

Original Research Article

HIV and AIDS risk behavior in inter-city inter-province driver in Manado city

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ABSTRACT

Background: HIV and AIDS remain major public health concerns worldwide, particularly among populations with high mobility and limited access to health education. Inter-city inter-provincial (AKAP) drivers are categorized as a high-risk male population due to their occupational mobility and potential exposure to risky behaviors. This study aimed to analyze factors associated with HIV and AIDS risk behavior among AKAP drivers in Manado City.

Methods: This study employed an analytical observational design with a cross-sectional approach conducted in Manado City from April to November 2023. The study population consisted of all AKAP drivers stationed at Malalayang Terminal, totaling 86 individuals. Total sampling technique was applied. Data were collected using structured questionnaires and analyzed using univariate and bivariate analysis with Chi-Square test and Odds Ratio (OR).

Results: The findings indicated that knowledge ($p=0.016$, $OR=1.85$) and attitude ($p=0.037$, $OR=2.12$) were significantly associated with HIV and AIDS risk behavior. Motivation ($p=0.587$, $OR=3.64$) and education level ($p=0.237$, $OR=1.42$) were not statistically significant but showed potential risk tendencies.

Conclusions: Knowledge and attitude were significantly related to HIV and AIDS risk behavior among AKAP drivers in Manado City. Strengthening educational and behavioral intervention programs targeting drivers is essential to reduce HIV transmission risk.

Keywords: AIDS, Cross-sectional study, Driver, HIV, Risk behavior

INTRODUCTION

Human Immunodeficiency Virus (HIV) remains a major global public health issue due to its impact on morbidity, mortality and socioeconomic burden. HIV attacks the human immune system and, if not properly treated, can progress into acquired immunodeficiency syndrome (AIDS). Despite advances in prevention and treatment, the number of people living with HIV continues to increase, particularly in developing countries where access to education and health services is still limited.¹

The transmission of HIV is closely related to behavioral, social and environmental factors. Risky sexual practices,

low awareness of preventive measures and limited utilization of health services contribute to the persistence of new infections. In addition, certain population groups are considered more vulnerable due to their lifestyle or occupational characteristics, particularly those involving frequent travel and prolonged absence from stable social or family environments.²

Occupational groups with frequent mobility, such as inter-city inter-provincial (AKAP) drivers, are categorized as High-Risk Men (HRM). Long working hours, extended periods away from family and exposure to different social environments potentially increase the likelihood of engaging in risky sexual behavior, substance use and limited utilization of health services. These

conditions place drivers at a higher risk of HIV transmission compared to the general population.³ In Indonesia, HIV/AIDS cases continue to show an upward trend, including in North Sulawesi Province. Manado City, as one of the economic and transportation centers, has a strategic role in inter-regional mobility, which may indirectly contribute to the vulnerability of certain occupational groups. Behavioral factors such as inadequate knowledge, low motivation for preventive actions, negative attitudes toward safe sexual practices and educational background are considered important determinants influencing individual decisions related to HIV prevention.^{4,5}

Previous studies have highlighted that knowledge and attitude are strongly associated with preventive behavior, while motivation and educational level may also play contributory roles. However, limited research has specifically focused on HIV/AIDS risk behavior among AKAP drivers in Manado City.

Therefore, this study aims to analyze the relationship between knowledge, motivation, attitude and education with HIV/AIDS risk behavior among inter-city inter-provincial drivers in Manado City. The findings of this study are expected to provide evidence-based recommendations for targeted health promotion and prevention strategies among high-mobility occupational groups.⁶

METHODS

This study used an analytical observational design with a cross-sectional approach to analyze the relationship between knowledge, motivation, attitude and educational level with HIV and AIDS risk behavior among inter-city inter-provincial (AKAP) drivers in Manado City. The research was conducted from April to November 2023 at Malalayang Terminal, Manado.

The population consisted of all active AKAP drivers at the terminal, totaling 86 individuals. A total sampling technique was applied, resulting in 86 respondents who met the inclusion criteria, namely active drivers aged 18 years or older and willing to participate. Exclusion criteria included incomplete questionnaires and respondents who were absent during data collection. The independent variables were knowledge, motivation, attitude and education, while the dependent variable was HIV and AIDS risk behavior. Data were collected using structured questionnaires through direct interviews and supported by secondary data from related institutions.

Data analysis included univariate analysis to describe respondent characteristics and bivariate analysis using the Chi-Square test to determine associations, with Odds Ratio (OR) and a significance level of $p < 0.05$. Ethical principles such as informed consent, confidentiality and voluntary participation were applied throughout the study.

Statistical analysis

The data collection instrument for this study was a questionnaire in which the data were analyzed using SPSS. Data analysis was carried out by univariate analysis to get an overview of each variable and bivariate analysis using chi-square test to determine the relationship and risk factor between the independent and dependent variable.

