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RELATIONSHIP BETWEEN FAMILY SUPPORT AND COMPLIANCE IN TAKING ANTIRETROVIRAL (ARV) DRUGS WITH THE INCIDENCE OF OPPORTUNISTIC INFECTIONS IN CHILDREN WITH HIV/AIDS

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ABSTRACT
Opportunistic infections are one of the leading causes of morbidity and mortality in children with HIV/AIDS. These infections can be prevented through lifelong adherence to antiretroviral (ARV) therapy and strong family support. This study aims to analyze the relationship between family support and adherence to ARV medication with the incidence of opportunistic infections in children with HIV/AIDS. The study employed a cross-sectional design. The respondents were 50 children with HIV/AIDS receiving treatment at RSPI Sulianti Saroso Jakarta, selected using purposive sampling. Data were analyzed using the Chi-square test and Logistic Regression for multivariate analysis. The results indicated a significant relationship between family support including emotional support ($p = 0.002$), appraisal support ($p = 0.001$), instrumental support ($p = 0.001$), and informational support ($p = 0.009$) as well as ARV adherence ($p = 0.001$) with the incidence of opportunistic infections. Multivariate analysis revealed that instrumental support had the greatest influence, with $p = 0.012$ and Exp (B) = 1.458, indicating that children with low instrumental support had a 1.46 times higher risk of developing opportunistic infections compared to those with adequate support. There is a significant association between family support and ARV adherence with the occurrence of opportunistic infections in children with HIV/AIDS. Strengthening family-based nursing interventions focus on empowering parents to provide instrumental support such as meeting nutritional needs, ensuring access to healthcare services, and supervising ARV adherence is essential to improving the quality of life of children with HIV/AIDS.

Keywords: adherence; ARV; children; HIV/AIDS; support

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INTRODUCTION

Human Immunodeficiency Virus (HIV) is a virus that attacks the immune system and causes a decrease in body resistance. The virus lives in T helper Lymphocyte cells, which function for the human immune system, reproducing and breaking down cells. This process results in the reduction of the number of helper lymphocyte cells (Hapsari, 2017). HIV/AIDS (Acquired Immune Deficiency Syndrome) is a disease that attacks white blood cells, which can cause a decrease in the human immune system (Pardede, 2020). According to the World Health Organization (WHO) (2022), there are 930,000 children under 10 years of age and 1.65 million adolescents aged 10-19 years living with HIV worldwide, and an estimated 270,000 children and adolescents are newly infected with HIV. Based on the 2019 global HIV statistics report, almost 95,000 children infected with HIV/AIDS died from opportunistic

infections. Among all opportunistic infections associated with HIV/AIDS, pneumonia and tuberculosis are the most common in children with HIV/AIDS in low- and middle-income countries (Mekonnen et al., 2023). Based on data from the RSPI Sulianti Saroso Working Group from January-December 2023, 57 children underwent ARV treatment, and 14 % experienced opportunistic pulmonary TB infections and 8,7 % experienced oral candidiasis (Pokja RSPI SS, 2024).

The HIV virus attacks the immune system, namely white blood cells, especially CD4 lymphocytes, which are the main target of this virus. CD4 lymphocytes play a role in identifying and destroying pathogens that cause bacterial, fungal, and viral infections. A decrease in the number of CD4 lymphocytes in the blood indicates a decrease in a person's immune system, which will increase the incidence of opportunistic infections. Opportunistic infections are infections such as germs, parasites, fungi, or protozoa that usually do not cause disease in children. In children infected with the HIV virus, there is a decrease in immune function, especially cellular immunity, so children will easily get sick if exposed to these organisms, which are usually longer, more severe and often repeated. Some opportunistic infections that commonly occur in pediatric patients with HIV/AIDS are pneumonia, pulmonary tuberculosis, sepsis, chronic diarrhea, candidiasis, and skin diseases. Opportunistic infections are the cause of morbidity and mortality in children with HIV/AIDS, but the number can be suppressed if opportunistic infections are immediately recognized and treated with Antiretroviral (ARV) (Wondifraw et al., 2022).

