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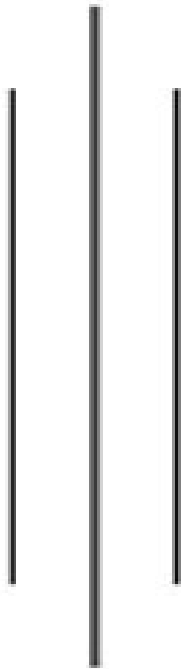

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1. pmid:23825877 41. pmid:8533662 33. pmid:26558622 4. Low, moderate, and high heterogeneity was assigned to I2 test statistics results of 25, 50, and 75%, respectively [11]. 69–74. Forest plots were used to show the magnitude of toxoplasmosis among pregnant women in Africa. 557–60. Forest plots were used to present the pooled prevalence and odds ratio with a 95% confidence interval of meta-analysis using the random effect model. Tropical Medicine & International Health, 2014. pmid:28056829 24. e0141700. Torgerson P.R. and Mastriacovo P., The global burden of congenital toxoplasmosis: a systematic review. pmid:30479556 32. Oswaldo Cruz. Montoya and Joseph A. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. Mwambe B., et al., Sero-prevalence and factors associated with Toxoplasma gondii infection among pregnant women attending antenatal care in Mwanza, Tanzania. José G. Hence, almost more than half of pregnant women identified with toxoplasmosis infection acquired it during pregnancy. 743–746. The accuracy of the data extraction was verified by comparing the results with the data extraction by the second group of investigators (TT, AZ, and HU), who independently extracted the data in a randomly selected subset of papers (30% of the total). After adjustment, the final pooled prevalence of toxoplasmosis among pregnant women in Africa after the trim and fill analysis was 51.01% (95% CI: 37.682, 64.338) (Fig 2). 21. The strength of the present study: Authors used a protocol for search strategy, data abstraction, and conducted quality assessment by two independent investigators to reduce the possible appraiser bias; employed subgroup analysis based on the level of countries, study design, sub-African region, and serological test to identify the small study effect and the risk of heterogeneity in the study; and the quality of included studies was evaluated by five authors. 15(3): p. The differences in the inclusion of the studies were resolved by consensus. pmid:25759324 25. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.Data Availability: All relevant data are within the manuscript and its Supporting Information files.Funding: We have not received any financial support for this work.Competing interests: We have declared that no competing interests exist.Abbreviations: ANC, Antenatal Care; MeSHs, Medical Subject Headings; OR, Odds Ratio; DR, Democratic Republic of Congo; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-analysis Toxoplasmosis is caused by the protozoan parasite, Toxoplasma gondii. pmid:23043921 38. 6(6): p. JAMA, 2015. BMJ, 2003. Simpore J., et al., Toxoplasma gondii, HCV, and HBV seroprevalence and co-infection among HIV-positive and-negative pregnant women in Burkina Faso. 78(6): p. While 15 studies used enzyme-linked immunosorbent assay [15, 18, 22, 25–35]. 1 study used the Combo Rapid test cassettes by CTK Biotech [23]. The studies included in a meta-analysis from different African countries. The pooled prevalence of toxoplasmosis among pregnant women was 77.57% (highest) in Central Africa, 54.89% in East Africa, and 38.38% in West Africa. pmid:7786990 13. 1539–1558. Estimation of the prevalence of toxoplasmosis infection in pregnant women at the continent level can help increase its awareness among healthcare policymakers and help develop guidelines to address this serious public health issue, including implementation of prenatal screening and treatment programs for Toxoplasma infection. The quantitative data were extracted from the included articles and summarised in a Microsoft Excel sheet. PLoS Med, 2009. Nissen J., et al., The disease burden of congenital toxoplasmosis in Denmark, 2014. 549–554. 