**SUPPORTING INFORMATION**

**Box S1. Brief details of quality criteria and grading of retained studies on hypertension in Africa**

For the quality grading, we adapted the Grading of Recommendations Assessment, Development and Evaluation (GRADE) guidelines [[20](#_ENREF_20)], as follows:

*High quality*: Studies with the entire three criteria listed in the methods well presented;

*Moderate quality*: Studies any two criteria, one of which must be “study design” (i.e. “study design” plus another criterion) well presented;

*Low quality*: Studies with any two criteria, or “study design” only, well represented; and

*Very low quality*: Studies with only one (excluding “study design”) or none of the three criteria well presented.

As a basic rule, all studies that were graded as *high and moderate quality* were included in the quantitative analysis. Some *low quality* studies were also included in the quantitative analysis on the basis of well-presented study designs. However, all *very low quality* studies have been excluded from the review.

Table S1. Quality assessment and grading of retained hypertension studies in Africa

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  **Site ID\*** | **Study design** | **Study analysis** | **Study limitations** | **Generalizability to Africa** | **Grading** |
| 1-4, 7, 10, 11, 13-16, 18-20, 22-26, 28-35, 37-41, 44-49, 51, 52, 57, 58, 60, 62, 63, 65-68, 72-77, 79-87, 90-95, 97-101 | Well explained, excluding 46 and 68 (where training/questionnaire pre-test were not clearly stated) | Well explained, excluding 60  | Well-presented across all studies | Study population representative of a larger African population across all studies | *High* |
| 5, 6, 9, 12, 17, 21, 27, 36, 42, 43, 50, 53, 59, 64, 69, 70, 78, 88, 89, 96 | Well explained, excluding 21, 64, and 78 (where there was no clear description of population survey) | Well explained, excluding 5, 6, 17, 36, 42, 50, 53, 88 and 96  | Well-presented excluding 9, 12, 27, 43, 59, 69, 70, 89 | Study population not representative of a larger African population, excluding 21, 64 and 78 that were based on elderly population groups | *Moderate* |
| 8, 54, 56, 60, 71 | Well explained | Not well explained | Not well presented | Study population not fairly representative of a larger African population | *Low* |

\*see **Table S2** for details of Site ID (identification)