Various studies have proven that ARV can suppress the replication of the HIV virus, prevent the reproduction of new virus particles, increase the number of CD4, and treat various opportunistic infections. Although not a cure therapy, the benefits of therapy are very large for children with HIV/AIDS (Dhaka et al., 2017). ARV must be started as early as possible even when diagnosed, and at that time children with HIV must undergo treatment regardless of the WHO clinical stage and CD4 count (Gemechu et al., 2023). One of the causes of the emergence and recurrence of opportunistic infections is the child's non-compliance with ARV treatment because the drug must be taken by the child for life and on time so that compliance with the therapy procedure is difficult to achieve, for this reason, assistance in taking medication is needed that always reminds and motivates children to take ARV on time (Putri et al., 2023).The consequence of this non-compliance is an increased risk of opportunistic infections occurring and recurring (Isaac et al., 2020). ARV drugs in children with HIV/AIDS are often caused by various interrelated factors. One of the main causes is the complexity of the treatment regimen. Children with HIV/AIDS usually have to take several types of medication every day, which can be a big challenge, especially for very young children who are dependent on their caregivers. Side effects of medications, such as nausea, vomiting, diarrhea, and fatigue, can also prevent children from taking their medications regularly (Sitorus et al., 2021). In addition, a lack of understanding about the importance of medication adherence among caregivers and children themselves can contribute to non-adherence. Many caregivers may not realize how important consistent ARV treatment is in suppressing viral load and maintaining child health (Arjun et al., 2017).

Family support given to children with HIV/AIDS includes helping children choose the treatment to be carried out, reminding them when to take medication, providing the care that children need, and helping children reduce negative stigma in society. It is hoped that with family support in adherence to taking ARV medication, children will be protected from opportunistic infections and even death (Biney et al., 2021). Strong family support is needed to motivate children to maintain their health status, especially in preventing opportunistic infections (Srinatania et al., 2020). Therefore, family involvement and adherence to ARV treatment are very important to prevent children from opportunistic infections. The general

objective of this study was to determine the relationship between family support and adherence to taking antiretroviral (ARV) drugs with the incidence of opportunistic infections in children with HIV/AIDS at RSPI Sulianti Saroso Jakarta.Tujuan umum dari penelitian ini adalah diketahui hubungan dukungan keluarga (emosional, penghargaan, instrumental, informasional) dan kepatuhan minum obat antiretroviral (ARV) dengan kejadian infeksi oportunistik pada anak HIV/ AIDS di RSPI Sulianti Saroso Jakarta.

METHOD

This study was conducted using a Cross-sectional approach. This study was conducted in October-December 2024. In this study, the population consisted of 57 children with HIV/AIDS undergoing ARV treatment at RSPI Sulianti Saroso. The sampling technique in this study used purposive sampling, so the sample size in this study was 50 people after calculating using the Slovin formula. The inclusion criteria in this study were: 1) Respondents were families who accompanied their children in ARV therapy, 2) Able to read and write, 3) Children consumed ARV (not prophylaxis), 4) Minimum duration of treatment was 1 year, 5) Families were willing to be respondents. The exclusion criteria in this study were as follows: 1) Children who are on prophylactic therapy, 2) Families who do not accompany children directly in ARV therapy, 3) Children under 2 years of age, 4) Respondents who are unable to read and write, 5) Families who experience cognitive disorders or other conditions that hinder communication and understanding. This study used univariate analysis, bivariate analysis using the Chi-square test and multivariate analysis using the Logistic Regression test with SPSS 21.Kuesioner dukungan keluarga telah diuji validitas dan reliabilitas pada 10 responden pendamping anak dengan HIV di klinik Baladewa dengan hasil validitas 0,632 dan realiabilitas 0,706. Sementara itu kuesioner kepatuhan minum obat ARV menggunakan Morisky Medication Adherence Scale-8 (MMAS-8), alat ukur yang telah tervalidasi secara global dengan berbagai versi dan terjemahan. Dalam penelitian ini, uji validitas dan reliabilitas tidak dilakukan kembali karena kuesioner telah diuji oleh Cuevas & Peñate (2015) di Spanyol, dengan hasil Cronbach's Alpha sebesar 0,760, menunjukkan bahwa instrumen ini valid dan reliabel (De Las Cuevas & Peñate, 2015).

RESULT

Table 1.
Distribution of Respondent Characteristics Based on Age and CD4 Value (n=50)

Variables	n	Mean	Standard Deviation	Minimum-Maximum
Child Age	50	10.64	4,070	2 - 17
CD4 value	50	683.84	418,860	6 - 1731

Table 1. The average age of respondents was 10.64 years, with an age range of 2 to 17 years and a standard deviation of 4.070. This illustrates that respondents come from various age groups of children, from toddlers to teenagers. Meanwhile, the average CD4 value of respondents was 683.84 with a range of values 6 to 1731 and a standard deviation of 418.860.

