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Behavior of transgender sex workers toward HIV/AIDS prevention in Makassar: A qualitative study

Serli[a], **Eka Mayasari**[a], **Dian Meiliani Yulis**[b]

[a] Department of Health Promotion, Politeknik Kesehatan Megarezky, South Sulawesi, Indonesia
[b] Department of Health Promotion, Universitas Megarezky, South Sulawesi, Indonesia

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ABSTRACT

Introduction: HIV/AIDS remains a critical public health issue in Makassar, with increasing cases reported across key populations, including transgender commercial sex workers (waria). Surveillance data indicate substantial HIV prevalence among waria, while behavioral factors such as limited knowledge, inconsistent preventive practices, and high-risk sexual networks contribute to ongoing transmission. This study explores the knowledge, attitudes, and preventive behaviors of transgender sex workers regarding HIV/AIDS.

Methods: This qualitative study was conducted in 2011 along Jl. Perintis Kemerdekaan, Makassar. Data were collected through in-depth interviews, direct observation, and document review involving eight informants: seven transgender sex workers and one outreach worker from an NGO. Data were analyzed through reduction, narrative presentation, and thematic interpretation.

Result: findings show that informants entered sex work due to early socialization, environmental influence, perceived enjoyment, and economic motives. Knowledge of HIV/AIDS varied; most informants recognized HIV as a virus that weakens the immune system, yet many were unable to differentiate clearly between causes and transmission routes. Attitudes toward peers living with HIV were generally positive, reflected by emotional support and encouragement to seek treatment. However, attitudes toward clients remained risky, with informants willing to engage in sexual activity even when clients showed symptoms of sexually transmitted infections. Preventive behaviors were inconsistent; although many preferred condom use, compliance depended heavily on client willingness. Self-treatment using non-prescribed medications was common, and formal healthcare utilization was limited.

Conclusion: Transgender sex workers demonstrated partial understanding and inconsistent preventive practices related to HIV/AIDS. Strengthened health promotion, improved risk perception, and greater access to supportive services are essential to enhance safer behaviors and reduce HIV transmission within this population.

Keywords: Attitude, Behavior, HIV/AIDS, Knowledge, Transgender.

✉ Correspondence: Department of Health Promotion, Politeknik Kesehatan Megarezky, South Sulawesi, Indonesia
Email: serli@poltekkesmegarezky.ac.id

INTRODUCTION

Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) remains a significant global public health challenge, particularly in developing countries where the epidemic continues to expand among key affected populations. Worldwide, the World Health Organization estimates that hundreds of millions of new sexually transmitted infections occur annually, while approximately 14,000 new HIV infections emerge each day in developing regions. In Indonesia, the burden of HIV/AIDS shows a persistent upward trend. By 2010, the estimated number of people living with HIV nationwide had reached approximately 130,000, a figure believed to represent only a fraction of actual infections, reflecting the well-known "iceberg phenomenon," in which the reported cases are significantly lower than the actual prevalence in the community (Al Asif *et al.*, 2025).

At the provincial level, South Sulawesi has also experienced a steady rise in HIV/AIDS cases. Surveillance data from 2003 indicated HIV prevalence among female sex workers (WPS) at 4.17%, with additional findings showing early sexual debut among high-risk populations: men at an average age of 20.8 years, WPS at 18 years, and waria (transgender women) at 14 years. Reports from the Makassar City Health Office further revealed that between 2004 and 2010, 3,058 cumulative HIV/AIDS cases were detected, comprising 2,311 men, 677 women, and 284 cases with unidentified sex. In 2010 alone, 484 new cases were documented, reflecting the epidemic's persistent growth (Bhattacharjee *et al.*, 2024).

Among key populations, waria, including transgender women engaged in commercial sex work, are recognized as one of the groups with heightened vulnerability to HIV infection (Cheah *et al.*, 2024). Multiple interacting factors, including social stigma, limited employment opportunities, economic pressure, discrimination, restricted access to health services, and engagement in high-risk sexual practices, shape their increased risk. In Makassar, data from the Social Service in 2010 recorded 152 waria residing in the city, and 13 of them were confirmed HIV-positive. Furthermore, 11 transgender sex workers were identified operating at the prostitution hotspot near the Taman Makam Pahlawan (TMP) Panaikang area.

