by other risk factors such aspeers, parenting pattern, psychological factor, environmental factor, etc. Path analysis on male teenagers showed that male teenagers' knowledge is significantly influenced by cultural factor, mass media, and parents' income. Male teenagers' knowledge also significantly influences the behavior beliefs, normative beliefs, and control beliefs. However, intention does not significantly influence the risky behavior on male teenagers

Journal of Ecohumanism
2025
Volume: 4, No: 1, pp. 3348– 3351
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v4i1.6170

Table 1 Model of Path Analysis on Male Teenagers in Gorontalo

Influence	β	P	Notes
Culture→Knowledge	0.271	0.002	Significant
Economy→Knowledge	-0.315	0.001	Significant
Media→Knowledge	0.317	0.001	Significant
Religion→Intention	0.475	0.001	Significant
Knowledge→Behavior.Beliefs	0.570	0.001	Significant
Knowledge→Normative.Beliefs	0.583	0.001	Significant
Knowledge→ControlBeliefs	0.232	0.014	Significant
Normative Beliefs → Control Beliefs	0.385	0.001	Significant

The result of path analysis on female teenagers showed that belief variables (behavior beliefs, normative beliefs and control beliefs) significantly influence the intention, further, intention significantly influence teenagers behavior. Knowledge of female teenagers is significantly influenced by culture, media, and economy. In addition, religious obedience variable in female teenagers significantly influences intention by p = 0.001.

Further, intention significantly influenced the risky behavior on female teenagers. Based on the path analysis on female teenagers, it is found that the risky behavior on female teenagers supports what stated in TPB theory which stated that behavior is influenced by intention and beliefs, religious obediencevariable indirectly influence risky behavior through intention.

Table 2. Analysis on the Correlations among Variables on the Final Model on FemaleTeenagers in Gorontalo

Influence	β	P	Notes
Economy→Knowledge	0,177	0,001	Significant
Culture→Knowledge	0,528	0,001	Significant
Media→Knowledge	0,570	0,001	Significant
Knowledge→Behavior.Beliefs	0,812	0,001	Significant
BehaviorBeliefs→Normative.Beliefs	0,475	0,001	Significant
Knowledge→Normative.Beliefs	0,373	0,001	Significant
Normativebeliefs→Control.Beliefs	0,342	0,003	Significant
Knowledge→Control.Beliefs	0,463	0,001	Significant
ControlBeliefs→Intention	0,256	0,015	Significant
Religius→Intention	0,434	0,001	Significant
Intention → Behavior	0,427	0,001	Significant

The try out toward the model was conducted through overall model fit by using the Goodness of fit standard, as presented below:

Table 3 Tryout of the Final Model on Female Teenagers in Gorontalo city based on *Goodness of Fit* Criteria

Goodness of fit index	Cut of value	Final Model Male	Final Female
(ChiSquare)	0,001	0,001	0,001
SignificanceProbability	0,001	0,001	0,001
CMIN/DF	small =df <2,0	3,529	2,231
GFI	>0,90	0,891	0,888
RMSEA	<0,08	0,146	0,125
NFI	>0,90	0,896	0,913
CFI	<0,05	0,922	0,949
RMR		0,023	0,028

Evaluation of final model on male and female teenagers using the criteria of goodness of fit concluded that the final model is fit based on the small value of chi square which was smaller than 0.001 and the RMR value was only 0.023.

Journal of Ecohumanism
2025
Volume: 4, No: 1, pp. 3348– 3351
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v4i1.6170

The model on male teenagers showed that the risky behavior on male teenagers was not significantly influenced by intention, culture, media, and religious obedience variables, nor it is influenced by control beliefs. On male teenagers, this risky behavior was suspected to be influenced by other variables that were not investigated in this research, such as physical environment, social, politics, etc (Schumacker & Lomax, 2016)(Mizuno et al., 2002)(Schwarzer & Renner, 2000).