Table 2.
Distribution of Respondent Characteristics Based on Gender, Family Support, Compliance in Taking ARV Medication and Incidence of Opportunistic Infections (n=50)

Variables	f	%
Gende		
Woman	32	64
Man	18	36
Family Support		
Emotional support		
Good	19	38
Not good	31	62
Support Awards		
Good	23	46
Not good	27	54

Variables	f	%
Instrumental Support		
Good	22	44
Not good	28	56
Informative Support		
Good	24	48
Not good	26	52
Compliance with ARV Medication		
Obedient	27	54
Not obey	23	46
Opportunistic Infections		
Never	16	32
Once	34	68

Table 2. The majority of respondents were women (64%). Most received poor family support, especially in emotional (62%), appreciation (54%), instrumental (56%), and informative (52%) aspects. Compliance with ARV treatment was quite balanced, with 54% of respondents being compliant. However, opportunistic infections were 68% of respondents.

Table 3.
Relationship between Family Support (Support: Emotional, Appreciation, Instrumental, Informative) and Compliance in Taking ARV Medication with the Incidence of Opportunistic Infections (n = 50).

Variables	Opportunistic Infectio Occurrence				OR	95% CI	p -*Value*
	Never		Once				
	f	%	f	%			
Family Support							
Emotional Support							
Good	11	22.0	8	16.0	7.150	1,908 - 26,796	0.002
Not good	5	10.0	26	52.0			
Support Awards							
Good	14	28.0	9	18.0	19,444	3,675-102,881	0.001
Not good	2	4.0	25	50.0			
Instrumental Support							
Good	13	26.0	9	18.0	12,037	2,772-52,273	0.001
Not good	3	6.0	25	50.0			
Informative Support							
Good	12	24.0	12	24.0	5,500	1,451-20,845	0.009
Not good	4	8.0	22	44.0			
Compliance with ARV Medication							
Obedient	2	4.0	25	50.0	0.051	0.010-0.272	0.001
Not obey	14	28.0	9	18.0			

After obtaining the initial modeling, a gradual selection was carried out on factors that had a p-value > 0.05 to be removed from the model using the backward elimination method so that a more optimal final model was obtained. Based on the results of the logistic regression analysis in Table 4, it was found that of several variables tested, only instrumental support and adherence to ARVs had a significant relationship with the incidence of opportunistic infections in children with HIV/AIDS at RSPI Sulianti Saroso.In the last step (Step 6), instrumental support showed a B value of 0.377 with a p-value of 0.012 ($p < 0.05$) and an Exp(B) value of 1.458 (95% CI: 1.088-1.953). This indicates that children who receive better instrumental support have a 1.46 times greater chance of avoiding opportunistic infections than those who receive poor support. Meanwhile, adherence to ARVs has a B value of -1.756 with a p- value of 0.007 ($p < 0.05$) and an Exp(B) value of 0.173 (95% CI: 0.048-0.620). This means that children who are compliant in consuming ARVs have a lower risk of experiencing opportunistic infections, which is around 83% smaller than children who are not compliant. Other variables such as gender, emotional support, appreciation, and informativeness, did not show a significant relationship with the incidence of opportunistic infections ($p > 0.05$).

Table 4.
Logistic Regression Analysis: Factors Affecting Opportunistic Infections in Children with HIV/AIDS