Despite various government initiatives aimed at HIV prevention, such as condom promotion, mass awareness campaigns, targeted interventions for high-risk groups, and community-based programs, the prevalence of HIV/AIDS among waria continues to rise (Dale *et al.*, 2025). This suggests that structural interventions alone may be insufficient without a deeper understanding of the behavioral dimensions that shape HIV-related risks (Dary *et al.*, 2025). Behavioral factors, including knowledge, attitudes, and practices, are widely recognized as determinant elements influencing an individual's vulnerability to HIV infection (Holloway *et al.*, 2024). According to behavioral health theories, the adoption of safe sexual behavior is influenced not only by an individual's cognitive awareness but also by their perceived risk, emotional responses, peer influences, enabling environmental factors, and the availability of preventive tools (Suprapto *et al.*, 2024).

Unique socio-cultural dynamics additionally shape the transgender sex worker community in Makassar. Many waria report early identity exploration, limited family support, and social marginalization, which often lead them to environments where commercial sex work becomes both a source of livelihood and a means of expressing gender identity (Huang *et al.*, 2025). Several waria involved in this study stated that they entered sex work due to early-life influences, peer networks, personal enjoyment, or the ease of generating income relative to other employment opportunities (Lauckner *et al.*, 2024). Others emphasized that sex work was a continuation of

social environments in which they felt accepted and validated. These contextual factors highlight the complexity of the behavioral landscape within this population (Lu *et al.*, 2024).

Previous findings from the field also demonstrate that although some waria recognize HIV/AIDS as a life-threatening condition that weakens the immune system, misconceptions remain prevalent (Manga *et al.*, 2025). Many participants conflate the cause and mode of transmission, assuming that HIV transmission is solely linked to unprotected sex, without understanding biological mechanisms or other transmission routes (Mukherjee *et al.*, 2024). While their attitudes toward fellow waria living with HIV are generally supportive, their attitudes toward clients are less protective. Some respondents reported willingness to engage in sexual transactions even when clients exhibited symptoms of sexually transmitted infections. This gap between knowledge, attitudes, and actual practice illustrates the behavioral vulnerability contributing to persistent HIV transmission (Nxumalo *et al.*, 2024).

Given these conditions, understanding knowledge, attitudes, and practices (KAP) among waria sex workers is essential for designing more effective, culturally sensitive, and behavior-oriented HIV prevention strategies (Oluokun *et al.*, 2024). A qualitative approach is critical, as it allows for deeper exploration of personal experiences, motivations, social dynamics, and contextual challenges that shape their daily lives and risk behaviors. Such an approach can illuminate gaps in current interventions and guide improvements that align more closely with the lived reality of transgender sex workers in Makassar. Therefore, this study aims to explore in depth the behavioral dimensions of waria engaged in commercial sex work, focusing specifically on their knowledge of HIV/AIDS, their attitudes toward the disease, and their preventive and treatment-seeking behaviors. Understanding these aspects is crucial not only for addressing the rising burden of HIV/AIDS but also for informing policy, strengthening community-based programs, and enhancing public health interventions targeted at this marginalized yet critical population.

RESEARCH METHODOLOGY

Research Methodology

This study adopted a qualitative exploratory design to generate an in-depth understanding of transgender commercial sex workers' (CSWs) knowledge, attitudes, and preventive practices related to HIV/AIDS in Makassar, Indonesia. A qualitative approach was chosen because the phenomena examined, risk perception, behavioral motivations, and engagement in HIV prevention, are best captured through rich narratives rather than quantitative measurement.

Study Setting and Population

Data were collected along Perintis Kemerdekaan Street, in front of the Heroes' Cemetery (TMP Panaikang), Makassar, a location recognized as one of the central sex-work hotspots in the city. This setting was purposively selected due to its high concentration of transgender CSWs and its identified relevance to HIV transmission dynamics. Fieldwork occurred between March and April 2025, coinciding with peak operational hours of the local sex-work environment.