**Table S2**. Overall study characteristics with site identification numbers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Site ID* | *Country, Setting* | *Study period* | *Diagnostic criteria* | *Mean age (years)*  | *Prevalence % (all)* | *Prevalence % (men)* | *Prevalence % (women)* |
| CENTRAL |
|  | Cameroon, Mixed [[44](#_ENREF_44)] | 1995 | ≥140/90mmHg  | 49.5 | 16.9 | 17.7 | 16.3 |
|  | Cameroon, Mixed [[45](#_ENREF_45)] | 1991 | ≥140/90mmHg | 41.75 | 7.07 | 8.92 | 5.69 |
|  | Cameroon, Mixed [[46](#_ENREF_46)] | 1994 | ≥140/90mmHg  | 54.5 | 18.8 | 20.2 | 17.8 |
|  | Cameroon, Mixed [[46](#_ENREF_46)] | 2003 | WHO/ISH 1999 | 54.5 | 38.34 | 40.9 | 36.5 |
|  | Cameroon, Urban) [[47](#_ENREF_47)] | 2003 | WHO/ISH 1999 | 31.35 | 24.6 | 25.6 | 23.1 |
|  | Cameroon, Urban [[47](#_ENREF_47)] | 2004 | WHO/ISH 1999 | 31.35 | 20.8 | - | - |
|  | Chad, Rural [[48](#_ENREF_48)] | 2004 | WHO/ISH 2003 | 35 | 16.4 | 12.2 | 21.8 |
|  | DR Congo, Mixed [[49](#_ENREF_49)] | 2009-10 | WHO/ISH 2003 | 54.5 | 40.2 | - | - |
|  | DR Congo, Urban [[50](#_ENREF_50)] | 1983-84 | ≥140/90mmHg  | 42.5 | 16.7 | 22.1 | 12.4 |
|  | Rwanda, Rural [[51](#_ENREF_51)] | 2007 | JNC 7 | 42.2 | 16.0 | 16.0 | 16.0 |
| EAST |
|  | Eritea, Mixed [[52](#_ENREF_52)] | 2004 | ≥140/90mmHg  | 39.5 | 16.0 | 16.88 | 15.28 |
|  | Ethiopia, Mixed [[28](#_ENREF_28)] | 2008 | JNC 7, WHO/ISH 2003 | 36.08 | 9.9 | - | - |
|  | Ethiopia, Urban [[53](#_ENREF_53)] | 2012 | JNC 7 | 51.4 | 28.3 | 26 | 30.3 |
|  | Ethiopia, Urban [[54](#_ENREF_54)] | 2009 | ≥140/90mmHg  | 50.5 | 19.1 | 22 | 14.9 |
|  | Ethiopia, Urban [[55](#_ENREF_55)] | 2006 | ≥140/90mmHg  | 49.5 | 30.0 | 31.5 | 28.9 |
|  | Ethiopia, Urban [[56](#_ENREF_56)] | 2009-2010 | JNC 7 | 42.9 | 17.7 | 20.0 | 14.3 |
|  | Kenya, Rural [[57](#_ENREF_57)] | 2009-11 | WHO/ISH 2003 | 40.9 | 20.2 | - | - |
|  | Kenya, Mixed [[58](#_ENREF_58)] | 2007-08 | ≥140/90mmHg  | 69.5 | 50.1 | - | - |
|  | Kenya, Urban [[59](#_ENREF_59)] | 2009-09 | ≥140/90mmHg  | 48.5 | 12.3 | 12.7 | 12 |
|  | Seychelles, Mixed [[60](#_ENREF_60)] | 2004 | ≥140/90mmHg  | 44.5 | 31.6 | 38.4 | 24.8 |
|  | Sudan, Urban [[27](#_ENREF_27)] | 1988-89 | ≥140/90mmHg  | 35 | 7.5 | - | - |
|  | Tanzania, Urban [[61](#_ENREF_61)] | 1998-99 | WHO/ISH 1999 | 54.5 | 28.9 | 27.1 | 30.2 |
|  | Tanzania, Rural [[51](#_ENREF_51)] | 2007 | JNC 7 | 42.8 | 27 | 28 | 24 |