		B	P- *value*	Exp(B)	(IK 95%)
Step 1	Gender	1.164	.362	3.204	.262-39.203
	CD4	.000	.862	1,000	.997-1.003
	Emotional Support	.302	.065	1,353	.982-1.864
	Support Awards	.245	.170	1.277	.900-1.812
	Instrumental Support	.319	.044	1,376	1.009-1.877
	Informative Support	.098	.468	1.103	.846-1.438
	ARV Compliance	-1.248	.067	.287	.075-1.093
	Constants	-29,985	.064	.000	
Step 2	Gender	1,170	.359	3.221	.265-39.128
	Emotional Support	.298	.068	1,348	.979-1.856
	Support Awards	.245	.172	1.278	.899-1.816
	Instrumental Support	.323	.041	1,381	1.013-1.882
	Informative Support	.099	.462	1.104	.0849-1.436
	ARV Compliance	-1.291	.045	.275	.078-.971
	Constants	-29,519	.060	.000	
Step 3	Gender	1.413	.265	4.107	.342-49.288
	Emotional Support	.270	.082	1.311	.967-1.777
	Support Awards	.206	.204	1,229	.894-1.689
	Instrumental Support	.324	.032	1,383	1,029-1,858
	ARV Compliance	-1.392	.029	.249	.071-.867
	Constants	-23.107	.058	.000	
Step 4	Emotional Support	.255	.072	1,290	.978-1.702
	Support Awards	.243	.120	1.275	.939-1.730
	Instrumental Support	.344	.030	1.411	1.034-1.926
	ARV Compliance	-1.344	.048	.261	.069-.989
	Constants	-22,562	.053	.000	
Step 5	Emotional Support	.261	.057	1.298	.992-1.699
	Instrumental Support	.380	.010	1,462	1.094-1.953
	ARV Compliance	-1,529	.015	.263	.063-.740
	Constants	-1,529	.120	.000	
Step 6	Instrumental Support	.377	.012	1,458	1,088-1,953
	ARV Compliance	-1,756	.007	.173	.048-.620
	Constants	-2.326	.714	.098	

*Significant at $\alpha = 0.05$

DISCUSSION

Distribution of Respondent Characteristics

The results of the analysis showed that the average age of children with HIV/AIDS in this study was 10.64 years. This is in line with previous studies showing that most children with HIV/AIDS in Indonesia were only diagnosed at the age of 5-10 years, mainly due to late detection and limited access to HIV screening in infants born to mothers with HIV (Armini et al., 2024). In children, the course of HIV infection has several differences compared to adults. HIV infection in children usually occurs through vertical transmission, namely from mother to child during pregnancy, childbirth, or breastfeeding. A study by UNAIDS (2023) reported that without medical intervention, around 30-45% of infants born to mothers with HIV will be infected with the virus (van Schalkwyk et al., 2024).Based on the results of the analysis, it shows that the number of girls with HIV/AIDS is greater than boys, with a total of 32 children registered as patients at the RSPI Sulianti Saroso Polyclinic. Some have entered adolescence and are known to have been infected with HIV since birth from their parents. Although there is a difference in the number of cases between men and women, epidemiologically, gender is not a factor that directly affects the incidence of HIV/AIDS (Yourkavitch et al., 2018).

The results of the analysis show that the average CD4 value in children with HIV/AIDS at RSPI Sulianti Saroso is 650.92 cells/mm³. CD4 is one of the best parameters for measuring the level of immunodeficiency in individuals with HIV (Salim et al., 2020). Higher CD4 values in children with HIV/AIDS undergoing antiretroviral (ARV) therapy at RSPI Sulianti Saroso indicate that their immune systems are improving. This is in line with Gemechu's research (2023) which states that ARV therapy should be started as early as possible, even immediately after the diagnosis is made, without considering the WHO clinical stage or CD4 count (Gemechu et al., 2023). This approach aims to reduce the risk of disease progression and increase life expectancy for children with HIV/AIDS.

The Relationship between Family Emotional Support and the Incidence of Opportunistic Infections in Children with HIV/AIDS

The results of the analysis showed that there was a significant relationship between family emotional support and the incidence of opportunistic infections in children with HIV/AIDS. Emotional support is an important aspect in the care process, which includes providing a safe and comfortable place to rest and recover, as well as helping children manage their emotions. According to Diliana et al. (2023), aspects of emotional support include expressions of affection, trust, attention, good communication, and involvement in the decision-making process related to child care. This support involves expressions of empathy, encouragement, warmth, and emotional attention that can help children feel calmer and more optimistic in undergoing treatment (Gibson et al., 2021; Sofro & Hidayanti, 2019). HIV/AIDS causes a decrease in the immune system, making children susceptible to various opportunistic infections. These infections can worsen the child's physical condition and cause various health complications. In this condition, emotional family support is needed to ensure that the child receives optimal care.

