The prevalence of type 2 diabetes mellitus in women of childbearing age in Africa during 2000-2016: A systematic review and meta-analysis

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Supplementary tables and figures

Appendix 1 – Search strategy

MEDLINE via PubMed and OvidSP

Search strategy for MEDLINE

((("Diabetes Mellitus”[Mesh] OR "Diabetes Mellitus, Type 2"[Mesh] OR “diabetes type 2”[Mesh] OR “T2DM”[Mesh] OR “diabetes Type II”[Mesh] OR diabetes”[Mesh] OR "glucose intolerance"[Mesh] OR "insulin resistance"[Mesh] OR "Hyperglycemia"[Mesh] OR "Hypoglycemia"[Mesh] OR OR "Diabetes Mellitus”[Text] OR "Diabetes Mellitus, Type 2"[Text] OR “diabetes type 2”[Text] OR “T2DM”[Text] OR “diabetes Type II”[Text] OR diabetes”[Text] OR "glucose intolerance"[Text] OR "insulin resistance"[Text] OR "Hyperglycemia"[Text] OR "Hypoglycemia"[Text])))

AND

(((((((("Prevalence"[Mesh] OR "Epidemiology"[Mesh] OR "Cross-Sectional Studies"[Mesh])) OR Prevalence) OR Epidemiology) OR Cross-Sectional Studies) OR "Longitudinal Studies"[Mesh]) OR "Cohort Studies"[Mesh]) OR Cohort Studies) OR Longitudinal Studies))

AND

((((((((((Africa, Northern OR Algeria OR Libya OR Egypt OR Morocco OR Tunisia OR Northern Africa))) OR ((Benin OR Burkina Faso OR Cape Verde OR Cote d'Ivoire OR Gambia OR Ghana OR Guinea OR Guinea-Bissau OR Liberia OR Mali OR Mauritania OR Niger OR Nigeria OR Senegal OR Sierra Leone OR Togo))) OR ((Ethiopia OR Kenya OR Rwanda OR Somalia OR Sudan OR Tanzania OR Uganda OR Africa, Southern OR Angola OR Lesotho OR Mozambique OR Namibia

OR South Africa OR Swaziland OR Zambia OR Zimbabwe OR Africa, Western))) OR Sub-Saharan Africa) OR ((Africa OR Africa South of the Sahara OR Africa, Central OR Cameroon OR Central African Republic OR Chad OR Congo OR Democratic Republic of the Congo OR Equatorial Guinea OR Gabon OR Burundi OR Djibouti OR Eritrea))) OR ((((("Africa, Northern"[Mesh]) OR "Algeria"[Mesh]) OR "Libya"[Mesh]) OR "Egypt"[Mesh]) OR "Morocco"[Mesh]) OR "Tunisia"[Mesh])) OR africa) OR ((((((((((((((("Benin"[Mesh]) OR "Burkina Faso"[Mesh]) OR "Cape Verde"[Mesh]) OR "Cote d'Ivoire"[Mesh]) OR "Gambia"[Mesh]) OR "Ghana"[Mesh]) OR "Guinea"[Mesh]) OR "Guinea-Bissau"[Mesh]) OR "Liberia"[Mesh]) OR "Mali"[Mesh]) OR "Mauritania"[Mesh]) OR "Niger"[Mesh]) OR "Nigeria"[Mesh]) OR "Senegal"[Mesh]) OR "Sierra Leone"[Mesh]) OR "Togo"[Mesh])) OR ((((((((((((("Africa"[Mesh]) OR "Africa South of the Sahara"[Mesh]) OR "Africa, Central"[Mesh]) OR "Cameroon"[Mesh]) OR "Central African Republic"[Mesh]) OR "Chad"[Mesh]) OR "Congo"[Mesh]) OR "Democratic Republic of the Congo"[Mesh]) OR "Equatorial Guinea"[Mesh]) OR "Gabon"[Mesh]) OR "Burundi"[Mesh]) OR "Djibouti"[Mesh]) OR "Eritrea"[Mesh])) OR ((((((((((((((((("Ethiopia"[Mesh]) OR "Kenya"[Mesh]) OR "Rwanda"[Mesh]) OR "Somalia"[Mesh]) OR "Sudan"[Mesh]) OR "Tanzania"[Mesh]) OR "Uganda"[Mesh]) OR "Africa, Southern"[Mesh]) OR "Angola"[Mesh]) OR "Lesotho"[Mesh]) OR "Mozambique"[Mesh]) OR "Namibia"[Mesh]) OR "South Africa"[Mesh]) OR "Swaziland"[Mesh]) OR "Zambia"[Mesh]) OR "Zimbabwe"[Mesh]) OR "Africa, Western"[Mesh])))