According to M. Katherine Hutchinson and Elyssa B Wood, there were two sub-components in *Theory of Planned Behavior* (TPB) namely attitude components (affective and instrumental), subjective norm and PBC components (self efficacy and control). These two components have been much researched. However, the less researched area is that whether the variance similarity among components (the general factors) or specification of variance within sub-components on the influence of intention and behavior can support the *Theory of Planned Behavior* (TPB). Therefore, the objective of this research is to test the optimal conceptualization of the two sub-components or the general factors among each TPB component in a model. Further, this study is also aimed to test whether conceptualization could be differ for each individual based on the age group and the sex within the similar behavior domain (Hasan, 2014)(Bleakley et al., 2011)(Irwan, 2022).

Evolutionists psychologist have developed theories to describe the root of men and women differences. Evolutionary psychology is the most developed theory to describe the differences between sexes. From the perspective of evolution, sex differences in human reflect the pressure of physical and social environments for between men and women. This was believed that each sex faced different pressure and that different reproduction status is a dominantly important factor. This has caused the mechanism to explain the sex behavior of a person differs based on their sex. This explains why men and women are psychologically different: they tend to have different social role (Irwan, 2020)(Irwan et al., 2023)(Irwan & Abudi, 2020).

Evolutionary psychology describes the differences of sex due to differences in parent's investment. Because females invest on reproduction of the offspring, they have also developed attitudes that can help increase the chance that each offspring will survive. Males are less invested on reproduction and less picky about their mates. Environmental factor plays the main cause on sexual behavior differences in each teenager. This describes differences within the perspective of each sex about reproduction (Wouters et al., 2012)(Hutchinson & Wood, 2013)(Schwarzer & Renner, 2000).

Social structure theory stated that the critical cause of different behaviors in each sex is the social structure. Because men and women tend to have different social roles, they adjust themselves to those social roles. Sex differences are not based psychology but more due to the social influence. This was believed that situations faced by each teenager is based on the sex differences and is a variable within the community aside from the cultural factor that shape their behavioral patterns. Sexual differences physically influence different role of men and women, because sexual differences will strongly determine the implementation of certain male and female activities, in turn these different activities will determine the men and women place within the social structure. Through physical differences, each sex is believed to have developed attitudes according to their assignation within the social structure (Mills et al., 2006)(Wood & Eagly, 2012).

The model in male teenagers showed that their risky behaviors are not strongly influenced by intention, media, culture variables. Therefore, the PTB framework cannot be applied in intervention on male teenagers' risky behavior. Hence, it is possible for male teenagers' risky behavior is due to the influence of other aspects (Miller et al., 2012).

On the final model, there were two path coefficient which were not statistically significant, those are the influence of intention on the behavior and theinfluence of control beliefs on the behavior of male teenagers in Gorontalo.Therefore, this study showed that the risky behavior of male teenagers in Gorontalo was not influenced by intention factor, rather, it might due to the influence of social factors such as, parenting pattern, peers, physicalenvironmental aspects, and other social factors (Saroglou, 2012)

Parsons saw that individual or group actions are influenced by three systems, social system, cultural system, and personality system of each individual. We can relate individual with their social system through their

Journal of Ecohumanism
2025
Volume: 4, No: 1, pp. 3348– 3351
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v4i1.6170

status and roles. In each social system, individual hold certain status or position and acts according to the norms or values applied within that system in addition to their personality type Final path analysis model on female teenagers supported the *Theory of Planned Behavior* (TPB). This research showed that the intention variable significantly influenced the risky behaviors in female teenagers. The evaluation of this path analysis model on female teenagers through chi-square test NFI and RMR showed that the model fits.