|  | Tanzania, Rural [[24](#_ENREF_24)] | 2009-2010 | WHO/ISH 2003 | 76 | 69.9 | 62.2 | 75.8 |
|  | Tanzania, Rural [[62](#_ENREF_62)] | 1996 | WHO/ISH 1999 | 39.95 | 29.2 | 30 | 28.6 |
|  | Tanzania, Rural | 1996 | ≥140/90mmHg  | 54.5 | 31.9 | 32.2 | 31.5 |
|  | Tanzania, Urban [[57](#_ENREF_57)] | 2009-11 | WHO/ISH 2003 | 36.8 | 19 | - | - |
|  | Uganda, Rural [[63](#_ENREF_63)] | 2008-09 | ≥140/90mmHg  | 32.75 | 22.3 | 22.5 | 22.6 |
|  | Uganda, Rural [[64](#_ENREF_64)] | 2011 | ≥140/90mmHg  | 42.5 | 20.5 | 20.7 | 20.4 |
|  | Uganda, Mixed [[65](#_ENREF_65)] | 2012 | ≥140/90mmHg  | 35.15 | 21.8 | 22.3 | 21.7 |
|  | Uganda, Rural [[66](#_ENREF_66)] | 2006 | ≥140/90mmHg  | 42 | 30.4 | 25.4 | 34 |
| NORTH |
|  | Algeria, Rural) [[67](#_ENREF_67)] | 2010 | WHO/ISH 2003 | 58.5 | 50.2 | 51.3 | 49.7 |
|  | Algeria, Urban [[68](#_ENREF_68)] | 2004-05 | ≥140/90mmHg  | 54.5 | 32.7 | 24.5 | 40.6 |
|  | Algeria, Peri-urban [[69](#_ENREF_69)] | 2006-07 | ≥140/90mmHg  | 55 | 44 | 41.2 | 46.7 |
|  | Egypt, Mixed [[70](#_ENREF_70)] | 1991-93 | ≥140/90mmHg  | 45.6 | 26.3 | 25.7 | 26.9 |
|  | Egypt, Rural [[71](#_ENREF_71)] | 1999-00 | ≥140/90mmHg  | 42.5 | 27.9 | - | - |
|  | Morocco, Mixed [[72](#_ENREF_72)] | 2000 | ≥140/90mmHg  | 51 | 39.6 | 37.2 | 41.3 |
|  | Tunisia, Mixed [[73](#_ENREF_73)] | 2004-05 | JNC 7 | 44.6 | 31.07 | 25.0 | 36.1 |
|  | Tunisia, Mixed [[74](#_ENREF_74)] | 2004-05 | ≥140/90mmHg  | 49.6 | 30.6 | 27.3 | 33.1 |
|  | Tunisia, Mixed [[75](#_ENREF_75)] | 2002-03 | ≥140/90mmHg  | 54.5 | 44.3 | 38.7 | 48.2 |
|  | Tunisia, Urban [[76](#_ENREF_76)] | 1995 | ≥140/90mmHg  | 54.5 | 28.9 | 30 | 28.4 |
|  | Tunisia, Rural [[77](#_ENREF_77)] | 2008-09 | WHO/ISH 2003 | 72.3 | 52 | 45 | 55.5- |
|  | Tunisia, Mixed [[25](#_ENREF_25)] | 2002-03 | ≥140/90mmHg  | 69 | 69.3 | - | - |
| SOUTH |
|  | Angola, Urban [[78](#_ENREF_78)] | 2009-10 | JNC 7 | 44.5 | 45.2 | 46.3 | 44.2 |
|  | Angola, Mixed [[79](#_ENREF_79)] | 2011 | ≥140/90mmHg  | 41.5 | 23 | 26.4 | 19.8 |
|  | Madagascar, Urban [[80](#_ENREF_80)] | 1996-97 | ≥140/90mmHg  | 32.75 | 23.3 | 24.9 | 21.7 |
|  | Malawi, Rural [[51](#_ENREF_51)] | 2007 | JNC 7 | 38.4 | 23 | 24.5 | 22 |
|  | Malawi, Mixed [[81](#_ENREF_81)] | 2009 | ≥140/90mmHg  | 45.5 | 33.2 | 36.9 | 29.9 |
|  | Mozambique, Mixed [[82](#_ENREF_82)] | 2005 | WHO/ISH 1999 | 54.5 | 33.1 | 35.7 | 31.2 |