12(1): p. Biometrics, 1994. Tommy's PregnancyHub, Toxoplasmosis in pregnancy. Olusi T., Grob U., and Ajayi J., High incidence of toxoplasmosis during pregnancy in Nigeria. (An I2 of 75/100%, suggesting considerable heterogeneity). pmid:9060074 31. Subgroup analyses were done by parameters such as countries, sub-African regions, serological analysis tests, and study design. WHO, Toxoplasmosis Fact Sheet Estimates of the Global Burden of Foodborne Diseases. The two authors (TT and TG) screened and evaluated studies independently. Therefore, this systematic review and meta-analysis aimed to determine the seropositive prevalence of toxoplasmosis infection among pregnant women who attended antenatal services in Africa. The quality of the articles was critically evaluated using the tool of the Joanna Briggs Institute. Cruz M.d.I.O. Vol. In this review, 10 studies from African countries were included. The raw numerical data and total sample size from each study were extracted and recorded on Microsoft word and then exported to an Excel Spreadsheet. The total sample size of the included studies ranged from a minimum of 110 in a study conducted in Cameroon [29] to a maximum of 781 in a study conducted in the Democratic Republic of Congo [20]. The three authors (AZ, RM, and HU) independently evaluated the quality of the studies against the checklist. In the search, the above search terms were joined with the name of all countries included in Africa. Unborn babies are at high risk of being infected with toxoplasmosis during pregnancy. This subgroup meta-regression analysis was necessary since heterogeneity of pooled prevalence is high enough to affect the interpretation of findings. A meta-regression analysis was conducted to detect the possible source of heterogeneity found with a high P-value of less than 0.05. The heterogeneity test showed the presence of heterogeneity, I2 = 99.6%, P-value < 0.001 (Fig 2). Moreover, the funnel plot (Fig 3) and the Egger regression test result showed that the intercept (B0) was 0.21 (95% CI, 0.18 to 0.24), with the 2-tailed P-value < 0.0001. 2020. For the laboratory tests, they applied four different types of serological tests in studies with blood samples; each study made use of blood samples for IgG and IgM anti-T. Koffi M., et al., Seroepidemiology of Toxoplasmosis in Pregnant Women Attending Antenatal Clinics at the Center for Maternal and Child Health Care in Daloa in Ivory Coast. Besides, these consequences are concurrent with the projected global incidence of congenital toxoplasmosis from a world health organization-supported study [40] that showed the highest incidence of congenital toxoplasmosis infection in some low-income African countries. 13(10): p. Congo, Ethiopia, and serological analysis done using enzyme-linked immunosorbent assay; hence, these four variables were taken to be responsible for the source of the heterogeneity. PLoS neglected tropical diseases, 2019. 104 2009. Rio de Janeiro: Mem. Negero J., et al., Sero-prevalence and potential risk factors of T. Professor Zoe Jordan J.E.D., JBI's critical appraisal tools assist in assessing the trustworthiness, relevance and results of published papers. The quality of the included articles was critically evaluated using the quality assessment tool for observational studies (cross-sectional and cohort studies) developed by the Joanna Briggs Institute (JBI) [10]. pmid:27585863 16. The full text of the studies was further evaluated based on objectives, methods, participants/population, and key findings. 313(16): p. The risk of acquiring toxoplasmosis infection during pregnancy is high; hence, preventive measures to avoid exposure of pregnant women to Toxoplasma infection should be strictly applied. Jongert E., et al., Vaccines against Toxoplasma gondii: challenges and opportunities, ed. 19(1). However, Egger's regression asymmetry test also detected a significant publication bias. pmid:28558051 42. 337–337. The heterogeneity test showed that heterogeneity was high, I2 = 99.6%, P-value < 0.001. Higgins J.P. and Thompson S.G., Quantifying heterogeneity in a meta-analysis. 8. BMC infectious diseases, 2016. 3. Awoke K., Nibret E., and Munsha A., Sero-prevalence and associated risk factors of Toxoplasma gondii infection among pregnant women attending antenatal care at Felege Hiwot Referral Hospital, northwest Ethiopia. The heterogeneity test of included studies was assessed using the I2 statistics. Iranian journal of parasitology, 2014. 