The Relationship between Family Appreciation Support and the Incidence of Opportunistic Infections in Children with HIV/AIDS

Based on the results of a study conducted on 50 respondents, it was found that there was a significant relationship between family appreciation support and the incidence of opportunistic infections in children with HIV/AIDS. According to Freidman (2014), appreciation support includes giving praise or positive rewards, strengthening self-esteem, and high self-confidence due to recognition from others. Families are expected to be able to provide appreciation in the form of praise or gifts for children who successfully take ARV drugs on time, show independence in treatment, do not refuse or vomit drugs, and are actively involved in the care process. Children with HIV/AIDS must undergo lifelong ARV therapy, which is often a challenge in achieving treatment adherence. Therefore, families have an important role in guiding children so that they do not feel bored and avoid stopping ARV treatment (Romauli & Wahyuni, 2022; Subandi, n.d.). Appreciation support is not only related to treatment adherence, but also affects children's psychosocial development. According to Diliana et al. (2023), the family is one of the main support systems for individuals with chronic diseases, including HIV/AIDS (Diliana et al., 2023). Families that provide positive support can help children develop their talents and potential, increase self-confidence, and strengthen social acceptance of children with HIV/AIDS.

Instrumental Support Relationship Families with Opportunistic Infections in Children with HIV/AIDS

The results of the analysis showed that there was a significant relationship between instrumental family support and the incidence of opportunistic infections in children with HIV/AIDS. This finding underlines the importance of the role of families in providing real assistance, both in the form of materials and services, to support the health of children with HIV/AIDS and increase adherence to antiretroviral (ARV) treatment. According to Freidman (2014), instrumental support includes real assistance provided to help individuals solve their

problems. In the context of children with HIV/AIDS, this support can be in the form of providing basic needs such as nutritious food, decent housing, transportation costs for check-ups to health facilities, and assistance with daily child care. Families are expected to pay full attention to ensuring that children take ARVs on time, have regular health check-ups, and gain access to adequate health services. Most families of children with HIV/AIDS have limited income, some even live below the poverty line. Some families can only take their children for check-ups every two months, which causes less than optimal monitoring of children's health. In fact, suboptimal monitoring can increase the risk of opportunistic infections due to a weak child's immune system (Gemechu et al., 2023).

Informative Support Relationship Families with Opportunistic Infections in Children with HIV/AIDS

The results of the analysis showed that there was a significant relationship between family informative support and the incidence of opportunistic infections in children with HIV/AIDS. This finding indicates that adequate information about the treatment, prevention, and care of children with HIV/AIDS is very important to improve children's health and reduce the risk of opportunistic infections. According to Freidman (2014), informative support includes providing information, instructions, advice, and direction that can help individuals solve a problem. In the context of children with HIV/AIDS, this support plays a role in guiding children and families in understanding the importance of adherence to antiretroviral (ARV) treatment, recognizing signs of declining health, and implementing steps to prevent opportunistic infections. Families who have a good understanding can provide advice and motivation to children, especially when children experience boredom in undergoing long-term treatment. Families who are active in seeking information, such as attending seminars, counseling, or other educational activities, tend to have a better understanding of their child's condition and the steps that need to be taken to maintain their health (Tanyi et al., 2021).

Relationship between Compliance with Taking ARV Medication and the Incidence of Opportunistic Infections in Children with HIV/AIDS

The results of the analysis showed that there was a significant relationship between adherence to taking ARV drugs and the incidence of opportunistic infections in children with HIV/AIDS. The better the adherence in taking ARVs, the lower the risk of opportunistic infections in children with HIV/AIDS. ARV therapy is a lifelong treatment for children with HIV/AIDS which aims to suppress viral replication, improve the immune system, reduce morbidity and mortality, and improve children's quality of life (Haryadi et al., 2020). Routine use of ARVs can reduce the amount of virus in the body so that it does not develop into AIDS and prevent opportunistic infections. However, adherence to ARV therapy is often a challenge, especially in children who require family assistance to ensure that medication is taken on schedule (Melkamu et al., 2020). The success of ARV therapy is determined by the extent to which children adhere to treatment in a timely and continuous manner. This success can be seen from the increase in the number of CD4 cells and the decrease in viral load to undetectable. Conversely, therapy failure is characterized by a decrease in CD4 and an increase in viral load, which can worsen the child's condition and increase the risk of complications of opportunistic infections (Armstrong-Mensah et al., 2022).

