

RISK FACTORS FOR ACUTE RESPIRATORY INFECTION RELATED MORTALITY IN SLEMAN, YOGYAKARTA: ANALYSIS BASED ON VERBAL AUTOPSY HDSS SLEMAN

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Background: Acute respiratory infections (ARI) remain a major cause of global morbidity and mortality, including in Indonesia, with vulnerable groups such as children and the elderly most affected. In Sleman District, Yogyakarta, the high mortality rate related to ARI is thought to be triggered by risk factors such as demographic status, poor nutritional status, and limited access to health services.

Objectives: This study aims to determine risk factors for acute respiratory infection-related mortality.

Methods: This study is a quantitative study with an analytic approach with a focus on analyzing risk factors that contribute to mortality in ARI cases using survival analysis using the kaplan-meier survival curve, log-rank test, and cox regression analysis, where all variables are obtained from secondary data, provided by HDSS Sleman for the period 2015-2023.

Results: There were a total of 96 respondents included in this study. From the results of survival analysis of each variable, it was found that:

1. Age: There was a difference in survival time between the ≤ 65 years and >65 years groups, but the difference was not statistically significant ($p > 0.05$) based on the log-rank test and Cox regression analysis.
2. Gender: There was a difference in survival time between male and female groups, but the difference was not statistically significant ($p > 0.05$) based on log-rank test and cox regression analysis.
3. Socioeconomic Status: There was a difference in survival time between the non-working and working groups but the difference was not statistically significant ($p > 0.05$) based on the log-rank test and Cox regression analysis.



4. Nutritional Status: There was a difference in survival time between the thin and normal groups, but the difference was not statistically significant ($p>0.05$) based on the log-rank test and Cox regression analysis.
5. Smoking habit: There was a difference in survival time between the smoker and non-smoker groups but the difference was not statistically significant ($p>0.05$) based on the log-rank test and cox regression analysis.
6. Access to health facilities: There was a difference in survival time between groups with access ≤ 2 hours and >2 hours but the difference was not statistically significant ($p>0.05$) based on log-rank test and Cox regression analysis.
7. Treatment options: There was a difference in survival time between the groups who chose medical treatment and those who chose non-medical treatment but the difference was not statistically significant ($p>0.05$) based on the log-rank test and Cox regression analysis.
8. Comorbidities: There was a difference in survival time between groups with and without comorbidities but the difference was not statistically significant ($p>0.05$) based on log-rank test and cox regression analysis.

Conclusion: The results of survival analysis using Kaplan-Meier curves and the log-rank test in this study showed that none of the variables studied (age, sex, comorbidities, socioeconomic status, smoking habits, access to health facilities, treatment options, and nutritional status) were statistically significant ($p>0.05$) affecting the survival time of subjects who died from acute respiratory infections (ARI) in the study area. Although there were visually different survival time trends in some variables, the differences did not reach statistical significance in the log-rank test. This finding indicates that these factors, in the context of this population and study period, do not act as independent predictors of ARI mortality. Lastly, although the results of the cox proportional hazards regression analysis did not show statistical significance at the 0.05 level for most variables, some findings may have relevant clinical significance. This clinical significance should be considered in the context of clinical practice and decision-making.

Keywords: Risk Factor, Acute Respiratory Infection, Mortality, Verbal Autopsy, Yogyakarta.

Latar Belakang: Infeksi Saluran Pernapasan Akut (ISPA) masih menjadi penyebab utama morbiditas dan mortalitas global, termasuk di Indonesia, dengan kelompok rentan seperti anak-anak dan lansia yang paling terdampak. Di Kabupaten Sleman, Yogyakarta, tingginya angka kematian akibat ISPA diduga dipicu oleh beberapa faktor risiko seperti status demografi, status gizi yang buruk, dan terbatasnya akses terhadap pelayanan kesehatan.

Tujuan: Penelitian ini bertujuan untuk mengetahui faktor risiko terjadinya kematian akibat ISPA.