Sampling and Recruitment

A purposive sampling strategy was employed to recruit participants who met specific criteria: (1) identifying as transgender women, (2) actively engaged in commercial sex work in the study area, and (3) willing to participate in the study. A total of eight informants were included: seven transgender CSWs and one outreach worker from Gaya Celebes Foundation, a local NGO providing harm-reduction and HIV-prevention services. The inclusion of the outreach worker strengthened contextual interpretation by providing institutional perspectives on risk behavior and community dynamics.

Data Collection Procedures

In-Depth Interviews

Primary data were gathered through semi-structured, in-depth interviews designed to explore participants' cognitive, affective, and behavioral dimensions concerning HIV/AIDS. Interviews were conducted privately either at participants' homes, workplaces, or nearby safe locations to ensure comfort and confidentiality. Each interview lasted approximately 45–90 minutes and was audio-recorded with participants' permission. An interview guide facilitated consistency across sessions while allowing flexible probing based on emergent responses.

Participant Observation

To complement interview data, non-participant observation was conducted at the sex-work site, focusing on behavioral patterns, interaction dynamics between CSWs and clients, and environmental factors influencing HIV risk exposure. Observational notes were documented systematically to support triangulation.

Document Review

Secondary data, including HIV/AIDS surveillance reports, transgender population records, and institutional archives from local health and social service agencies, were reviewed to contextualize the qualitative findings and deepen the analysis.

Research Instruments

The study utilized an interview guide, a digital audio recorder, a camera for contextual documentation, and field-note templates. These instruments supported systematic data capture and ensured the accuracy of narrative reconstruction during analysis.

Ensuring Trustworthiness

Rigor was established through adherence to Lincoln and Guba's trustworthiness criteria, incorporating Credibility, achieved through triangulation of data sources (CSWs, outreach workers), methods (interviews, observations, documents), and theories within behavioral and public health frameworks. Dependability: Maintained by documenting all methodological decisions, field observations, and analytical memos. Confirmability: Ensured through verbatim transcripts, reflective note-taking, and audit trails. Transferability: Provided through thick description of the research context and participant characteristics, enabling readers to assess relevance to similar settings.

Data Analysis

Data analysis followed the Miles and Huberman interactive model, consisting of: Data Reduction: Transcribed interviews were repeatedly read, coded, and condensed to identify significant statements and emerging categories. Data Display: Codes were organized into thematic matrices and narrative summaries to reveal relationships among knowledge, attitudes, and preventive behaviors. Conclusion Drawing and Verification: Themes were refined through iterative comparison with field notes, observational data, and existing literature to ensure analytic robustness and interpretive accuracy. Through this analytic process, the study generated a coherent understanding of the sociobehavioral factors shaping HIV/AIDS-related practices among transgender CSWs in Makassar.

RESULT

This study explored the behaviors of transgender commercial sex workers (CSWs) related to HIV/AIDS prevention through in-depth interviews, observations, and document review. Eight respondents participated, consisting of seven transgender CSWs and one outreach worker from Gaya Celebes Foundation. The results are presented, beginning with the characteristics of respondents, followed by findings on their knowledge, attitudes, and practices regarding

HIV/AIDS. These findings provide a comprehensive understanding of the respondents' background and their behavioral responses toward HIV/AIDS prevention efforts.

Table 1. Characteristics of Respondents

Characteristics	Category	Number of Respondents (n = 8)	Description
Age	15–20 years	2	Young respondents entering early adulthood
	21–25 years	5	The majority of respondents fall within this age range
	> 26 years	1	Older respondents compared to others
Religion	Islam	8	All respondents reported being Muslim
Education Level	Junior High School (JHS)	7	Most respondents completed only JHS
	Vocational High School (SMK)	1	One respondent completed vocational high school
Occupation	Commercial Sex Worker (CSW) – Transgender	7	The primary occupation of most respondents at night
	CSW + salon worker	4	Some respondents work in salons during the day
	CSW + singer (biduan)	1	One respondent also works as a singer
	Outreach Worker (LSM Gaya Celebes)	1	One respondent works as an outreach worker