Non-compliance with ARV therapy can be caused by various factors, including: Lack of understanding of the importance of ARVs: Some families still lack education regarding the benefits and impacts of delaying ARV consumption. Side effects of drugs: Children may experience side effects such as nausea, vomiting, or diarrhea, which can cause discomfort and reluctance to take medication regularly. Psychosocial factors: Boredom with long-term treatment and social stigma can cause children and families to lose motivation in undergoing ARV therapy (Hidayanti, 2014). Constraints in the form and taste of drugs: ARV drugs, which are generally in tablet form or have a bitter taste, can be difficult for children,

especially those who are still young. Inaccuracy in the timeliness of drug administration: Irregular schedules or delays in drug administration can affect the effectiveness of therapy.

Instrumental Support as the Variable Most Related to the Incidence of Opportunistic Infections in Children with HIV/AIDS

Instrumental support plays a very significant role in preventing the occurrence of opportunistic infections in children with HIV/AIDS. Based on the results of multivariate analysis, it was found that this factor is the most influential aspect in reducing the risk of opportunistic infections. Children with HIV/AIDS have a weak immune system and are very susceptible to various types of opportunistic infections (B-Lajoie et al., 2016; RK et al., 2017). Therefore, the role of the family in providing instrumental support is very crucial. One of the most important forms of support is the fulfillment of basic needs such as nutritious food, clean clothing, and a healthy living environment. Adequate nutritional intake can help increase children's immunity so that they are better able to fight various infectious diseases (Abdollahi & Saffar, 2016). In addition, maintaining a clean environment and healthy living habits, such as washing hands before eating and maintaining personal hygiene, are also important steps in preventing opportunistic infections that often attack children with HIV/AIDS (Ministry of Health Indonesia, 2020).

In an effort to increase instrumental support, various steps can be taken to help families care for children with HIV/AIDS (Nabunya et al., 2023; Roberts et al., 2021). The government and social organizations need to play an active role in providing economic assistance to families in need, including subsidies for transportation costs for routine check-ups and support in providing basic needs for children. In addition, education for families regarding the importance of adherence to ARV therapy and prevention of opportunistic infections also needs to be improved so that parents or caregivers have a better understanding of caring for children (Ministry of Health Indonesia, 2020).

CONCLUSION

Based on the results of the research and discussion that have been conducted, it can be concluded that there is a significant relationship between family support and adherence to taking ARV medication with the incidence of opportunistic infections in children with HIV/AIDS. This study confirms that family support, especially in the instrumental aspect, as well as adherence to taking ARV medication, are the main factors in reducing the risk of opportunistic infections in children with HIV/AIDS. Therefore, family-based interventions that focus on increasing instrumental support and education related to adherence to ARV therapy need to be strengthened in an effort to improve the quality of life of children with HIV/AIDS.

REFERENCES

Abdollahi, A., & Saffar, H. (2016). The diagnosis of HIV infection in infants and children. Iranian Journal of Pathology, 11(2), 89–96.

Arjun, B. Y., Unnikrishnan, B., Ramapuram, J. T., Thapar, R., Mithra, P., Kumar, N., Madi, D., Kulkarni, V., Holla, R., & Darshan, B. (2017). Factors Influencing Quality of Life among People Living with HIV in Coastal South India. 16(3), 247–253. https://doi.org/10.1177/2325957415599213

Armini, L. N., Setiawati, E. P., Arisanti, N., & Hilmanto, D. (2024). Patient perspective on the elimination mother-to-child transmission of HIV, syphilis, and hepatitis B in Bali, Indonesia: a qualitative study. BMC Public Health, 24(1), 2258.

Armstrong-Mensah, E. A., Tetteh, A. K., Ofori, E., & Ekhosuehi, O. (2022). Voluntary Counseling and Testing, Antiretroviral Therapy Access, and HIV-Related Stigma: Global Progress and Challenges. International Journal of Environmental Research and Public Health, 19(11). https://doi.org/10.3390/ijerph19116597

Azharia Hapsari Putri, R., Trisiswati, M., & Marhamah, S. (2023). Gambaran Kepatuhan Penggunaan Obat Antiretroviral (ARV) Pada Anak dengan HIV Di Jabodetabek dan Tinjauannya Menurut Pandangan Islam. Cerdika: Jurnal Ilmiah Indonesia, 3(1), 20–30. https://doi.org/10.59141/cerdika.v3i1.507

B-Lajoie, M.-R., Drouin, O., Bartlett, G., Nguyen, Q., Low, A., Gavriilidis, G., Easterbrook, P., & Muhe, L. (2016). Incidence and prevalence of opportunistic and other infections and the impact of antiretroviral therapy among HIV-infected children in low-and middle-income countries: a systematic review and meta-analysis. Clinical Infectious Diseases, 62(12), 1586–1594.