2(2): p. A systematic review and meta-analysis of published and unpublished studies were included. Toxoplasma parasite is at high risk for life-threatening diseases during pregnancy. Finally, 23 studies that fulfilled the eligibility criteria were included for the systematic review and meta-analysis. gondii infection in pregnant women attending antenatal care at Bonga Hospital, Southwestern Ethiopia. International Journal of Infectious Diseases, 2017. 41–45. Healthy individuals who become infected with Toxoplasma gondii rarely develop any symptoms because their immune system keeps the parasite from causing illness. A meta-analysis of observational studies was conducted, based on recommendations made by Higgins et al. pmid:31609966 40. Studies were screened through careful reading of the title and abstract. Toxoplasma parasite causes life-threatening diseases like immunological impairments and congenital infection of the foetus. Also, studies published and accessible until March 30, 2020, and written in the English language were eligible for extract. 107. The mean score of the two groups of authors was taken for a final decision. BMC research notes, 2015. 37. The prevalence of toxoplasmosis infection in pregnant women of vertical via transmission in Brazil was 68.37%, which was suspected by IgM antibodies detection in the peripheral blood [3]. 亚太热带生物医学杂志:英文版, 2014. 47–52. Moreover, the overall pooled prevalence of toxoplasmosis among pregnant women in Africa was 51.01% (95% CI: 37.66, 64.34). Advanced search strategies were

applied in major databases to retrieve relevant findings closely related to the prevalence of toxoplasmosis of pregnant women. Porritt K., Gomersall J., and Lockwood C., JBI's systematic reviews: study selection and critical appraisal. The reason for the globally conducted meta-analysis studies that used strict criteria for (seroconversion and low IgG avidity) for the definition of acute toxoplasmosis of pregnant women had during gestation and not included the previous history of infection. 1088–101. The analysis was aimed to identify the source of heterogeneity ensure correct interpretation of the findings. PLoS One. 2017. This review included a total of 23 studies done in a facility-based setting in different regions of Africa. 460. Toxoplasmosis is caused by the protozoan parasite. 19(1): p. Frimpong C., et al., Seroprevalence and determinants of toxoplasmosis in pregnant women attending antenatal clinic at the university teaching hospital, Lusaka, Zambia. Awareness about the potentially overwhelming sequelae of toxoplasmosis infection during pregnancy remains low, even in countries with a high burden of toxoplasmosis. We searched databases such as MEDLINE, PubMed, EMBASE, CINAHL, Web of Science, Scopus, African Journals Online (AJOL), Google, Google Scholar, World Cat, Research Gate, and Mednar. Havelaar A.H., Kemmeren J.M., and Kortbeek L.M., Disease burden of congenital toxoplasmosis. Yobi Doudou, et al., Toxoplasmosis among pregnant women:High seroprevalence and risk factors in Kinshasa,Democratic Republic of Congo. About 95% of the population infected with Toxoplasma did not develop any symptoms. Overall prevalence of toxoplasmosis in Africa showed that more than one-half of pregnant women were infected. The discrepancy for the inclusion of articles was resolved through discussion, and by consulting an expert. The possible source for heterogeneity was included from Cameroon, DR. PLoS One, 2015. This critical appraisal was conducted to assess the internal validity (systematic error) and external validity (generalisability) of studies and to reduce the risk of biases. 12(5): p. However, most babies born with toxoplasmosis have no obvious damage at birth but develop symptoms, usually eye damage or potential vision loss, during childhood or even adulthood, mental disability, and seizures [5, 6]. The overall search result was compiled using EndNote X8 citation manager software [8] (S2 File). Studies were appraised for quality methodology using a Joanna Briggs institute critical appraisal tool for prospective cohort and cross-sectional studies checklists [38]. Based on these different serological test, 15 studies used enzyme-linked immunosorbent assay [15, 18, 22, 25–27, 29–35, 37]; 2 studies used enzyme-linked fluorescent assay [20, 36], 5 studies used latex agglutination test [16, 17, 21, 24, 26], and 1 study used rapid test cassettes by CTK Biotech [23] as per the standard operating procedures. CDC, Toxoplasmosis infection and epidemiology risk factors for global health, gondii specific antibodies whether positive or not. e0007807. 