RESULTS

A total of 86 inter-city inter-provincial (AKAP) drivers participated in this study. Based on demographic characteristics, most respondents were aged 20–29 years (44.2%), followed by 30–39 years (30.2%) and 40–49 years (25.6%). In terms of educational background, the majority had completed senior high school (66.2%), while 18.6% had junior high school education, 11.7% elementary school and 3.5% did not complete elementary school.

The distribution of HIV and AIDS risk behavior showed that 46 respondents (53.5%) were categorized as engaging in risky behavior, while 40 respondents (46.5%) were categorized as not engaging in risky behavior. The bivariate analysis revealed a significant relationship between knowledge and HIV and AIDS risk behavior ($p=0.016$, $OR=1.85$).

Among respondents with poor knowledge, 63.9% engaged in risky behavior, whereas only 28% of those with good knowledge reported risky behavior. This indicates that respondents with poor knowledge were more likely to perform HIV risk behaviors compared to those with good knowledge. Motivation did not show a statistically significant relationship with HIV and AIDS risk behavior ($p=0.587$, $OR=3.64$). However, descriptively, respondents with high motivation showed a higher proportion of risky behavior (73.8%) compared to those with low motivation (34.1%). Although not statistically significant, the odds ratio suggests a potential tendency toward increased risk.

Attitude demonstrated a significant association with HIV and AIDS risk behavior ($p=0.037$, $OR=2.12$). Respondents with poor attitudes showed a higher proportion of risky behavior (75.7%) compared to those with good attitudes (36.7%). This finding indicates that negative attitudes toward HIV prevention increase the likelihood of unsafe practices.

Education level was not significantly associated with HIV and AIDS risk behavior ($p=0.237$, $OR=1.42$). Respondents with low education showed 68.9% risky behavior, while those with higher education showed 63.1% risky behavior. Although the statistical test was not significant, the proportion suggests that lower education may still contribute to a higher tendency of engaging in risky actions.

Table 1: Demographic characteristics of respondents.

Variable	Category	N (86)	%
Age (in years)	20–29	38	44.2
	30–39	26	30.2
	40–49	22	25.6
Education	Not completed elementary school	3	3.5
	Elementary School	10	11.7
	Junior High School	16	18.6
	Senior High School	57	66.2

Table 2: The relationship between knowledge and HIV and AIDS risk behavior among inter-city inter-Provincial (AKAP) Drivers in Manado City.

Knowledge	HIV and AIDS risk behavior				Total	%	P	OR
	Yes	%	No	%				
Poor	39	63.9	22	36.1	61	100	0.016	1.85
Good	7	28	18	72	25	100		
Total	46	53.5	40	46.5	86	100		

Table 3: The relationship between motivation and HIV and AIDS risk behavior among inter-city inter-provincial (AKAP) drivers in Manado City.

Motivation	HIV and AIDS risk behavior				Total	%	P	OR
	Yes	%	No	%				
Low	15	34.1	29	65.9	44	100	0.587	3.64
High	31	73.8	11	26.2	42	100		
Total	46	53.5	40	46.5	86	100		

Table 4: The Relationship Between Attitude and HIV and AIDS Risk Behavior Among Inter-City Inter-Provincial (AKAP) Drivers in Manado City.

Attitude	HIV and AIDS risk behavior				Total	%	P	OR
	Yes	%	No	%				
Poor	28	75.7	9	24.3	37	100	0.037	2.12
Good	18	36.7	31	63.3	49	100		
Total	46	53.5	40	46.5	86	100		

Table 5: The relationship between education level and HIV and AIDS risk behavior among inter-city inter-provincial (AKAP) drivers in Manado City.

Education level	HIV and AIDS risk behavior				Total	%	P	OR
	Yes	%	No	%				
Low	20	68.9	9	31.1	29	100	0.237	1.42
High	36	63.1	21	36.9	57	100		
Total	46	53.5	40	46.5	86	100		

DISCUSSION

The present study aimed to analyze the relationship between knowledge, motivation, attitude and educational level with HIV and AIDS risk behavior among inter-city inter-provincial (AKAP) drivers in Manado City. The findings demonstrate that knowledge and attitude are significantly associated with risky behavior, while motivation and educational level do not show statistically

significant relationships, although both variables indicate a tendency toward increased risk. These results highlight the complexity of behavioral determinants in HIV prevention, particularly among occupational groups with high mobility such as drivers.⁷ Knowledge emerged as one of the most influential factors related to HIV and AIDS risk behavior. Respondents who possessed lower levels of knowledge regarding HIV transmission routes, prevention methods and long-term consequences were

more likely to engage in unsafe practices. Adequate knowledge enables individuals to recognize potential risks and adopt protective measures such as condom use, limiting multiple sexual partners and seeking voluntary counseling and testing. Conversely, misinformation or limited understanding may lead to underestimation of personal vulnerability, thereby increasing the likelihood of risky behavior. This finding is consistent with the concept that cognitive awareness serves as a foundational component in behavior change models, where information becomes the first step toward forming preventive actions.⁸

