**Appendix A: Search term used in Pub-Med**

|  |
| --- |
| ("cardiovascular diseases"[MeSH Terms] OR ("cardiovascular"[All Fields] AND "diseases"[All Fields]) OR "cardiovascular diseases"[All Fields] OR ("cardiovascular"[All Fields] AND "disease"[All Fields]) OR "cardiovascular disease"[All Fields]) AND ("africa south of the sahara"[MeSH Terms] OR ("africa"[All Fields] AND "south"[All Fields] AND "sahara"[All Fields]) OR "africa south of the sahara"[All Fields] OR ("sub"[All Fields] AND "saharan"[All Fields] AND "africa"[All Fields]) OR "sub saharan africa"[All Fields])  ("heart diseases"[MeSH Terms] OR ("heart"[All Fields] AND "diseases"[All Fields]) OR "heart diseases"[All Fields] OR ("heart"[All Fields] AND "disease"[All Fields]) OR "heart disease"[All Fields]) AND ("africa south of the sahara"[MeSH Terms] OR ("africa"[All Fields] AND "south"[All Fields] AND "sahara"[All Fields]) OR "africa south of the sahara"[All Fields] OR ("sub"[All Fields] AND "saharan"[All Fields] AND "africa"[All Fields]) OR "sub saharan africa"[All Fields])  ("hypertension"[MeSH Terms] OR "hypertension"[All Fields]) AND ("south africa"[MeSH Terms] OR ("south"[All Fields] AND "africa"[All Fields]) OR "south africa"[All Fields])  ("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields]) AND ("nigeria"[MeSH Terms] OR "nigeria"[All Fields]) |

**Appendix B**

**Quality appraisal checklist – qualitative studies sample**

|  |  |  |
| --- | --- | --- |
| **Study identification:** Nuri, et al., Cardiovascular Disease Risk Factors in Ghana during the Rural-to-Urban Transition: A Cross-Sectional Study, 2016 |  | |
| **Guidance topic:** | **Key research question/aim:** To evaluate the prevalence of CVD risk factors in the region and to understand some of the conditions that may give rise to them, establishing a baseline for future comparisons and setting guidelines for appropriate recommendations | |
| **Checklist completed by:** |  | |
| **Theoretical approach** | | |
| **1. Is a qualitative approach appropriate?**  For example:   * Does the research question seek to understand processes or structures, or illuminate subjective experiences or meanings? * Could a quantitative approach better have addressed the research question? | Appropriate   Inappropriate  Not sure | Comments: |
| **2. Is the study clear in what it seeks to do?**  For example:   * Is the purpose of the study discussed – aims/objectives/research question/s? * Is there adequate/appropriate reference to the literature? * Are underpinning values/assumptions/theory discussed? | Clear   Unclear  Mixed | Comments: |
| **Study design** | | |
| **3. How defensible/rigorous is the research design/methodology?**  For example:   * Is the design appropriate to the research question? * Is a rationale given for using a qualitative approach? * Are there clear accounts of the rationale/justification for the sampling, data collection and data analysis techniques used? * Is the selection of cases/sampling strategy theoretically justified? | Defensible  Indefensible  Not sure/ inadequately reported  | Comments: Design was appropriate to the research question. There were general description for the sampling, data collection and data analysis techniques. |
| **Data collection** | | |
| **4. How well was the data collection carried out?**  For example:   * Are the data collection methods clearly described? * Were the appropriate data collected to address the research question? * Was the data collection and record keeping systematic? | Appropriately   Inappropriately  Not sure/inadequately reported | Comments: |
| **Trustworthiness** | | |
| **5. Is the role of the researcher clearly described?**  For example:   * Has the relationship between the researcher and the participants been adequately considered? * Does the paper describe how the research was explained and presented to the participants? | Clearly described   Unclear  Not described | Comments: |
| **6. Is the context clearly described?**  For example:   * Are the characteristics of the participants and settings clearly defined? * Were observations made in a sufficient variety of circumstances * Was context bias considered | Clear   Unclear  Not sure | Comments: |
| **7. Were the methods reliable?**  For example:   * Was data collected by more than 1 method? * Is there justification for triangulation, or for not triangulating? * Do the methods investigate what they claim to? | Reliable   Unreliable  Not sure | Comments: |
| **Analysis** | | |
| **8. Is the data analysis sufficiently rigorous?**  For example:   * Is the procedure explicit – i.e. is it clear how the data was analysed to arrive at the results? * How systematic is the analysis, is the procedure reliable/dependable? * Is it clear how the themes and concepts were derived from the data? | Rigorous   Not rigorous  Not sure/not reported | Comments: |
| **9. Is the data 'rich'?**  For example:   * How well are the contexts of the data described? * Has the diversity of perspective and content been explored? * How well has the detail and depth been demonstrated? * Are responses compared and contrasted across groups/sites? | Rich   Poor  Not sure/not reported | Comments: |
| **10. Is the analysis reliable?**  For example:   * Did more than 1 researcher theme and code transcripts/data? * If so, how were differences resolved? * Did participants feed back on the transcripts/data if possible and relevant? * Were negative/discrepant results addressed or ignored? | Reliable   Unreliable  Not sure/not reported | Comments: |
| **11. Are the findings convincing?**  For example:   * Are the findings clearly presented? * Are the findings internally coherent? * Are extracts from the original data included? * Are the data appropriately referenced? * Is the reporting clear and coherent? | Convincing   Not convincing  Not sure | Comments: |
| **12. Are the findings relevant to the aims of the study?** | Relevant   Irrelevant  Partially relevant | Comments: |
| **13. Conclusions**  For example:   * How clear are the links between data, interpretation and conclusions? * Are the conclusions plausible and coherent? * Have alternative explanations been explored and discounted? * Does this enhance understanding of the research topic? * Are the implications of the research clearly defined?   **Is there adequate discussion of any limitations encountered?** | Adequate   Inadequate  Not sure | Comments: |
| **Ethics** | | |
| **14. How clear and coherent is the reporting of ethics?**  For example:   * Have ethical issues been taken into consideration? * Are they adequately discussed e.g. do they address consent and anonymity? * Have the consequences of the research been considered i.e. raising expectations, changing behaviour? * Was the study approved by an ethics committee? | Appropriate   Inappropriate  Not sure/not reported | Comments: |
| **Overall assessment** | | |
| **As far as can be ascertained from the paper, how well was the study conducted?** | ++   +  − | Comments: High grade assessment |