6. 810–813. Bamba S., et al., Seroprevalence and risk factors of Toxoplasma gondii infection in pregnant women from Bobo Dioulasso, Burkina Faso. Asian Pacific journal of tropical medicine, 2015. 501–8. Subgroup analyses and meta-regressions were also performed to verify the source of heterogeneity in the studies used in the systematic review. pmid:12958120 12. In summary, in our systematic review and meta-analysis, the pooled prevalence of toxoplasmosis among pregnant women in Africa was 51.01%. In total, 23 studies comprising 7,579 pregnant women across ten countries in Africa were included in this meta-analysis. BMC infectious diseases, 2017. De Paschale M., et al., Antenatal screening for Toxoplasma gondii, Cytomegalovirus, rubella and Treponema pallidum infections in northern Benin. Congenital toxoplasmosis results from a maternal infection acquired during gestation [2]. However, toxoplasmosis is still underestimated as the burden of health and it was also not yet known the overall prevalence in Africa. Agmas B., Tesfaye R., and Koye D.N., Seroprevalence of Toxoplasma gondii infection and associated risk factors among pregnant women in Debre Tabor, Northwest Ethiopia. pmid:9310563 14. Clin Infect Dis, 2007. pmid:25879788 17. Articles with irretrievable full texts (after requesting full texts from the corresponding authors via email and/or Research Gate), records with unrelated outcome measures, and articles with missing or insufficient outcomes were excluded. 6(1): p. factsheet. Journal of Medical Sciences, 2015. Gontijo da Silva M., Clare Vinaud M., and de Castro A.M., Prevalence of toxoplasmosis in pregnant women and vertical transmission of Toxoplasma gondii in patients from basic units of health from Gurupi, Tocantins, Brazil, from 2012 to 2014. International Journal of Tropical Disease & Health, 2015. pmid:30991956 35. Nasir I.A., et al., Prevalence and associated risk factors of Toxoplasma gondii antibodies among pregnant women attending Maiduguri teaching hospital, Nigeria. 26. However, our systematic review and meta-analysis have some limitations: a few studies were included in our subgroup analysis, which reduces the precision of our estimation, considerable high heterogeneity was identified among the studies; in this analysis, we did not consider studies written in other languages other than the English language, and also, our study did not include studies from the northern and southern regions of Africa; hence, it is difficult to generalise our finding to the whole of Africa. The search was conducted with the aid of carefully selected keywords and indexing terms. A total of 23 studies that reported the prevalence of toxoplasmosis among pregnant women in Africa were included in this meta-analysis [9–31]. Fenta D.A., Seroprevalence of Toxoplasma gondii among pregnant women attending antenatal clinics at Hawassa University comprehensive specialized and Yirgalem General Hospitals, in Southern Ethiopia. pmid:16628587 34. Statistics in medicine, 2002. On other hand, subgroup analysis done using the sub-African regions showed the highest prevalence in Central Africa, 77.57% (95% CI: 70.45, 84.70), followed by East Africa 54.89% (95% CI: 34.64, 75.14). 271–7. The overall prevalence of seropositive toxoplasmosis among pregnant women in Africa was 51.01% (95% CI; 37.66, 64.34). 125–132. An effective vaccine for use in humans, while serving to reduce mortality and morbidity associated with infection, would also have economic benefits, as it would reduce the financial burden of lifelong care needed for those with severe chronic diseases [4]. This comprehensive systematic review and meta-analysis were conducted to provide reliable information on toxoplasmosis infection among pregnant women. pmid:26276286 18. A total of 176 articles were identified through the major electronic databases and other relevant sources. 21(11): p. Scandinavian journal of infectious diseases, 1996. 407–414. 