Appendix 2 – List of included studies

Country	Citation	Setting [rural/urban]	Diagnostic Method	Total	Total women, n[%)	T2DM prevalence in	T2DM proportion [15-24]	T2DM proportion [25-34]	T2DM proportion [35-44]	T2DM proportion [45-54]yrs	Overall IGT/IFG for all women	IGT/IFG [15-24]yrs	IGT/IFG [25-34]yrs	IGT/IFG [35-44]yrs	IGT/IFG [45-54]yrs
Algeria	Algeria STEPS 2003 (1)	both	FPG	4136	2483 [60.6%)	10.2%	-	0.4%	1.3%	3.7%	-	-	-	-	-
Angola	Evaristo-Neto 2010 (2)	rural	OGTT	421	295 [70%)	2.7%	-	-	-	-	IGT 9.1%	-	-	-	-

Angola	Capingana 2013 (3)	urban	FPG	615	320 [52%)	5.9 %	-	-	-	-	-	-	-	-	-
Benin	Benin STEPS 2008 (4)	both	FPG	3688	1891 [51.3 %)	2%	-	-	-	-	-	-	-	-	-
Benin	Benin STEPS 2015 (5)	both	FPG	5035	2750 [54.6 %)	12.2 %	97/955 [10.1%) 18-29yrs		111/1100 [10.1%) 30-44 yrs	89/503 [17.7%)	7	IFG 73/955 [7.6%) 18-29 yrs		IFG 65/1100 [5.9%) 30-44yrs	IFG 34/503 [6.8%) 45-59 yrs
Burkina Faso	Burkina Faso STEPS 2013 (6)	both	FPG	4695	2438 [51.9 %)	4.7 %	-	39/1044 [3.7%)	20/524 [3.8%)	21/375 [5.5%)	-	-	-	-	-
Cameroon	Sobngwi 2002 (7)	both	FPG	2325	-	-	-	-	-	-	-	-	-	-	-
Cameroon	Cameroon STEPS 2004 (8)	urban	OGTT	10011	-	5.5 %	-	-	-	-	-	-	-	-	-
Cameroon	Katte 2014 (9)	urban	FPG	1702	967 [56.8 %)	5.6 %	1/56 [1.8%)	18/174 [10.3%)	23/245 [9.4%)	36/257 [14.0%]	-	IFG 8/56 [14.3%)	IFG 34/174 [19.5%)	IFG 41/245 [16.7%)	IFG 36/257 [14.0%)
Cameroon	Kufe 2015 (10)	urban	FPG	2499	850 [34%)	2.7 %	-	4/451 [0.9%)	4/178 [2.3%)	10/26 [38.5%]	-	-	IFG 5/451 [1.1%)	IFG 4/178 [2.3%)	IFG 10/221 [4.5%)
DRC	DRC STEPS 2005 (10)	both	FPG	1943	1185 [60.7 %)	16.5 %	24.10%	12.50%	22.20%	11.10%	-	-	-	-	-
DRC	Katshunga 2016 (11)	rural	FPG	3962	2213 [56.2 %)	-	-	-	-	-	-	-	-	-	-
Egypt	Egypt STEPS 2006 (12)	both	FPG	9780	4369 [44.6 %)	18%	2.9%	3.6%	15.3%	27.1%	-	-	-	-	-