***Critical Appraisal Skills Programme (2017)***

**Quality appraisal checklist – systematic review studies sample**

|  |  |  |
| --- | --- | --- |
| **Study identification:** Ofori-Asenso, et al., Overweight and obesity epidemic in Ghana a systematic review and meta-analysis, 2016 | | |
| **Guidance topic:** | **Key research question/aim:** To systematically review the literature towards providing an estimate of the prevalence of overweight and obesity among adult Ghanaians. | |
|  |  |  |
| **(A) Are the results of the review valid?** | | |
| 1. Did the review address a clearly focused question?  * The population studied * The intervention given * The outcome considered | Yes   No  Can’t tell | Comments: |
| 1. Did the authors look for the right type of papers?  * Address the review’s question * Have an appropriate study design | Yes   No  Can’t tell | Comments: |
| 3. Do you think all the important, relevant studies were included?   * Which bibliographic databases were used * Follow up from reference lists * Personal contact with experts * Search for unpublished as well as published studies * Search for non-English language studies | Yes   No  Can’t tell | Comments: |
| 4. Did the review’s authors do enough to assess the quality of the included studies?   * The authors need to consider the rigour of the studies they have identified. Lack of rigour may affect the studies’ results. | Yes   No  Can’t tell | Comments: |
| 5. If the results of the review have been combined, was it reasonable to do so?   * The results were similar from study to study * The results of all the included studies are clearly displayed * The results of the different studies are similar * The reasons for any variations in results are discussed | Yes   No  Can’t tell | Comments: |
| **(B) What are the results** | | |
| 1. What are the overall results of the review?  * If you are clear about the review’s ‘bottom line’ results * What these are (numerically if appropriate) * How were the results expressed (NNT, odds ratio etc) | Yes   No  Can’t tell | Comments: |
| 7. How precise are the results?   * Look at the confidence intervals, if given | Yes   No  Can’t tell | Comments: |
| **(C) Will the results help locally?** | | |
| 8. Can the results be applied to the local population?   * The patients covered by the review could be sufficiently different to your population to cause concern * Your local setting is likely to differ much from that of the review | Yes   No  Can’t tell | Comments: Same SSA region |
| 9. Were all-important outcomes considered?  • Is there other information you would like to have seen | Yes  No  Can’t tell  | Comments: |
| 10. Are the benefits worth the harms and costs?  • Even if this is not addressed by the review, what do you think? | Yes   No  Can’t tell | Comments: |
| **Overall assessment** | | |
| **As far as can be ascertained from the paper, how well was the study conducted?** | ++   +  − | Comments: High grade assessment |

***Critical Appraisal Skills Programme (2017)***

**Appendix C**

Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) checklist

|  |  |  |  |
| --- | --- | --- | --- |
| Section/topic | # | Checklist item | Reported on page # |
| **Title** | | | |
| Title | 1 | Identify the report as a systematic review, meta-analysis, or both. | 3 |
| **Abstract** | | | |
| Structured summary | 2 | Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number. | 3-5 |
| Introduction | | | |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. | 3 |
| Objective | 4 | Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS). | 3 |
| **Methods** | | | |
| Protocol and registration | 5 | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number. | - |
| Eligibility criteria | 6 | Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. | 4 |
| Information sources | 7 | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched. | 4 |
| Search | 8 | Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated. | 4-5 |
| Study selection | 9 | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis). | 4 |
| Data collection process | 10 | Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators. | 4 |
| Data item | 11 | List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made. | - |
| Risk of bias in individual studies | 12 | Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis. | - |
| Summary measure | 13 | State the principal summary measures (e.g., risk ratio, difference in means). | - |
| Synthesis of results | 14 | Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2) for each meta-analysis. | - |
| Risk of bias across studies | 15 | Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies). | 15 |
| Additional analysis | 16 | Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating, which were pre-specified. | - |
| **Results** | | | |
| Study selection | 17 | Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram. | 5 |
| Study characteristics | 18 | For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations. | 5-6 |
| Risk of bias within studies | 19 | Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12). | 15 |
| Results of individual studies | 20 | For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot. | - |
| Synthesis of results | 21 | Present results of each meta-analysis done, including confidence intervals and measures of consistency. | - |
| Risk of bias across studies | 22 | Present results of any assessment of risk of bias across studies (see Item 15). | 15 |
| Additional analysis | 23 | Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]). | - |
| **Discussion** | | | |
| Summary of evidence | 24 | Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers). | 14-15 |
| Limitations | 25 | Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias). | 15 |
| Conclusion | 26 | Provide a general interpretation of the results in the context of other evidence, and implications for future research. | 15-16 |
| **Funding** | | |  |
|  | 27 | Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review. | NA |