Biney, I. J. K., Kyei, K. A., Ganu, V. J., Kenu, E., Puplampu, P., Manortey, S., & Lartey, M. (2021). Antiretroviral therapy adherence and viral suppression among HIV-infected adolescents and young adults at a tertiary hospital in Ghana. African Journal of AIDS Research : AJAR, 20(4), 270–276. https://doi.org/10.2989/16085906.2021.1998783

De Las Cuevas, C., & Peñate, W. (2015). Psychometric properties of the eight-item Morisky Medication Adherence Scale (MMAS-8) in a psychiatric outpatient setting. International Journal of Clinical and Health Psychology : IJCHP, 15(2), 121–129. https://doi.org/10.1016/j.ijchp.2014.11.003

Dhaka, G., Sherwal, B. L., Saxena, S., Rai, Y., & Chandra, J. (2017). Current trends in opportunistic infections in children living with HIV/AIDS in a tertiary care hospital in Northern India. Indian Journal of Sexually Transmitted Diseases, 38(2), 142–146. https://doi.org/10.4103/2589-0557.216992

Diliana, D., Farich, A., Sary, L., Amirus, K., & Setiawati, O. R. (2023). Analisis Bentuk Dukungan Keluarga Terhadap Konsep Diri Orang Dengan HIV. Jurnal Ilkes (Jurnal Ilmu Kesehatan), 14(1), 62–73.

Freidman, L. M. (2014). Buku ajar keperawatan keluarga: riset, teori, praktik (5thend). Jakarta: ECH.

Gemechu, G. B., Hebo, H., & Kura, Z. (2023). Children's Adherence to Antiretroviral Therapy and Associated Factors: Multicenter Cross-Sectional Study. HIV/AIDS - Research and Palliative Care, 15(July), 423–434. https://doi.org/10.2147/HIV.S407105

Gibson, S., Vosper, J., Rutter, S., & Irons, C. (2021). Bringing Compassion to HIV Care: Applying the Compassion-Focused Therapy Model to Healthcare Delivery. In Providing HIV Care: Lessons from the Field for Nurses and Healthcare Practitioners (pp. 189–227). Springer.

Hapsari, T. A. & M. A. (2017). Praktik Terapi Antiretroviral pada Anak Penderita HIV/AIDS. Higeia Journal of Public Health Research and Development, 1(3), 625–634.

Haryadi, Y., Sumarni, S., & Angkasa, M. P. (2020). Jenis Pekerjaan Dan Tingkat Pendidikan Mempengaruhi Kepatuhan Minum Obat Antiretroviral (Arv) Pada Pasien Hiv/Aids. Jurnal Lintas Keperawatan, 1(1).

Hidayanti, E. (2014). Strategi coping stress perempuan dengan HIV/AIDS. Sawwa: Jurnal Studi Gender, 9(1), 89–106.

Isaac, E. W., Ajani, A., Iliya, J., Christianah, O., & Hassan, D. M. (2020). HIV Viral Suppression in Children in a Subnational Antiretroviral Treatment Programme in Nigeria. 170–185. https://doi.org/10.4236/wja.2020.103015

Kemenkes RI. (2020). Infodatin HIV AIDS. In Kementerian Kesehatan Republik Indonesia.

Mekonnen, G. B., Birhane, B. M., Engdaw, M. T., Kindie, W., Ayele, A. D., & Wondim, A. (2023). Predictors of a high incidence of opportunistic infections among HIV-infected children receiving antiretroviral therapy at Amhara regional state comprehensive specialized hospitals, Ethiopia: A multicenter institution-based retrospective follow-up study. Frontiers in Pediatrics, 11(May), 1–15. https://doi.org/10.3389/fped.2023.1107321

Melkamu, M. W., Gebeyehu, M. T., Afenigus, A. D., & Hibstie, Y. T. (2020). Incidence of common opportunistic infections among HIV-infected children on ART at Debre Markos referral hospital, Northwest Ethiopia: a retrospective cohort study. 0, 1–12.