Metode: Penelitian ini merupakan penelitian kuantitatif dengan pendekatan analitik dengan fokus menganalisis faktor risiko yang berkontribusi terhadap kematian pada kasus ISPA dengan menggunakan analisis survival menggunakan kaplan-meier *survival curve*, uji log-rank, dan *cox regression analysis*, dimana semua variabel diperoleh dari data sekunder, yang disediakan oleh HDSS Sleman periode 2015-2023.

Hasil: Terdapat total 96 responden yang diikutsertakan dalam penelitian ini. Dari hasil *survival analysis* masing-masing variabel didapatkan bahwa:

1. Usia: Didapatkan perbedaan *survival time* antara kelompok ≤ 65 tahun dan > 65 tahun, namun perbedaannya tidak signifikan secara statistik ($p > 0.05$) berdasarkan uji log-rank dan *cox regression analysis*.
2. Kelamin: Didapatkan perbedaan *survival time* antara kelompok pria dan wanita namun perbedaannya tidak signifikan secara statistik ($p > 0.05$) berdasarkan uji log-rank dan *cox regression analysis*.
3. Status Sosioekonomi: Didapatkan perbedaan *survival time* antara kelompok tidak bekerja dan bekerja namun perbedaannya tidak signifikan secara statistik ($p > 0.05$) berdasarkan uji log-rank dan *cox regression analysis*.
4. Status Nutrisi: Didapatkan perbedaan *survival time* antara kelompok yang terlihat kurus dan terlihat normal, namun perbedaannya tidak signifikan secara statistik ($p > 0.05$) berdasarkan uji log-rank dan *cox regression analysis*.
5. Kebiasaan merokok: Didapatkan perbedaan *survival time* antara kelompok perokok dan tidak perokok namun perbedaannya tidak signifikan secara statistik ($p > 0.05$) berdasarkan uji log-rank dan *cox regression analysis*.
6. Akses menuju fasilitas kesehatan: Didapatkan perbedaan *survival time* antara kelompok yang memiliki akses ≤ 2 jam dan > 2 jam namun perbedaannya tidak signifikan secara statistik ($p > 0.05$) berdasarkan uji log-rank dan *cox regression analysis*.
7. pilihan pengobatan: Didapatkan perbedaan *survival time* antara kelompok yang memilih pengobatan dengan tenaga medis dan yang memilih pengobatan dengan tenaga non-medis namun perbedaannya tidak signifikan secara statistik ($p > 0.05$) berdasarkan uji log-rank dan *cox regression analysis*.

8. Komorbid: Didapatkan perbedaan *survival time* antara kelompok yang memiliki komorbid dan tidak memiliki komorbid namun perbedaannya tidak signifikan secara statistik ($p > 0.05$) berdasarkan uji log-rank dan *cox regression analysis*.

Kesimpulan: Hasil analisis ketahanan hidup dengan menggunakan kurva Kaplan-Meier dan uji log-rank pada penelitian ini menunjukkan bahwa tidak ada satupun variabel yang diteliti (usia, jenis kelamin, penyakit penyerta, status sosioekonomi, kebiasaan merokok, akses terhadap fasilitas kesehatan, pilihan pengobatan, dan status gizi) yang signifikan secara statistik ($p > 0,05$) mempengaruhi waktu ketahanan hidup subjek yang meninggal akibat infeksi saluran pernapasan akut (ISPA) di wilayah penelitian. Meskipun secara visual terdapat tren waktu ketahanan hidup yang berbeda pada beberapa variabel, perbedaan tersebut tidak mencapai signifikansi secara statistik dalam uji log-rank. Temuan ini mengindikasikan bahwa faktor-faktor tersebut, dalam konteks populasi dan periode penelitian ini, tidak bertindak sebagai prediktor independen terhadap kematian ISPA. Terakhir, meskipun hasil analisis regresi cox proportional hazard tidak menunjukkan signifikansi statistik pada tingkat 0,05 untuk sebagian besar variabel, beberapa temuan mungkin memiliki signifikansi klinis yang relevan.

Kata Kunci: Faktor risiko, Infeksi Saluran Pernapasan Akut, Mortalitas, Autopsi Verbal, Yogyakarta.