Ethiopia	Ethiopia STEPS 2016 (13)	both	FPG	8770	5225 [59.6%)	5.6%	109/2229 [4.9%) 15-29 yrs		223/1863 [6.1%) 30-44yrs	54/822 [6.6%) 45-59 yrs	IFG 5.5%	IFG 125/2229 [5.6%) 15-29yrs		IFG 110/1863 [5.9%) 30-44 yrs	IFG 35/822 [4.3%) 45-59 yrs
Ethiopia	Tesfaye 2016 (14)	urban	FPG	936	196 [20.9%)	-	-	-	-	-	-	-	-	-	-
Gabon	Gabon STEPS 2009 (15)	both	FPG	2800	1647 [58.8%)		-	-	-	-	-	-	-	-	-
Ghana	Amoah 2002 (16)	both	FPG, OGTT	4733	2225 [47%)	5.4%	-	19/901 [2.1%)	30/769 [3.9%]	39/557 [7.0%]	IGT 8.2%, IFG 7.6%	-	IGT 66/904 [7.3%), IFG 31/911 [3.4%)	IGT 58/753 [7.6%), IFG 45/763 [5.9%)	IGT 73/562 [13%), IFG 32/561 [5.7%)
Ghana	Obirikorang 2015 (17)	both	FPG	672	-	11.5%	-	-	-	-	-	-	-	-	-
Guinea Conarkry	Balde 2007 (18)	both	FPG	1537	807 [52.5%)	-	-	-	-	-	-	-	-	-	-
Guinea Conarkry	STEPS 2009 (19)	both	FPG	-	1351	4.4%	7/433 [1.6%)	12/387 [3.0%)	11/227 [4.6%)	17/152 [10.1%)	-	-	-	-	-
Kenya	STEPS 2015 (20)	both	FPG	4087	2470 [60%)	2.3%	3/859 [0.4%) 18-29yrs	27/908 [3%) 30-44 yrs	20/325 [6%) 45-59 yrs		IFG 3.1%	IFG 18/859 [2.1%) 18 - 29 yrs	IFG 16/643 [2.5%) 30-44yrs	IFG 19/325 [5.7%) 45-59yrs	
Kenya	Ayah 2013 (21)	urban	FPG	2061	995[48%)	3.7%	0/287 [18 - 24 yrs]	6/335 [1.8%)	9/219 [4.1%)	15/112 [13.4%)	-	-	-	-	-
Kenya	Christensen 2009 (22)	both	OGTT	1459	819[56%)	-	-	-	-	-	-	-	-	-	-
Kenya	Wanjihia 2009 (23)	rural	OGTT	299	165 [55%)	-	-	-	-	-	-	-	-	-	-
Liberia	Liberia STEPS 2011 (24)	both	FPG	2503	1438 [57.5%)	19.3%	-	163/970 [16.8%) 25-44 yrs		80/328 [24.4%) 45-64 yrs	IFG 15.7%	-	IFG 145/970 [14.9%) 25-44 yrs		IFG 56/328 [17.1%) 45-64 yrs
Libya	Libya STEPS	both	FPG	36	-	15.1%	-	34/324 [10.4%)	37/353 [10.6%)	50/205 [24.2%)	-	-	-	-	-

	2009 (25)			25											
Malawi	Malawi STEPS 2010 (26)	both	FPG	5206	3082 [70.8%)	4.7%	-	33/898 [3.6%)	26/544 [4.7%)	26/400 [6.4%)	IFG 2.7%	-	IFG 18/898 [2.0%)	IFG 10/544 [1.8%)	IFG 17/400 [4.1%)
Mauritania	Mauritania STEPS 2006 (27)	both	FPG	2600	1415 [54.5%)	6.2%	10/309 [3.2%)	11/316 [3.5%)	23/264 [8.7%)	20/218 [9.2%)	-	-	-	-	-
Mauritania	Meiloud a 2013 (28)	NR	FPG	1278	-	6.4%	-	-	-	-	-	-	-	-	-
Mauritius	Mauritius STEPS 2004 (29)	both	OGTT	4500	-	19.7%	2.2% 20-29 yrs	8.9% 30-39 yrs	15.4% 40-49 yrs	-	IGT 14.6%	IGT 5.9% 20-29 yrs	IGT 11.8% 30-39 yrs	IGT 15.9% 40-49 yrs	
Mayotte	Solet 2010 (30)	both	OGTT	544	332 [61%)	19.9%	-	-	-	-	IFG 1.8%, IGT 15.4%	-	-	-	-
Mozambique	Silva-Matos 2010 (31)	both	FPG	2343	1757 [75%)	-	-	-	-	-	-	-	-	-	-
Morocco	Tazi 2003 (32)	both	FPG	1802	1047 [58.1%)	8.2%	-	-	-	-	-	-	-	-	-
Namibia	Namibia DHS 2013 (33)	both	FPG	1873	1873	5.6%	-	-	42/835 [5.0%)	40/658 [6.1%)	IFG 7.1%	-	-	45/835 [5.4%)	52/658 [6.1%)
Niger	Niger STEPS 2007 (34)	both	FPG	2780	1316 [47.3%)	3.6%	13/337 [3.9%)	12/325 [3.7%)	10/273 [3.7%)	11/234 [4.7%)	IFG 5.3%	IFG 16/337 [4.7%)	IFG 20/325 [6.2%)	IFG 15/273 [5.5%)	IFG 15/234 [6.4%)
Nigeria	Nyenwe 2003 (35)	urban	OGTT	502	229 [40-90][45.6%)	5.7%	-	-	-	-	-	-	-	-	-
Nigeria	Oladapo Salako 2010 (36)	rural	FPG	2000	1127 [56.3%)	2.8%	-	-	-	-	-	-	-	-	-