|  | Namibia, Urban [[57](#_ENREF_57)] | 2009-11 | WHO/ISH 2003 | 36.9 | 32 | - | - |
|  | South Africa, Rural [[83](#_ENREF_83)] | 2004-05 | ≥140/90mmHg  | 59.5 | 28.0 | 24.5 | 29.2 |
|  | South Africa, Rural [[84](#_ENREF_84)] | 2010 | ≥140/90mmHg  | 54.5 | 26.2 | 20.8 | 28.5 |
|  | South Africa, Mixed [[23](#_ENREF_23)] | 2008 | ≥140/90mmHg  | 65 | 77.3 | 74.4 | 79.6 |
|  | South Africa, Mixed [[85](#_ENREF_85)] | 1982 | ≥140/90mmHg  | 41 | 41.6 | 45.6 | 37.75 |
|  | South Africa, Mixed [[86](#_ENREF_86)] | 1990 | ≥140/90mmHg  | 40.5 | 21.5 | 19.2 | 23.4 |
|  | South Africa, Peri-urban [[87](#_ENREF_87)] | 1996 | ≥140/90mmHg  | 42 | 27.1 | 31.9 | 23.4 |
|  | South Africa, Rural [[88](#_ENREF_88)] | 2002 | JNC 7 | 59.5 | 32.6 | - | - |
|  | Zambia, Urban [[89](#_ENREF_89)] | 2009-10 | WHO/ISH 2003 | 57 | 34.8 | 38 | 33.3 |
| WEST |
|  | Benin, Mixed [[90](#_ENREF_90)] | 2008 | ≥140/90mmHg  | 42.7 | 27.9 | - | - |
|  | Burkina Faso, Urban [[91](#_ENREF_91)] | 2004 | ≥140/90mmHg  | 54.5 | 40.2 | - | - |
|  | Gambia, Mixed [[92](#_ENREF_92)] | 1998-99 | ≥140/90mmHg  | 43.7 | 18.4 | - | - |
|  | Ghana, Rural [[93](#_ENREF_93)] | 2004-05 | ≥140/90mmHg  | 42.4 | 25.4 | 24.1 | 25.9 |
|  | Ghana, Mixed [[94](#_ENREF_94)] | 2004 | ≥140/90mmHg  | 35.9 | 29.4 | 31.04 | 28.07 |
|  | Ghana, Rural [[95](#_ENREF_95)] | 2003 | ≥140/90mmHg  | 53 | 32.8 | - | - |
|  | Ghana, Mixed [[96](#_ENREF_96)] | 2001 | ≥140/90mmHg  | 54.7 | 28.7 | 29.9 | 28 |
|  | Ghana, Rural [[97](#_ENREF_97)] | 2006-07 | ≥140/90mmHg  | 53.5 | 35 | 37.2 | 34.1 |
|  | Ghana, Rural [[98](#_ENREF_98)] | 2002-10 | JNC 7. WHO/ISH 2003 | 66 | 24.1 | 25.7 | 22.5 |
|  | Ghana, Rural [[99](#_ENREF_99)] | 2012 | ≥140/90mmHg  | 53.84 | 44.7 | - | - |
|  | Guinea, Mixed [[100](#_ENREF_100)] | 2003 | ≥140/90mmHg  | 62 | 31.4 | - | - |
|  | Guinea, Rural [[101](#_ENREF_101)] | 2001 | ≥140/90mmHg  | 45.5 | 45.2 | - | - |
|  | Liberia, Rural [[102](#_ENREF_102)] | 1991-92 | ≥140/90mmHg  | 54.5 | 12.5 | - | - |
|  | Nigeria, Mixed [[103](#_ENREF_103)] | 2010-11 | JNC 6 | 71.1 | 34.7 | - | - |
|  | Nigeria, Semi-urban [[104](#_ENREF_104)] | 2007-08 | JNC 7 | 44.2 | 36.57 | 36.79 | 36.39 |
|  | Nigeria, Semi-urban [[105](#_ENREF_105)] | 2011-12 | JNC 7, WHO/ISH 2003 | 41.5 | 25.2 | 24.7 | 24.7 |
|  | Nigeria, Rural [[106](#_ENREF_106)] | 2010-11 | ≥140/90mmHg  | 57.3 | 44.5 | 49.3 | 42.3 |