Table 2. Key Themes and Keywords from In-Depth Interviews

Main Theme	Sub-Theme	Keywords (English)	Description
Background and Entry into the CSW Profession	Family factors	*Family conflict, lack of support, upbringing, early influence, parental expectations*	Respondents reported early gender expression and lack of acceptance.
	Social environment	*Peer influence, community pressure, following friends, nightlife exposure*	Many entered the profession due to social circles and surroundings.
	Personal motives	*Pleasure, financial benefit, curiosity, lifestyle, and biological needs*	Some respondents stated enjoyment and economic reasons.
Knowledge of HIV/AIDS	Understanding of the definition	*Virus, immune system, deadly disease, lack of awareness*	Most respondents knew HIV/AIDS as a severe infectious disease.
	Knowledge gaps	*Unclear causes, limited understanding, misperceptions, and confusion*	Some respondents could not explain HIV/AIDS clearly.
Attitudes Toward HIV/AIDS	Toward friends with HIV	*Supportive, empathy, encouragement, emotional concern*	Respondents showed positive attitudes toward peers living with HIV.
	Toward clients	*Risk neglect, willingness to serve, and ignoring symptoms*	Respondents continued serving clients despite signs of STIs.
Preventive Behaviors	Condom use	*Mandatory use, negotiation, and inconsistent practice*	They recognized condoms as a

			prevention, but they were not always used.
	Health-seeking actions	*Self-treatment, antibiotics, and a late hospital visit*	Respondents sought medical help only when symptoms worsened.
Work and Daily Life	Dual occupations	*Salon worker, singer, part-time CSW*	Several respondents had additional jobs during the day.
	Stigma and acceptance	*Social stigma, hiding identity, and family secrecy*	Respondents often concealed their work from family and society.

Background of Informants

The in-depth interviews revealed that most informants began their involvement in commercial sex work due to a combination of family background, early childhood experiences, peer influence, and personal enjoyment. Several informants stated that they had expressed feminine identity since childhood and were influenced by transgender relatives or friends. One informant shared:

"Since kindergarten, I have felt like this… My siblings are both male and female, but I always followed my older sister. Later, my friend brought me here." (Informant MD, 17 years old)

Another informant emphasized family influence:

"My uncle was transgender, so I always followed him. Many of my relatives are transgender… eight of them." (Informant WD, 15 years old)

Some informants stated that they entered commercial sex work not solely for economic necessity but also for pleasure and self-expression:

"*At first, I just hung around here. Later, I realized it was fun and profitable. I get money and satisfaction at the same time."*

(Informant MR, 23 years old)

A few others mentioned that their families were unaware of their involvement in sex work:

"My family thinks I only work at a salon. No family would accept me being a sex worker."

(Informant MR, 23 years old)

The outreach worker (PO) from Gaya Celebes confirmed that, despite having other skills, particularly in salon work, many transgender sex workers choose sex work because of quick financial returns and fulfilling biological desires:

"We have given trainings and courses, but they still return to sex work. For them, it is not only about money but also pleasure."(Informant PG, 32 years old)

Knowledge About HIV/AIDS

Most informants demonstrated a basic understanding that HIV/AIDS is a life-threatening infectious disease that attacks the immune system. Six out of eight PSK respondents were able to explain HIV/AIDS, while two did not know. One informant stated:

"HIV is a virus that attacks the human immune system."(Informant NS, 25 years old)

Another said:

"It's a deadly disease that spreads through free sex."(Informant WD, 15 years old)

Those who had attended community trainings (KWM or Gaya Celebes) showed better comprehension:

"I learned about HIV and sexually transmitted diseases through our monthly discussions in the organization."(Informant PG, outreach worker)

However, several informants were unable to distinguish clearly between the causes and transmission routes. Many believed that "cause and transmission are the same," referring broadly to unprotected sex.