Nigeria	Ejim 2011 (37)	rural	FPG	858	611 [71.2%)	-	-	-	-	-	-	-	-	-	-
Nigeria	Ojewale 2012 (38)	urban	FPG	301	189 [62.8%)	2.7%	-	-	-	-	IGT 1.65%	-	-	-	-
Nigeria	Ekpenyong 2012 (39)	urban	FPG	3500	1968 [56.2%)	11.2%	28/709 [4%) 18-25 yrs	40/412 [9.7%) 26-35 yrs	76/584 [13%) 36-45 yrs	77/262 [29.4%) 46-60 yrs	-	-	-	-	-
Nigeria	Osuji 2012 (40)	urban	FPG	253	253 [100%)	6.7%	-	-	4/99 [4%) <50 yrs	-	-	-	-	-	-
Nigeria	Sabir 2013 (41)	rural	OGTT	393	183 [46.6%)	0.5%	-	-	-	-	-	-	-	-	-
Nigeria	Okpechi 2013 (42)	both	FPG	2983	1554 [52.1%)	3.6%	-	-	-	-	-	-	-	-	-
Nigeria	Enang 2014 (43)	urban	OGTT	1134	489 [43.1%)	4.7%	-	-	-	-	IFG 8.2%, IGT 17.6%	-	-	-	-
Nigeria	Nwatu 2014 (44)	rural	OGTT	824	538 [65.3%)	-	-	-	-	-	-	-	-	-	-
Nigeria	Oluyombo 2014 (45)	semi-urban	FPG	750	529 [70.6%)	6%	-	-	-	-	IFG 5.5%	-	-	-	-
Nigeria	Tagurum 2015 (46)	rural	FPG	195	152 [77.9%)	8.6%	-	-	-	-	-	-	-	-	-
Nigeria	Oguoma 2015 (47)	both	FPG	422	273 [64.7%)	2.6%	-	-	-	-	IFG 5.2%	-	-	-	-
Nigeria	Ejike 2015 (48)	semi-urban	FPG	365	193 [52.9%)	3.6%	-	-	-	-	IFG 1.6%	-	-	-	-
Rwanda	Rwanda STEPS 2015 (49)	both	FPG	7233	4542 [62.8%)	2.8%	19/841 [2.3%)	31/1341 [2.3%)	32/933 [3.4%)	22/619 [3.6%)	IFG 1.4%	IFG 6/841 [0.7%) IFG	IFG 27/1341 [2.0%)	IFG 15/933 [1.6%)	IFG 8/619 [1.3%)