Attitude was also found to have a significant association with HIV risk behavior. A negative attitude toward HIV prevention such as stigma, embarrassment in accessing testing services or disbelief in the effectiveness of preventive measures can hinder individuals from translating knowledge into action. Attitude represents a person's internal evaluation shaped by cultural beliefs, social norms and personal experiences. In the context of drivers, social interaction patterns, peer influence and occupational stress may contribute to the formation of permissive or dismissive attitudes toward risky behaviors. Therefore, even when individuals are well informed, unfavorable attitudes may still lead to unsafe decisions. This finding emphasizes that effective HIV prevention programs should address not only informational aspects but also psychological and socio-cultural dimensions.⁹ Although motivation did not show a statistically significant relationship, the odds ratio indicated a tendency for higher risk among respondents with lower motivation levels. Motivation reflects the internal drive that encourages individuals to adopt or maintain healthy behaviors. In this study, the absence of statistical significance may be influenced by external factors such as accessibility of health facilities, availability of preventive resources, peer support and occupational demands that limit time or opportunity for health-seeking actions. Drivers often experience irregular schedules, long travel durations and fatigue, which may reduce their willingness to participate in counseling or routine health checks. Thus, motivation alone may not be sufficient unless supported by enabling environments and consistent reinforcement from external sources.¹⁰

Educational level was likewise not significantly associated with HIV and AIDS risk behavior. This suggests that formal education does not automatically translate into adequate health literacy or safe behavioral practices. Individuals with higher educational attainment may still engage in unsafe activities if they lack specific knowledge about HIV prevention or are influenced by social pressures and lifestyle factors. On the other hand, those with lower formal education may demonstrate protective behaviors when exposed to effective community-based education, media campaigns or peer education programs. This finding underlines the importance of targeted health communication strategies that focus on practical knowledge and behavioral skills

rather than relying solely on formal educational background.¹¹ Another important aspect highlighted by this study is the occupational characteristic of AKAP drivers as a high-mobility group. Frequent travel across regions, prolonged separation from family and exposure to diverse social environments increase vulnerability to high-risk behaviors. Mobility often correlates with opportunities for casual sexual encounters, limited supervision and inconsistent access to health information. In addition, occupational stress and fatigue may contribute to reduced self-control or diminished concern for long-term health consequences. These contextual factors reinforce the need for tailored intervention strategies that are accessible, flexible and adapted to drivers' work patterns.¹²

The findings of this study have practical implications for public health programs, particularly in urban transportation hubs such as Manado City. Strengthening educational interventions that emphasize accurate HIV information, promoting positive attitudes toward preventive practices and improving access to voluntary counseling and testing services are essential steps. Collaboration between health authorities, transportation agencies and terminal management could facilitate routine outreach programs, mobile health services and peer-education initiatives specifically designed for drivers. Integrating behavioral counseling with occupational health services may also enhance program effectiveness.¹³ Despite providing valuable insights, this study has several limitations. The cross-sectional design restricts the ability to establish causal relationships between variables. Data collection relied on self-reported questionnaires, which may introduce social desirability bias or underreporting of sensitive behaviors. Additionally, the sample was limited to one terminal area, which may reduce the generalizability of findings to other regions or driver populations. Future studies are recommended to employ longitudinal designs, larger and more diverse samples and mixed-method approaches to gain a deeper understanding of behavioral dynamics related to HIV risk.¹⁴

Overall, the discussion underscores that knowledge and attitude are critical determinants in shaping HIV and AIDS risk behavior among AKAP drivers. Behavioral interventions that combine cognitive education, attitude transformation and supportive environmental factors are likely to be more effective than approaches focusing solely on structural or demographic variables. Continuous and targeted health promotion efforts are necessary to reduce vulnerability and contribute to broader HIV prevention goals within high-mobility occupational groups.¹⁵

CONCLUSION

This study concludes that knowledge and attitude are significantly associated with HIV and AIDS risk behavior among inter-city inter-provincial (AKAP) drivers in

Manado City, where lower knowledge and negative attitudes increase the likelihood of engaging in risky practices. Although motivation and educational level were not statistically significant, both showed a tendency toward increased risk, indicating that behavioral and environmental factors remain important considerations. These findings highlight the need for targeted health education, attitude improvement and accessible HIV prevention programs to reduce risky behaviors and support HIV/AIDS control efforts among high-mobility occupational groups.

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