On social perspective, one tries to enter meaningful relationships with others through religion. For many people religion is the basis of their lives philosophy. Other findings suggested that even though during their teenage years many people question their beliefs, at the end they will turn back to that religion. Many people in their early thirties turn back to practicing the religious practices that they have ignored before when they have become parents (Bleakley et al., 2011)(Saroglou, 2012)

For teenagers, religion is similar to moral. Even, as Adams and Gullotta have explained, religion provides a moral framework that enables a person to compare their behaviors against the religious values. Religion can stabilize behaviors and is able to provide description and purposes for human existence in this world. Religion provides protection, sense of security, especially for teenagers who are in search of their self-existence (Ajzen, 2012)

Psychologically in teenage phase, there are two important aspects that have to be prepared. One of them is sexual orientation. In this stage, teenagers are expected to have found their sexual orientation, either hetero sexual or homo sexual (Parsons, 2013)

The influence of control beliefs on intention on female teenagers showed significant correlation. This is similar to the findings on research conducted by Schwarzer and Renner (1995) which described dimensions of self-efficacy. Self-efficacy is belief to control one-self or faith to keep practicing positive behavior regardless to many challenges ahead. Beliefs to be able to learn all abilities needed to avoid risky behaviors, and belief to control one-self from doing risky behaviors regardless to internal and external pressures.

This research on students showed that students' beliefs toward risky behaviors following the socialization on these risky behaviors showed that there were only 2 students (6.25 %) who have strong beliefs to deter risky behaviors and that there were 21 students (91.3%) who have high self-efficacy to reject risky behaviors

The final model on female teenagers showed that the role of media significantly influenced their knowledge, where knowledge significantly influenced beliefs (behavior beliefs, normative beliefs, and control beliefs). In turn, control beliefs influenced intention to commit risky behaviors. Based on this research, the role of media indirectly influenced female teenagers' beliefs to commit risky behaviors.

Research conducted by Amy Bleakley who studied how the source of sexualinformation related to female beliefs on sex in America found that there is an influence of significant others in this case, friends and cousins, that appear to havecontradictive influence from parents or other authoritative bodies on teenagers' beliefs on sexual intercourse. Significant others beliefs that sex has positive consequences related to self-concept and relationship with other partners and that conducting sexual intercourse is an acceptable behavior related to beliefs in behaviors, norms, and self-efficacy to be just friends.

Conclusion

The modeling result on the behaviors of male teenagers was found that HIV/AIDS risky behaviors on male teenagers in Gorontalo City was not significantly influenced by intention and beliefs variables. It is possible that risky behaviors on male teenagers were due to factors such as, peers, physical environment, and psychological factors.

Acknowledgement

I would like to thank and acknowledge the following parties contribution on the completion of this research: head of health agency in the district of Gorontalo, head of the provincial health agency, head of education

Journal of Ecohumanism
2025
Volume: 4, No: 1, pp. 3348– 3351
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v4i1.6170

agency in the district of Gorontalo, the research site school's principal, community leaders and health cadres who had assisted the data collection in the field.

References

Ajzen, I. (2012). Behavioral interventions based on the Theory of Planned Behavior. In *Handbook of Theories of Social Psychology* (pp. 385–403).

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. In *Englewood Cliffs, NJ: Prentice Hall.*

Bleakley, A., Hennessy, M., Fishbein, M., & Jordan, A. (2011). Using the Integrative Model to Explain How Exposure to Sexual Media Content Influences Adolescent Sexual Behavior. *Health Education & Behavior*, *38*(5), 530–540. https://doi.org/10.1177/1090198110385775

Byrne, B. (2015). Principles and Practice of Structural Equation Modeling. In *New York: Guilford Press 4th Edition.*

Hasan, C. (2014). Adolescents' behavior and HIV prevention: A reasoned approach. *Int J Adolesc Med Health*, *26*(4), 285.

Hutchinson, M., & Wood, E. (2013). Theory of planned behavior and risky sexual behaviors among adolescents: Insights into gender differences. *Journal Adolesc Health*, *52*(2), 243.