La Re'union	Favier 2004 (50)	both	OGTT	3600	2024 [56.2%)		-	44/745 [5.9%) 30-39 yrs	99/609 [16.3%) 40-49 yrs	-	-	-	-	-	-
Senegal	Pessinaba 2013 (51)	urban	FPG	1424	983 [69%)	10.5%	-	-	-	-	-	-	-	-	-
Senegal	Duboz 2016 (52)	rural	FPG	600	293 [48.8%)	5.4%	-	-	-	-	-	-	-	-	-
Seychelles	Bovet 2007 (53)	both	OGTT	1255	509[40.6%)	12.1%	-	6/157 [3.4%)	11/171 [6.3%)	27/181 [14.9%)	IFG 18.1%	-	IFG 9/157 [5.4%)	IFG 24/171 [13.6%)	IFG 48/181 [26.4%)
Seychelles	Seychelles STEPS 2014 (54)	both	FPG	1240	514[41.5%)	13.6%	-	4/161 [2.5%)	12/170 [7.1%)	26/183 [14.2%)	IFG 17.4%	-	-	-	-
South Africa	Peer 2012 (55)	urban	OGTT	1099	707[64.3%)	13.8%	-	14/235 [5.9%)	17/163 [10.6%)	39/168 [23.3%)	0.8%[IFG], 9.2%[IGT]	-	IFG 2/235 [1%), IGT 12/235 [5.2%)	IFG 4/163 [2.2%), IGT 17/163 [10.6%)	IFG 1/168 [0.3%), IGT 30/168 [18.0%)
South Africa	Erasmus 2012 [106]	urban	OGTT	642	454 [70.7%)	-	-	0	20/146 [13.7%)	35/165 [21.2%)	-	-	0	IFG 9/146 [6.2%), IGT 18/146 [12.3%)	IFG 7/165 [4.2%), IGT 27/165 [16.4%)
South Africa	Motala 2008 (56)	rural	OGTT	1025	815[79.5%)	3.9%	0/108	4/126[3.2%)	6/151[4%)	8/113[7.1%)	IFG 0.9%, IGT 6.4	IFG 2/108[1.9%), IGT 1/108[0.9%)	IFG 0/126, IGT 4/126 [3.2%)	IGT 1/151 [0.9%), IGT 8/151 [5.3%)	IFG 0/113, IGT 4/113 [3.5%)
South Africa	Prakashandra 2016 (57)	urban	OGTT	1428	1026 [71.8%)	35.5%	8/69 [11.6%)	13/99 [13.1%)	64/221 [29%)	126/336 [37.5%)	37.0% [IFG], 27.6% [IGT]	IFG 5/77 [6.5%), IGT 7/73 [9.6%)	IFG 12/101 [11.9%), IGT 18/96 [18.8%)	IFG 56/227 [24.7%), IGT 45/192 [23.4%)	IFG 153/342 [44.7%), IGT 95/257 [37%)
South Africa	Alberts 2005 (58)	rural	FPG	2062	1563 [75.8%)	10%	-	5/162 [3.3%) 30-34 yrs	13/334 [4%)	37/318 [11.7%)	-	-	-	-	-
South Africa	Erasmus 2001 (59)	both	OGTT	374	137 [36.6%)	2.1%	-	-	2/59 [3.4%) - 40-49 yrs	-	1.5% [IGT]	-	IGT 2/52 [3.8%) - 30-39 yrs	IGT 0/59 - 40-49 yrs	-
South Africa	Shisana 2014 (60)	both	HbA1C	47	3010 [63.5%)	11%	-	-	-	-	10% [6.1<Hb	-	-	-	-