Two informants admitted they did not want to comment or had minimal knowledge:

"Honestly, I do not want to comment on that… I have heard about it but prefer not to say anything." (Informant YYN, 21 years old)

Attitudes Toward HIV/AIDS

Informants generally expressed positive attitudes toward friends living with HIV/AIDS, stating they would show empathy and encourage medical consultation. One informant shared:

"If my friend has HIV, I will support them and motivate them to see a doctor."

However, attitudes toward clients remained harmful and inconsistent with recommended prevention practices. Several informants admitted they still served clients who showed symptoms of sexually transmitted infections (STIs):

"Yes, sometimes we still serve them even when they show signs of infection." (Informant statement derived from multiple interviews)

Fear of losing clients or income played a significant role in these decisions.

Practices Related to HIV/AIDS Prevention

Regarding protective behavior, most informants stated that they "require clients to use condoms" as a preventive measure. However, compliance varied depending on client pressure, financial offer, or personal preference. One informant reported:

"I always tell my clients to use condoms, but if they force it and pay more, sometimes it's difficult to refuse." (Informant YYN, 21 years old)

Handling of health problems was often self-directed. Many informants treated infections with over-the-counter antibiotics and only sought hospital care when symptoms became severe:

"If it's not too serious, I treat it myself. Only when it gets really bad do I go to the hospital." (Informant statements across interviews)

The outreach worker confirmed these patterns and emphasized that although trainings and health education had been provided routinely, consistent behavior change remained challenging:

"They receive information, but it's not always followed by real commitment to protecting themselves."(Informant PG)

Table 3. Summary of In-Depth Interview Findings

Theme	Key Findings (Narrative Summary)
Background	Most informants entered sex work due to peer influence, identity expression, family issues, or enjoyment rather than economic pressure.
Knowledge	Basic understanding of HIV/AIDS existed, but misconceptions remained, especially about causes and transmission pathways.
Attitudes	Positive toward friends with HIV, but inconsistent and risky attitudes toward clients.
Practices	Condom use is encouraged but not always enforced; self-medication is common; health-seeking behavior is low.

DISCUSSION

This study explored the knowledge, attitudes, and practices of transgender commercial sex workers (waria) regarding HIV/AIDS prevention in Makassar. The findings reveal a complex interaction between individual understanding, social environment, and behavioral choices, which collectively shape their vulnerability to HIV transmission. Overall, although most informants had basic awareness of HIV/AIDS, gaps in comprehension, inconsistent attitudes, and suboptimal preventive actions remain evident. These findings highlight the need for integrated interventions that address both personal and structural determinants of risk.

The results indicate that most informants possessed a general understanding that HIV/AIDS is a life-threatening disease caused by a virus that weakens the immune system (Papageorgiou *et al.*, 2025). Most participants were able to identify HIV/AIDS as a sexually transmitted infection and acknowledged that unprotected intercourse increases the risk of transmission (Phaswana Mafuya *et al.*, 2025). This reflects the influence of repeated exposure to informal education through peers, community-based organizations, or personal observation of friends who experienced AIDS-related illness or death. However, despite this fundamental awareness, misconceptions persisted (Piao *et al.*, 2025). Several informants were unable to distinguish clearly between the cause of HIV and its mode of transmission, if both refer to sexual activity alone. Such a misunderstanding demonstrates that knowledge remains superficial and lacks conceptual depth. According to Bloom's cognitive domain, their knowledge mostly remains at the "knowing" level rather than progressing to deeper comprehension or application. Limited formal education levels among informants, mostly junior high school graduates, may contribute to this constraint (Poteat *et al.*, 2024).

Attitudinal findings also present a dual pattern. On one hand, informants reported positive attitudes toward fellow waria living with HIV/AIDS. They expressed empathy, willingness to provide emotional support, and encouragement to seek medical care. This aligns with the reinforcing factors described in Green's PRECEDE model, which indicate that supportive social networks can promote healthier behavior (Rahman *et al.*, 2025). On the other hand, their attitudes toward clients were predominantly negative from a public health perspective. Many informants admitted to continuing sexual transactions even when clients showed signs of sexually transmitted infections, primarily due to economic motivation or fear of losing income. This contradiction suggests the presence of attitude behavior inconsistency, where supportive attitudes toward HIV prevention do not translate into protective decisions in real-life situations. Additionally, stigma toward clients with suspected infections was minimal, which, while reducing discrimination, also contributed to risk-taking behaviors (Ramírez-Soto and Arroyo-Hernández, 2024).

