**Supplementary table 1.** Description of the findings reported in the eligible studies

| **ID** | **First Author** | **Date****(MM/YY)** | **Type of study/ Searched databases** | **Included studies** | **Total****Population** | **Sex** | **Other****comorbidities** | **Mortality**  | **Outcome**  | **Summary of findings** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Cooper, T.J. | Oct 2020 | Systematic review/ Scopus, EMBASE, Medline |  8 | 70 HIV-infected patients (13 with AIDS ,57 without AIDS) | -- | -- | ↔ | Symptoms of patients are similar to general population | -No risk of poorer COVID-19 in well controlled HIV- risk of Super infection exists and it might lead to severe COVID-19 |
| 2 | Costenaro, P. | Sep 2020 | Systematic review/ EMBASE, Medline, Google Scholar |  23 | 164 adults with COVID-19 and HIV co-infection | 84.5% male (120)-female:20-transgender: 2 | 101 cases - HTN: 35 patients-Dyslipidemia:20-Diabetes: 20And IHD, COPD, Chronic kidney diseaseLymphoma, HBV co infection hepatocarcinoma, hypothyroidism, pulmonary TB,-3 cases in intensive care and 3 cases among patients who died had comorbidities | ↔ | -16 cases died-15 patients needed intensive care | - No clear evidence of severe COVID or higher rate of infection in HIV –infected patients- Male HIV patients with long term antiretroviral therapy may have severe COVID course |
| 3 | Danwang, c. | Jan 2022 | Systematic review and Meta-analysis/ Pubmed, Scopus, EMBASE, Web of science | 44 | 38,971,065 | -- | -- | ↑ | NO increase in severity of COVID was seen in Co-infection  | -Increased risk of hospital admission in HIV patients-HIV does not increase the mortality and severity of COVID |
| 4 | De Medeiros, KS. | Jul 2021 | Systematic review/ Medline, Scopus, EMBASE, Web of science, CINAHL, LILACS, Cochrane Clinicaltrials.gov  | 30 | 266 | 209 males57 females | -cardiovascular disease-Obesity-HTN-COPD | ↓ | no relationship was found  | -HIV infection might stop COVID infection due to IFN-l induction-ART might prevent COVID infection |
| 5 | Dolatian, M. | Oct2020 | Systematic review/ Scopus, EMBASE, Web of science, PubMed, Google Scholar  | 15 | -- | -- | -- | ↔ | Only CD4<200 cells may increase risk of COVID infection  | No significant difference was found in mortality and clinical signs of COVID in HIV positive individuals |
| 6 | Dong, Y. | Jul 2021 | Meta-analysis/ EMBASE, PubMed, China national Knowledge infrastructure, WanFang data, Chongqing VIP  | 10 | 18,122,370 COVID-19 patients (41,113COVID patients with HIVAnd 18,081 COVID patients without HIV) | -- | -- | ↑ | increase mortality | HIV/COVID co infection may lead to higher mortality risk of COVID infection |
| 7 | Gao, y. | Aug 2020 | Systematic review and Meta-analysis/ PubMed, Web of science, EMBASE, Cochrane, China national Knowledge infrastructure (CNKI), Chinese biomedical literature Database, Wanfangdatabase  | 8 | 4007 | Male:2256female: 1751 | -- | ↑ | leads to severe COVID-19 disease | Immunodeficiency is associated with severe COVID-19 |
| 8 | Heidary, M. | Feb 2022 | Systematic review/ PubMed, EMBASE, Scopus | 65 | -- | Male: 74.3% | Most common: HTNDiabetes MellitusOthers: HBV, HSV2, HCV, | ↑ | HIV might elevate the morbidity and mortality of COVID-19 | HIV/COVID co-infected patients have higher comorbidities (HTN, Diabetes) compared to COVID-19 individuals without HIV |
| 9 | Huang, D. | Mar2022 | Systematic review/ PubMed, Web of science, Wanfang, CNKI, SinoMed | 18 | 412HIV/COVID patients | Male:72% | 37.5% of patients had comorbidities-HTN (most common0-Chronic lung disease | ↓ | HIV/COVID patients with earlier use of ART had better outcome | Comorbidities increased the risk of severe COVID-19 |
| 10 | Kouhpayeh, H | Dec 2021 | Meta-analysis/ PubMed, Scopus |  11 | 19,645,775 COVID-19 infected case,59,980 HIV-positive | -- | HTN,DiabetesCardiovascular disease | ↑ | COVID-19 cause higher mortality in HIV positive patients | Mortality in HIV/COVID co infection is 21% higher than individuals without HIV |
| 11 | Lee, K.W. | Mar2021 | Systematic review and Meta-analysis/ PubMed, Medline, CINAHL | 82 | 643,018 HIV patients | Female: 58.5%Male:39.8%Unknown Gender:1.5%Transgender:0.2% | -Cardiovascular (27.2%) (HTN,..)-Diabetes Mellitus (12.2%)-chronic lung disease:4.2%-Asthma: 4.2%-dyslipidemia-obesity-alcoholism-smoking-Chronic kidney disease-Liver disease | ↑ | Long-term HIV might be associate with more severe illness | Mortality rate is higher in HIV /COVID con infected patients. |
| 12 | Liang, M. | Sep 2021 | Systematic review and Meta-analysis/ PubMed, EMBASE, MedRxiv, BioRxiv | 14 | 203,761COVID-19 patients | -- | -HTN-Diabetes Mellitus-Chronic Cardiac and kidney disease | ↑ | Comorbidities are related to poorer outcome | increased mortality in HIV/COVID co infection was seen with comorbidities |