				40							A1C<6.5]				
South Africa	Hird 2016 (61)	urban	OGTT & HbA1C	1190	851 [71.5%)	14.8%[OGTT]	0% [18-24 yrs], FPG, OGTT, HbA1C	4.4% [HbA1C & OGTT], 4.3% FPG	5.7% [HbA1C & OGTT], 4.8% FPG	24.5% [OGTT], 27.2% [HbA1C], 23.2% [FPG]	IFG 0.7%, IGT 3.8%	IFG 0.5%, IGT 0.5% [18-24 yrs]	0% [both IFG & IGT]	IFG 0%, IGT 4%	IFG 1.3%, IGT 5.3%
Sudan	Sudan STEPS 2005 (62)	both	FPG	1573	921[58.6%)	17.8%	-	12/98 [12.2%)	14/98 [14.3%)	20/84 [23.8%)	-	-	-	-	-
Sudan	Elmadhoun 2016 (63)	urban	FPG	954	-	19.9%	-	-	-	-	IFG 10%	-	-	-	-
Swaziland	Swaziland STEPS 2014 (64)	both	OGTT	2892	1876 [64.9%)	16.7%	88/686 [12.9%) 15-29 yrs	92/567 [16.3%) 30-44 yrs		177/623 [28.2%) 45-69yrs	IFG 10.1%	IFG 60/686 [8.8%) 15-29yrs		IFG 52/567 [9.1%) 30-44yrs	IFG 94/623 [15.1%) 45-69 yrs
Tanzania	Aspray 2000 (65)	rural	FPG	928	527 [56.8%)	1.1%	1/203 [0.5%) 15-34 yrs		3/201 [1.5%) 35-54 yrs		IFG 1.5%	IFG 5/203 [2.5%) 15-34 yrs	IFG 2/201 [1%) 35-54 yrs		
Tanzania	Aspray 2000 (65)	urban	FPG	770	438 [56.9%)	4%	7/320 [2.3%) 15-34 yrs		7/89 [8.1%) 35-54 yrs		IFG 5.4%	IFG 19/320 [5.8%) 15-34 yrs	IFG 5/89 [5.8%0 35-54 yrs		
Tanzania	Tanzania STEPS 2012 (66)	both	FPG	5680	3057 [53.8%)	10%	-	79/885 [8.9%)	87/789 [11.0%)	59/539 [10.9%)	IFG 10%	-	IFG 83/885 [9.4%)	IFG 95/789 [12.1%)	IFG 47/539 [8.7%)
Tanzania	Miller 2013 Thesis (67)	rural	FPG	644	-	-	-	-	-	-	-	-	-	-	-
Tanzania	Ruhembe 2014 (68)	urban	FPG	640	352[55%)	13.1%	-	7/154 [4.5%)[20-40yrs]	16/100 [16%) [41-50 yrs]		IFG 3.9%	-	-	-	-
Togo	Togo STEPS 2010 (69)	both	FPG	4370	2282 [52.2%)	9.4%	37/615 [6%)	57/681 [8.4%)	52/458 [11.3]	47/293 [16%)	-	-	-	-	-
Tunisia	Romdhane 2014 (70)	both	FPG	7700	4475 [58.1%)	5.6%	-	-	-	-	IFG 5.6%	-	-	-	-
Tunisia	Bouguerra 2007 (71)	both	FPG	3729	2482 [66.6%)	10.1%	5/590 [0.8%) 20-29 yrs	28/641 [4.3%) 30-39 yrs	57/462 [12.4%) 40-49 yrs	-	IFG 5.1%		20/641 [3.1%) 30-39 yrs	19/462 [4.1%) 40-49 yrs	-

Tunisia	Belfki 2013 (72)	both	FPG	4654	2814 [60%)	-	-	-	-	-	-	-	-	-	-
Uganda	Mayega 2013 (73)	rural	FPG	1656	786 [52.5 %)	-	-	-	-	-	-	-	-	-	-
Uganda	Uganda STEPS 2014 (74)	both	FPG	3987	2392 [60%)	1%	0.3% [18-29 yrs]		1.6%[30-49 yrs]		IFG 2.4%	-	-	-	-
Uganda and Tanzania	Chiwanga 2016 (75)	both	FPG	586	360 [61%)	8.1 %	-	-	-	-	IFG 8%	-	-	-	-
Zambia	Zambia STEPS 2008 (76)	both	FPG	1928	1275 [66.1 %)	2.9 %	-	-	-	-	IFG 1.3%	-	-	-	-
Zanzibar	Zanzibar STEPS 2011 (77)	both	FPG	2464	1438 [58.4 %)	3.8 %	-	22/910 [2.4%) [Age group - 25-44]		46/530 [8.6%) 45-64yrs	IFG 2.3%	-	IFG 16/910 [1.8%) [Age grp 25-44]		26/530 [4.9%) 45-64yrs
Zimbabwe	Zimbabwe STEPS 2005 (78)	both	OGTT	3081	2311 [75%)	10.2 %	-	34/371 [9.1%)	37/331 [11.2%)	30/298 [10.1%)	IFG 5.2%	-	IFG 17/320 [5.3%)	IFG 13/293 [4.4%)	IFG 11/265 [4.2%)

***some data were missing from the published data, represented by "-"

Appendix 3 – Risk of bias and quality of included studies

Country	Year	citation	1	2	3	4	5	6	7	8	9	10	11	ROB Score out of 10
Algeria	2003	Algeria STEPS 2003	NCS	NCS	Low	Low	Low	Low	Low	Low	Low	NCS	Low	7
Angola	2013	Capingana 2013	Low	High	High	High	Low	Low	Low	Low	Low	Low	Low	7
Angola	2010	Evaristo-Neto 2010	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Benin	2008	Benin STEPS 2008	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10