Nabunya, P., Samuel, K., & Ssewamala, F. M. (2023). The effect of family support on self-reported adherence to ART among adolescents perinatally infected with HIV in Uganda: A mediation analysis. Journal of Adolescence, 95(4), 834–843.

Pardede, J. A. (2020). Harga Diri Dengan Depresi Pasien Hiv/Aids. Media Keperawatan: Politeknik Kesehatan Makassar, 11(1), 57. https://doi.org/10.32382/jmk.v11i1.1538

Pokja RSPI SS. (2024). laporan datin RSPI Prof. Dr. Sulianti Saroso.

RK, R., Praharaj, B. R., & Agarwalla, S. (2017). Opportunistic infections in HIV infected children and its correlation with CD4 count. Int. J. Contemp. Pediatr, 4(5), 1743–1747.

Roberts, S. T., Edwards, P., Mulenga, D., Chelwa, N., Nyblade, L., Brander, C., Musheke, M., Mbizvo, M., & Subramanian, S. (2021). Family support for adolescent girls and young women living with HIV in Zambia: benefits, challenges, and recommendations for intervention development. Journal of the Association of Nurses in AIDS Care, 32(2), 160–173.

Romauli, S., & Wahyuni, S. (2022). Family Experiences in Treating Children with HIV/AIDS Through ARV Therapy in Jayapura City. Jurnal MID-Z (Midwivery Zigot) Jurnal Ilmiah Kebidanan, 5(1), 1–12.

Salim, N. A. F., Hasbie, N. F., & Effendi, A. (2020). Korelasi Jumlah CD4 Pasien yang Diberi Isoniazid dengan Ko-infeksi TB pada Pasien HIV/AIDS. ARTERI: Jurnal Ilmu Kesehatan, 1(4), 284–290.

Sitorus, R. J., Novrikasari, N., Syakurah, R. A., & Natalia, M. (2021). Efek Samping Terapi Antiretroviral dan Kepatuhan Berobat Penderita HIV/AIDS. Jurnal Kesehatan, 12(3), 389. https://doi.org/10.26630/jk.v12i3.2869

Sofro, M. A. U., & Hidayanti, E. (2019). A social support for housewives with HIV/AIDS through a peer support group. Psikohumaniora: Jurnal Penelitian Psikologi, 4(1), 77–94.

Srinatania, D., Sukarya, D., & Lindayani, L. (2020). Gambaran Kepatuhan Minum Obat Arv Pada Anak Dengan Hiv/Aids. Jurnal Keperawatan Komprehensif (Comprehensive Nursing Journal), 6(1), 53–58. https://doi.org/10.33755/jkk.v6i1.176

Subandi, E. A. L. (n.d.). Family Support in Preventing Mother-to-Child HIV Transmission: A Case Study on the Effectiveness of ARV Therapy in Pregnant Women. Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini, 9(2), 211–224.

Tanyi, W. N., Gachuno, O., Odero, T., Farquhar, C., Kimosop, D., & Mayi, A. (2021). Factors affecting adherence to antiretroviral therapy among children and adolescents living with hiv in the mbita sub-county hospital, homa bay-kenya. African Health Sciences, 21, 18–24. https://doi.org/10.4314/ahs.v21i.4S

van Schalkwyk, C., Mahy, M., Johnson, L. F., & Imai-Eaton, J. W. (2024). Updated data and methods for the 2023 UNAIDS HIV estimates. JAIDS Journal of Acquired Immune Deficiency Syndromes, 95(1S), e1–e4.

Wondifraw, E. B., Tefera, B. D., Zeleke, M., Nebyu, S., Tilahun, L., W/Selassie, M., & Tefera, Z. (2022). Incidence and predictors of common opportunistic infection among HIV -infected children attending antiretroviral treatment clinic at Northeast Ethiopia, public hospitals 2022: A multicenter retrospective follow-up study. Annals of Medicine and Surgery, 84(September), 104910. https://doi.org/10.1016/j.amsu.2022.104910

Yourkavitch, J., Hassmiller Lich, K., Flax, V. L., Okello, E. S., Kadzandira, J., Katahoire, A. R., Munthali, A. C., & Thomas, J. C. (2018). Interactions among poverty, gender, and health systems affect women's participation in services to prevent HIV transmission from mother to child: A causal loop analysis. PloS One, 13(5), e0197239.