24. pmid:28299065 30. BMJ, 1997. pmid:12111919 15. The analysis done using country showed that the highest prevalence of toxoplasmosis among pregnant women was 80.30% (95% CI: 77.51, 83.09) in the Democratic Republic of Congo, followed by 69.21% (95% CI: 51.94, 86.49) in Ethiopia and the lowest in Zambia, 5.87% (95% CI:3.60, 8.14). Citation: Dasa TT, Geta TG, Yalew AZ, Abebe RM, Kele HU (2021) Toxoplasmosis infection among pregnant women in Africa: A systematic review and meta-analysis. pmid:33216887 36. Paul E., et al., Toxoplasma gondii seroprevalence among pregnant women attending antenatal clinic in Northern Tanzania. 5. The included studies were evaluated against each indicator of the tool and categorised as high-, moderate-, and low quality. 114(6): p. This systematic review and meta-analysis included published and unpublished studies conducted on toxoplasmosis infection among pregnant women in Africa. pmid:23915834 27. Tropical medicine and health, 2018. pmid:25919529 10. The publication bias was assessed using the Egger regression asymmetry test [12, 13] for meta-analysis results which showed the presence of publication bias (Egger test = p < 0.05). The p-value for 12 statistics less than 0.05 was used to determine the presence of heterogeneity. For the prevalence of toxoplasmosis infection, we used unconverted proportional data to calculate the proportion/prevalence of toxoplasmosis infection in percentage using Stata version 14. Toxoplasmosis infection during pregnancy has many adverse effects, such as miscarriage, stillbirth, or damage to the baby's brain and other organs, particularly the eyes. 28. Njunda A.L., et al., Seroprevalence of Toxoplasma gondii infection among pregnant women in Cameroon. 645–646. If a woman becomes newly infected with Toxoplasma during pregnancy, she can pass the infection to her unborn baby. 5(10): p. Journal of Public Health in Africa, 2011. On average, 4 out of 10 of such infections do pass from pregnant women to their babies [5]. According to this meta-analysis, the overall pooled prevalence of toxoplasmosis infection among pregnant women was 51% in Africa. Congenital toxoplasmosis results from a maternal infection acquired during gestation. From all identified studies, 27 articles were removed because of duplication, while 149 studies were reserved for further screening. All studies included in the final analysis were conducted in a health facility setting. Congo and Zambia. Higgins J.P., et al., Measuring inconsistency in meta-analyses. Abamecha F. 9(3): p. Again, this analysis has shown significant heterogeneity among countries and serological tests, but none among the sub-African region and study design. These figures show that there was a high number of toxoplasmosis infections among pregnant women in Africa. 9. Our finding shows a very high prevalence of toxoplasmosis infection in comparison with other systematic reviews and meta-analyses which previously published globally on acute toxoplasmosis among pregnant women [39]. BMC infectious diseases, 2012. 2018. The reports of all studies were based on a laboratory test to detect the presence of anti-toxoplasma antibodies in the blood samples during antenatal care follow-up based on international standards of tests [15–37]. In the meantime, heterogeneity between the included studies was examined using the 12 statistic [14]. AJN The American Journal of Nursing, 2014. Rathvon D., EndNote X8—Citation Manager—What's New? 327–9. The heterogeneity and publication bias were assessed using the 12 statistics and Egger's test, respectively. Twelwemedhin M., et al., Seroprevalence and risk factors of Toxoplasma gondii among pregnant women in Adwa district, northern Ethiopia. The main aim of this meta-analysis is to estimate the prevalence of toxoplasmosis infection among pregnant women who attended an antenatal care unit in health facilities in Africa. The toxoplasmosis in pregnant women was found to be high as a result show through many observational studies in Africa. The cross-sectional studies checklist was graded out of 8 points, and the cohort studies checklist was graded out of 11 points. Open Access Peer-reviewed The epidemiology of toxoplasmosis in pregnancy is a major issue in public health. A random-effects model [11] was used to determine the pooled prevalence of toxoplasmosis among pregnant women for antenatal care. pmid:25678926 22. Also, 5 studies used latex agglutination test [16, 17, 21, 24, 28], and 2 studies used enzyme-linked fluorescent assay [20, 36]. Linguissi L.S.G., et al., Seroprevalence of toxoplasmosis and rubella in pregnant women attending antenatal private clinic at Ouagadougou, Burkina Faso. We would like to thank the College of Medicine and Health Sciences, Hawassa University (Ethiopia) for the non-financial support. 