Benin	2015	Benin STEPS 2015	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Burkina Faso	2016	Burkina Faso STEPS 2015	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Cameroon	2003	Cameroon STEPS 2003	Low	Low	Low	Low	Low	Low	Low	Low	Low	NCS	Low	9
Cameroon	2014	Katte 2014	Low	High	High	High	Low	Low	Low	Low	Low	High	Moderat e	6
Cameroon	2015	Kufe 2015	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Cameroon	2002	Songwi 2002	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
DRC	2016	Katshunga 2016	Low	Low	Low	Low	Low	High	Low	Low	Low	High	Low	8
DRC	2005	DRC STEPS 2005	High	Low	Low	High	Low	Low	Low	Low	Low	High	Low	7
Egypt	2006	Egypt STEPS 2006	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Ethiopia	2016	Ethiopia STEPS 2016	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Ethiopia	2016	Tesfare 2016	Low	Low	Low	Low	Low	High	Low	Low	Low	Low	Low	9
Gabon	2009	Gabon STEPS 2009	NCS	NCS	Low	Low	Low	Low	Low	Low	NCS	Low	Low	7
Ghana	2002	Amoah 2002	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
Ghana	2015	Obirikorang 2015	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
Guinea Conarkry	2007	Balde 2007	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Guinea Conarkry	2009	Guinea STEPS 2015	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Kenya	2015	Kenya STEPS 2015	Low	Low	Low	NCS	Low	Low	Low	Low	Low	Low	Low	10
Kenya	2013	Ayah 2013	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
Kenya	2009	Christensen 2009	Low	Low	High	High	Low	Low	Low	Low	Low	Low	Low	8
Kenya	2009	Wanjihia 2009	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10

Libya	2009	Libya STEPS 2009	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Liberia	2011	Liberia STEPS 2011	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Malawi	2009	Malawi STEPS 2009	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Mauritania	2006	Mauritania STEPS 2006	Low	Low	Low	High	Low	Low	Low	Low	High	High	Low	7
Mauritania	2013	Meiloud 2013	Low	High	Low	High	Low	Low	Low	Low	Low	Low	Low	8
Mauritius	2004	Mauritius STEPS 2004	Low	Low	Low	Low	Low	Low	Low	Low	Low	NCS	Low	9
Mayotte	2010	Solet 2010	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Morocco	2003	Tazi 2003	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Mozambiqu e	2012	Silva-Matos 2012	Low	Low	Low	High	Low	Low	Low	Low	NCS	NCS	Moderat e	8
Namibia	2013	Namibia DHS 2013	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Niger	2008	Niger STEPS 2008	Low	High	Low	NCS	Low	Low	Low	Low	Low	NCS	Low	7
Nigeria	2015	Chukwunonso 2015	High	High	High	High	Low	Low	Low	Low	Low	Low	High	6
Nigeria	2011	Ejim 2011	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	low	9
Nigeria	2012	Ekpenyong 2012	High	High	High	High	Low	Low	Low	Low	Low	Low	High	6
Nigeria	2014	Enang 2014	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	low	10
Nigeria	2015	Nwatu 2015	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Nigeria	2015	Oguoma 2015	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
Nigeria	2013	Okpechi 2013	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	9
Nigeria	2010	Oladapo 2010	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
Nigeria	2015	Oluyombo 2014	High	High	High	Low	Low	Low	Low	Low	Low	Low	Low	7
Nigeria	2012	Osuji 2012	Low	Low	High	High	Low	Low	Low	Low	Low	Low	Low	8
Nigeria	2013	Sabir 2013	High	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	8