|  | Nigeria, Rural [[107](#_ENREF_107)] | 2012-13 | JNC 7 | 41.3 | 20.2 | 20.5 | 20.1 |
|  | Nigeria, Urban [[108](#_ENREF_108)] | 2006-10 | JNC 7 | 41.9 | 33 | 38.3 | 27.8 |
|  | Nigeria, Mixed [[109](#_ENREF_109)] | 2008 | JNC 7 | 48.7 | 50.5 | 52 | 49.3 |
|  | Nigeria, Rural [[110](#_ENREF_110)] | 2011 | JNC 7 | 49.7 | 13.2 | 15 | 11.9 |
|  | Nigeria, Urban [[111](#_ENREF_111)] | 1987-88 | ≥140/90mmHg  | 36.35 | 31.1 | 34 | 17 |
|  | Nigeria, Mixed [[44](#_ENREF_44)] | 1995 | ≥140/90mmHg  | 49.5 | 14.5 | 14.7 | 14.3 |
|  | Nigeria, Rural [[112](#_ENREF_112)] | 2005-06 | WHO/ISH 2003 | 59.8 | 46.4 | 50.2 | 44.8 |
|  | Nigeria, Semi-urban [[113](#_ENREF_113)] | 2012 | ≥140/90mmHg  | 31.7 | 47 | 30.1 | 16.8 |
|  | Nigeria, Mixed [[114](#_ENREF_114)] | 2009 | ≥140/90mmHg  | 34.9 | 21.1 | - | - |
|  | Nigeria, Semi-urban [[115](#_ENREF_115)] | 2002-03 | JNC 6, WHO/ISH 1999 | 55 | 21 | 23.3 | 16.4 |
|  | Nigeria, Rural [[57](#_ENREF_57)] | 2009-11 | WHO/ISH 2003 | 45.3 | 21 | - | - |
|  | Nigeria, Mixed [[116](#_ENREF_116)] | 2009-10 | JNC 7 | 38.9 | 24.8 | 25.9 | 23.6 |
|  | Nigeria, Semi-urban [[117](#_ENREF_117)] | 2011-12 | ≥140/90mmHg  | 50 | 32.5 | - | - |
|  | Nigeria, Urban [[118](#_ENREF_118)] | 2009-10 | ≥140/90mmHg  | 43.88 | 34.8 | - | - |
|  | Nigeria, Mixed [[119](#_ENREF_119)] | 2011-12 | ≥140/90mmHg  | 41.7 | 31.8 | 33.5 | 30.5 |
|  | Nigeria, Urban [[120](#_ENREF_120)] | 2006-07 | ≥140/90mmHg  | 50.5 | 27.1 | 28.4 | 22.9 |
|  | Nigeria, Rural [[121](#_ENREF_121)] | 2002-05 | JNC 7 | 42.1 | 20.8 | 21.1 | 20.5 |
|  | Nigeria, Urban) [[122](#_ENREF_122)] | 2007-08 | ≥140/90mmHg  | 41.6 | 33 | 28.1 | 36.4 |
|  | Nigeria, Rural [[123](#_ENREF_123)] | 2004-05 | ≥140/90mmHg  | 30.7 | 20.2 | 24.8 | 13.2 |
|  | Nigeria, Semi-urban [[124](#_ENREF_124)] | 2011 | JNC 7 | 50.5 | 15 | 18.8 | 12.5 |
|  | Nigeria, Mixed [[125](#_ENREF_125)] | 2007-08 | ≥140/90mmHg  | 40.8 | 32.8 | - | - |
|  | Nigeria, Mixed [[126](#_ENREF_126)] | 2009-10 | WHO/ISH 2003 | 38.02 | 42.2 | 46.3 | 37.7 |
|  | Senegal, Urban [[127](#_ENREF_127)] | 1989-90 | ≥140/90mmHg  | 31.45 | 22.5 | 23.6 | 21.5 |
|  | Senegal, Urban [[26](#_ENREF_26)] | 2009 | ≥140/90mmHg  | 69.5 | 65.4 | 63.9 | 67.1 |
|  | Togo, Urban [[128](#_ENREF_128)] | 2009-10 | ≥140/90mmHg  | 39 | 26.6 | 25.7 | 27.6 |
|  | Togo, Urban [[129](#_ENREF_129)] | 2011 | ≥140/90mmHg  | 40.8 | 36.7 | 34.6 | 38.4 |