19(6): p. 327(7414): p. 91(7): p. 59(4): p. 10(11): p. Of the 34 remaining articles, 11 studies were excluded because of inconsistency with the inclusion criteria set for the review. Rostami A., et al., Acute Toxoplasma infection in pregnant women worldwide: A systematic review and meta-analysis. In this current analysis, the overall prevalence of Toxoplasmosis gondii varied across regions, with the lowest prevalence in the West African region and the highest prevalence in the Central African region. 34(C): p. 1056–9. Zemene E., et al., Seroprevalence of Toxoplasma gondii and associated risk factors among pregnant women in Jimma town, Southwestern Ethiopia. Databases such as MEDLINE, PubMed, EMBASE, CINAHL, Web of Science, African Journals Online were used with relevant search terms. Acta Trop, 1995. Bull World Health Organ, 2013. 730–733. Tanzania Journal of Health Research, 2017. Moher D, et al., The PRISMA Group. pmid:24869584 11. Journal of medical virology, 2006. Toxoplasma gondii infects a large proportion of the world's human population. 50(4): p. We included observational studies (cross-sectional and cohort) that have been conducted in health facilities in different regions of Africa on the prevalence of toxoplasmosis among pregnant women while attending antenatal care units. PLoS ONE 16(7): e0254209. The serological analysis was done to check the presence of anti-Toxoplasmosis gondii antibodies. 1657–65. BMC Infect Dis, 2017. Subgroup analysis did not show any significant differences between the respective groups, as indicated by overlapping 95% CIs, except for subgroups based in Central Africa and Nigeria (Table 2). Endris M., et al., Seroprevalence and Associated Risk Factors of Toxoplasma gondii in Pregnant Women Attending in Northwest Ethiopia. 44(11): p. 8(7): p. and Awel H., Seroprevalence and risk factors of Toxoplasma gondii infection in pregnant women following antenatal care at Mizan Aman General Hospital, Bench Maji Zone (BMZ), Ethiopia. pmid:24612218 20. Therefore, this systematic review and meta-analysis was aimed to determine the seropositive prevalence of toxoplasmosis infection among pregnant women who attended antenatal care in a health facility in Africa. 8(1): p. Meta-analysis was conducted using STATA 14 software to compute the pooled prevalence of toxoplasmosis among pregnant women. Also, the current finding shows that toxoplasmosis infection needs serious attention among pregnant women in Africa because toxoplasmosis infection not treated at the early stages may affect many generations via transmission to the new-born, which may lead to foetal loss, neonatal death, and moderate to severe lifelong sequelae [5, 6, 40–42]. Stewart L.A., et al., Preferred Reporting Items for Systematic Review and Meta-Analyses of individual participant data: the PRISMA-IPD Statement. Therefore, we recommend that all countries emphasize the need to screen women during antenatal care, and if toxoplasmosis infection is detected, it should be treated early to reduce vertical transmission from mother to her unborn baby. 6(4): p. 2015. e0178282. 44–49. The prevalence of toxoplasmosis reported among pregnant women ranged from 5.87% in Zambia [17] to 88.60% in Ethiopia [15]. From the included studies, 21 were institutional-based cross-sectional studies [15–35], whereas 2 studies were institutional-based prospective cohort studies [36, 37]. The titles and abstracts of studies that mentioned the outcomes of the interest (Toxoplasmosis/ pregnant women/ Africa) were considered for further evaluation. Inst. pmid:17479945 pmid:31842783 23. There was no statistical significance in subgroup levels of the sub-African region and study design (Table 3). Egger M., et al., Bias in meta-analysis detected by a simple, graphical test. 1467–74. 