Irwan. (2020). Model Of Local Wisdom Based-Community Empowerment To Control HIV/AIDS. *Journal Health & Science : Gorontalo Journal Health and Science Community*, *4*(1), 51–58. https://doi.org/10.35971/gojhes.v4i1.5377

Irwan. (2021). Metode Penelitian Kesehatan. In *Zahir Publishing.*

Irwan. (2022). Risk Factors for Sexually Transmitted Disease and HIV/AIDS Towards Males Sex Males In Gorontalo City. *International Journal of Health Science & Medical Research*, *1*(1), 18–26. https://doi.org/10.37905/ijhsmr.v1i1.9280

Irwan, I., & Abudi, R. (2020). Risiko Penularan HIV/AIDS pada Pekerja Seks Komersial (PSK) di Provinsi Gorontalo. *Journal Health & Science : Gorontalo Journal Health and Science Community*, *2*(2), 274–282. https://doi.org/10.35971/gojhes.v2i2.5271

Irwan, I., Boekoesoe, L., Katili, D. I., Pratiwi Hantulu, D., & Una, M. (2023). HIV/AIDS Risky Behavior Model for LGBT Youth in the Gorontalo Province. *The Open Public Health Journal*, *16*(1). https://doi.org/10.2174/0118749445262206230927054154

Jemmott, J. B. (2012). The Reasoned Action Approach in HIV Risk-Reduction Strategies for Adolescents. *The ANNALS of the American Academy of Political and Social Science*, *640*(1), 150–172. https://doi.org/10.1177/0002716211426096

Miller, L., Wickramaratne, P., Gameroff, M. J., Sage, M., Tenke, C. E., & Weissman, M. M. (2012). Religiosity and Major Depression in Adults at High Risk: A Ten-Year Prospective Study. *American Journal of Psychiatry*, *169*(1), 89–94. https://doi.org/10.1176/appi.ajp.2011.10121823

Mills, E. J., Nachega, J. B., Bangsberg, D. R., Singh, S., Rachlis, B., Wu, P., Wilson, K., Buchan, I., Gill, C. J., & Cooper, C. (2006). Adherence to HAART: A Systematic Review of Developed and Developing Nation Patient-Reported Barriers and Facilitators. *PLoS Medicine*, *3*(11), e438. https://doi.org/10.1371/journal.pmed.0030438

Mizuno, Y., Kennedy, M., Seals, B., & Mylvaganam, I. (2002). Predictors of condom use intentions among adolescents: A controlled study. *Journal Behav Med*, *25*(5), 415.

Parsons, T. (2013). The social system revisited: Adaptation and integration of individual behaviors. *Journal for the Theory of Social Behaviour*, *43*(4), 492–492. https://doi.org/10.1111/jtsb.12048

Saroglou, V. (2012). Adolescents' Social Development and the Role of Religion. In *Values, Religion, and Culture in Adolescent Development* (Vol. 29, Issue 5, pp. 391–423). Cambridge University Press. https://doi.org/10.1017/CBO9781139013659.022

Schumacker, R., & Lomax, R. (2016). A Beginner's Guide to Structural Equation Modeling. In *Routledge 4th Edition.*

Schwarzer, R., & Renner, B. (2000). Social-cognitive predictors of health behavior: Action self-efficacy and coping self-efficacy. *Health Psychology*, *19*(5), 487–495. https://doi.org/10.1037/0278-6133.19.5.487

Wadunde, I., Tuhebwe, D., Ediau, M., Okure, G., Mpimbaza, A., & Wanyenze, R. K. (2018). Factors associated with adherence to antiretroviral therapy among HIV infected children in Kabale district, Uganda: A cross sectional study. *BMC Research Notes*, *11*(1), 1–6. https://doi.org/10.1186/s13104-018-3575-3

Wood, W., & Eagly, A. (2012). Gender differences in social behavior: A social-role interpretation. *Adv Exp Soc Psychol.*

Wouters, E., Van Damme, W., van Rensburg, D., Masquillier, C., & Meulemans, H. (2012). Impact of community-based support services on antiretroviral treatment programme delivery and outcomes in resource-limited countries: a synthetic review. *BMC Health Services Research*, *12*(1), 194. https://doi.org/10.1186/1472-6963-12-194