| 13 | Massarvva, T. | May 2021 | Systematic review/ EMBASE, Scopus, Medline, Cochrane  | 22 | 730 COVID-19/HIV patients | Male: 79.4% | HTN | ↑ | Comorbidities in HIV/COVID Co-infected patients are associate with poorer outcome.Covid-19 outcome is better when HIV is controlled | Comorbidities in HIV/COVID co-infection leads to high risk COVID infection |
| 14 | Mellor, M.M. | Mar 2021 | Systematic review/ EMBASE, Google Scholar, Medline, Medrxiv, Google, Litcovid, Trip | 19 | (Large number)10 studies included more than 1000 individuals | -- | DiabetesObesity | ↑ | COVID/HIV co-infection leads to higher mortality rate | HIV infection is associated with higher mortality rate |
| 15 | Mirzaei, H. | Jan 2021 | Systematic review/ PubMed, Web of science, Scopus, Google Scholar, preprint database | 25 | 252 patients with HIV/COVID-19 co infection | Male: 80.9%Female: 18.3%Transgender women: 0.8% | HTNHyperlipidemiaObesityCOPDDiabetes | ↔ | Presence of comorbidities is associate with severe COVID/HIV co infection and higher mortality | No difference in severity of COVID /HIV co infection and mortality between male or females |
| 16 | Oyelade, T. | Feb 2022 | Systematic review and Meta-analysis/ EMBASE, Medline | 43 | 692,032 COVID-19 individuals (9097 of them have HIV) | -- | -- | ↑ | COVID/HIV co-infection may lead to higher mortality risk | HIV infection might cause more severe COVID infection |
| 17 | Patel, R.H. | Mar 2021 | Systematic review/ Pubmed/Medline | 63 | 4259 | -- | DiabetesHBVHTNObesityCOPDHyperthyroidism | ↓ | Comorbidities are associate with a poor prognosis of COVID infection | -HIV patients on ART have a better COVID outcome |
| 18 | Sarkar, S. | Dec 2020 | Systematic review and Meta-analysis/ EMBASE, Google Scholar, Pubmed/Medline, preprint platform MedRxiv | 20 | 205,702 patients177,186 patients with COVID/HIV co infection  | -- | -- | ↔ | HIV/COVID co infection does not show any increased mortality risk | No significant increased mortality risk in COVID/HIV co infection |
| 19 | SeyedAlinaghi, S. | Jul 2021 | Systematic review/ PubMed, Web of science, Scopus, Science direct | 36 | 3,993,400 COVID patients(89,343 patients with COVID-19/HIV Co infection) | Male:72%Transgender: 0.01% | -HTN-Diabetes Mellitus-Asthma-Renal insufficiency-Cardiovascular disease | ↓ | Individual with advanced stage of HIV and low CD4 count have less severe COVID symptoms and less mortality after COVID infection | Advanced stages of HIV associated with COVID infection lower mortality rate |
| 20 | Shareef, M.A. | Oct 2020 | Systematic review/ PubMed, Cochrane, Medline, WHO registry | 7 | 16 | Male: 15Female: 1 | -HTN-Diabetes Mellitus-Obesity-COPD-CAD | ↓ | Symptoms of COVID in HIV patients are similar to individuals without COVID | -Older population with comorbidities has poorer outcome-COVID/HIV co-infected individuals with antiretroviral therapy (ART) have favorable outcome |
| 21 | Ssentongo, P. | Mar 2021 | Systematic review and Meta-analysis/ PubMed, Web of science, Scopus, Cochrane, Google Scholar, OVID, preprint platform MedRxiv | 22 | 20,982,498 | Male: 66 % | -HTN-Diabetes Mellitus-COPD-Chronic kidney disease | ↑ | Mortality rate due to COVID is higher in HIV positive individuals | -Risk of COVID infection is higher in HIV positive individuals- Vaccination is highly recommended in HIV patients |
| 22 | Tamuzi, J. L. | Oct 2020 | Systematic review/ PubMed, Cochrane, MedRxiv, Google Scholar, WHO COVID database | 21 | 28,387 COVID patients (1094 COVID/HIV/TB and 1 SARS-COV/HIV/TB patients) | -- | HIV/TB co infection | ↑ | HIV/TB co-infection with COVID has more higher mortality rate | COVID associated with HIV/TB co infection is more common in males and recovery takes longer.  |
| 23 | Varshney, K. | Jan 2022 | Systematic review/ PubMed, Scopus, Global Health, WHO Corona virus database | 20 | -- | -- | -Cardiovascular disease-Diabetes-ObesityChronic kidney Disease | ↔ | Mortality is about 2 time is male compared to Female | -Older age is related to higher mortality rate-comorbidities are associated with higher mortality- lower CD4 cell count does not affect mortality |
| 24 | Wang, H. | Nov 2021 | Meta-analysis/PubMed, Web of science, MedRxiv | 9 | -- | -- | -DiabetesHTNCardiovascular disease-Chronic Kidney disease-Respiratory disease | ↑ | Comorbidities lead to increased severity of COVID infection | -COVID/HIV co infection increased the severity of COVID infection- comorbidities also cause experiencing severe COVID disease |
| 25 | Wang, Y. | Sep 2021 | Meta-analysis/ PubMed, Web of science, EMBASE | 84 | 816,678 | -- | -- | ↑ | HIV infection is related to increased mortality  | -COVID/HIV co infected individuals has higher mortality risk |