46(1): p. 39–8. The authors used extensive and comprehensive search strategies from several databases and included published and unpublished studies and gray literature. International Journal of Infectious Diseases, 2015. Gelaye W., Kebede T., and Hailu A., High prevalence of anti-toxoplasma antibodies and absence of Toxoplasma gondii infection risk factors among pregnant women attending routine antenatal care in two Hospitals of Addis Ababa, Ethiopia. 7. 629–34. 315(7109): p. 28(6): p. However, only a single study was considered from DR. BMC infectious diseases, 2019. Data were extracted on Microsoft word 2016. Reviews, Case-control, commentaries, editorial, case series/reports, and patient stories were also excluded from the systematic review. Asian Pacific journal of tropical medicine, 2012. The search strategy included “Toxoplasma gondii” OR “toxoplasmosis” AND Pregnant Women OR Antenatal care AND Africa,” and was used distinctly and in combination using the Boolean operators like “OR” or “AND”. All searched articles were exported to the EndNote X8 citation manager and duplicated studies were removed. 17(1): p. 16(1): p. Begg C.B. and Mazumdar M., Operating characteristics of a rank correlation test for publication bias. Meta-analysis was conducted using STATA 14 software. 147. Globally, it accounts for over 60% of the populations that have been infected with Toxoplasma [1]. Almost all included studies were conducted in three African regions: 2 studies from Central Africa [20, 29], 8 studies from West Africa [18, 19, 27, 30, 32, 33, 36, 37] and 13 studies from East Africa [15–17, 21–26, 28, 31, 34, 35]. Studies with a score greater than or equal to 60% were included. 8th ed. e1000097. Martin Chitolongo Simunza, University of Zambia, ZAMBIAReceived: September 4, 2020; Accepted: June 22, 2021; Published: July 20, 2021Copyright: © 2021 Dasa et al. 39. 222–222. We reported this systematic review and meta-analysis using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) report 2009 Checklist [7], and that the checklist was strictly followed (S1 File). After selecting the appropriate articles, data were extracted by two investigators independently (TG and RM) using a data extraction template and presented using Microsoft word 2016 (containing author & year, setting, study design, sample size, study subject, data collection methods, the primary outcome of interest (Table 1). 2. Rodier M.H., et al., Seroprevalences of Toxoplasma, malaria, rubella, cytomegalovirus, HIV and treponemal infections among pregnant women in Cotonou, Republic of Benin. Preferred reporting items for systematic reviews and metaanalyses: the PRISMA statement. 10. Of these, 115 were excluded after being screened according to titles and abstracts. 4(1): p. The two groups of authors (TT and TG) and (AA, RH, and HU) independently evaluated the quality of the studies. Therefore, the presence of heterogeneity between studies was assumed if the 12 statistic is greater than 75% and the p-value less than 0.05. 57(C): p. The general characteristics and descriptions of the studies selected for the meta-analysis are outlined in (Fig 1). 29. 482–6. 2017. Parasites & vectors, 2013. The overall study selection process is presented using the PRISMA statement flow diagram [9] (Fig 1). Murebwayire E., et al., Seroprevalence and risk factors of Toxoplasma gondii infection among pregnant women attending antenatal care in Kigali, Rwanda. The variables responsible for the source of heterogeneity were included from Cameroon, the Democratic Republic of Congo, and Ethiopia. Overall, this review included 7, 579 study participants, and out of these, 3901 (51.14%) pregnant women were infected by toxoplasmosis gondii (Table 1). pmid:28693432 19. In brief, out of the 23 studies as shown in Table 1, 21 studies were cross-sectional studies [15–35] while 2 studies followed a prospective cohort study design [36, 37]. A systematic review and meta-analysis of published and unpublished studies were conducted to identify the pooled prevalence of toxoplasmosis among pregnant women in Africa.

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