In terms of preventive practices, condom use emerged as the most frequently mentioned action. Most waria stated that they "require" clients to use condoms; however, this claim was not consistently supported by their narratives. Several informants admitted that condom use is negotiable and may be abandoned if clients refuse or offer higher payment. Even those who expressed strong personal preference for condom use acknowledged that situational pressures, such as fear of violence or losing income, often undermine their commitment (Shen *et al.*, 2025). This reflects the influence of enabling factors within Green's model, where access, negotiation power, and environmental constraints significantly shape behavior. While NGOs widely distribute condoms, the ability to enforce their use, especially with clients, remains limited (Raza *et al.*, 2024).

Health-seeking behavior also appears inadequate. Informants commonly preferred self-treatment, including the use of over-the-counter antibiotics, before seeking formal medical help.

Only when symptoms become severe do they seek healthcare (Sugarman *et al.*, 2025). Fear of stigma, lack of health insurance, and time constraints associated with their nocturnal work schedule likely contribute to delayed care-seeking. This aligns with previous studies showing that marginalized populations often prioritize immediate functional needs over preventive healthcare (Tieosapjaroen *et al.*, 2024).

The findings also reveal that becoming a PSK waria is often influenced by early-life experiences, peer environment, and personal identity, rather than purely by economic necessity. Many informants mentioned that they entered sex work due to social influence, enjoyment, or gender expression rather than poverty alone (Wulan *et al.*, 2025). This highlights the importance of understanding sex work within the broader context of gender identity and social acceptance . Their narratives indicate limited employment opportunities for waria, suggesting that structural discrimination indirectly contributes to their involvement in high-risk occupations (Tofeño, Uypan and Torres-Slimming, 2025).

The discussion also emphasizes the role of outreach organizations such as LSM Gaya Celebes, which actively provide education and support. Although informants acknowledged receiving training and information through such programs, many still fail to internalize and consistently apply recommended preventive practices. This suggests that knowledge transfer alone is insufficient. Effective interventions must address empowerment, negotiation skills, mental health support, and socio-economic vulnerability. Lastly, the implications of this study underscore the need for comprehensive strategies that integrate behavioral, structural, and community-based approaches. Empowering waria through skill-based training, expanding employment opportunities, strengthening peer support networks, and ensuring stigma-free healthcare services are crucial steps. Furthermore, HIV prevention programs must adopt tailored communication strategies that resonate with the lived realities of waria and emphasize practical risk-reduction skills rather than solely focusing on knowledge dissemination.

CONCLUSION

This study concludes that transgender commercial sex workers (waria) in Makassar possess basic awareness of HIV/AIDS but still demonstrate gaps in comprehensive understanding, inconsistent attitudes, and insufficient preventive practices. Although most informants recognize HIV/AIDS as a life-threatening disease and acknowledge the importance of condom use, their behaviors are often influenced by economic pressures, client negotiation dynamics, and limited access to supportive health services. These factors contribute to continued high-risk practices that elevate their vulnerability to HIV transmission.

It is recommended that targeted HIV prevention programs strengthen not only knowledge but also practical skills such as condom negotiation, early health-seeking behavior, and self-protection strategies. Community-based organizations, public health authorities, and local stakeholders should collaborate to provide regular counseling, easy access to screening, and non-discriminatory healthcare services. Expanding socio-economic opportunities for waria, including vocational training and supportive employment pathways, is also essential to reduce reliance on high-risk occupations and promote sustainable behavioral change.

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Conflict of Interest

The authors declare that they have no financial or non-financial conflicts of interest that could have influenced the conduct of the study, data analysis, or preparation of this manuscript.

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