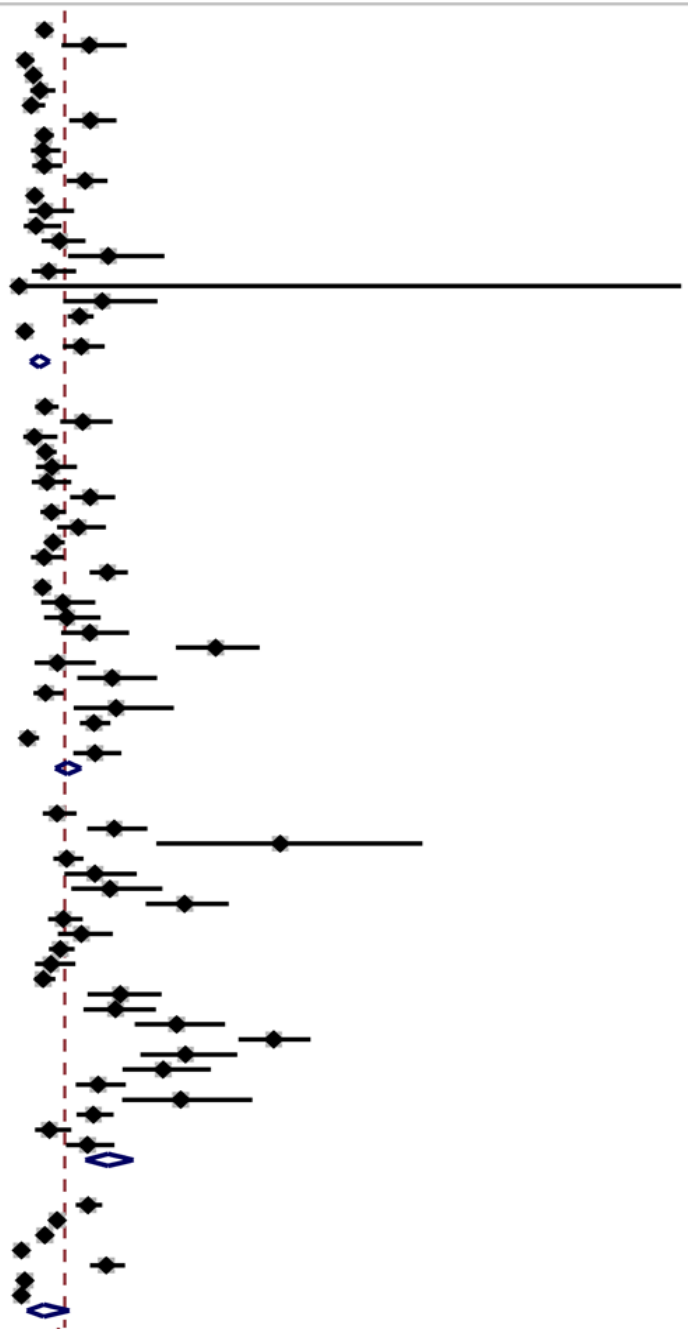
Nigeria	2015	Tagurum 2015	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Nigeria	2003	Nyewe,2003	Low	Low	Low	low	Low	Low	Low	Low	Low	Low	Low	10
Nigeria	2012	Ojewele,2012	High	High	Low	High	Low	Low	Low	Low	Low	Low	Low	8
Reunion	2004	Favier 2004	High	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	8
Rwanda	2015	Rwanda STEPS 2015	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Senegal	2016	Duboz 2016	Low	Low	High	High	Low	Low	Low	Low	Low	Low	Low	8
Senegal	2013	Pessinaba 2013	Low	Low	Low	Low	Low	Low	Low	High	Low	High	Low	8
Seychelles	2004	Seychelles STEPS 2004	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Seychelles	2015	Seychelles STEPS 2015	Low	Low	Low	Low	NCS	NCS	Low	Low	Low	Low	Low	7
South Africa	2012	Erasmus 2012	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
South Africa	2016	Prakaschandra 2016	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
South Africa	2012	SANHANES 2012	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
South Africa	2005	Alberts, 2005	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
South Africa	2001	Erasmus,2001	Low	Low	High	High	Low	Low	Low	Low	Low	Low	Low	8
South Africa	2016	Hird 2016	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
South Africa	2015	Peer 2015	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
South Africa	2008	Motala, 2008	Low	High	Low	low	Low	Low	Low	Low	Low	Low	Low	9
Sudan	2006	Sudan STEPS 2006	Low	Low	Low	Low	Low	low	Low	Low	Low	Low	Low	10
Sudan	2016	Elmadhoun 2016	Low	Low	Low	Low	Low	low	Low	Low	Low	Low	Low	10
Swaziland	2014	Swaziland STEPS 2014	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Tanzania	2012	Tanzania STEPS 2012	Low	Low	Low	NCS	Low	Low	Low	Low	Low	Low	Low	10
Tanzania	2000	Aspray 2000	High	High	Low	Low	Low	Low	Low	Low	Low	Low	Low	8
Tanzania	2013	Miller 2013	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9

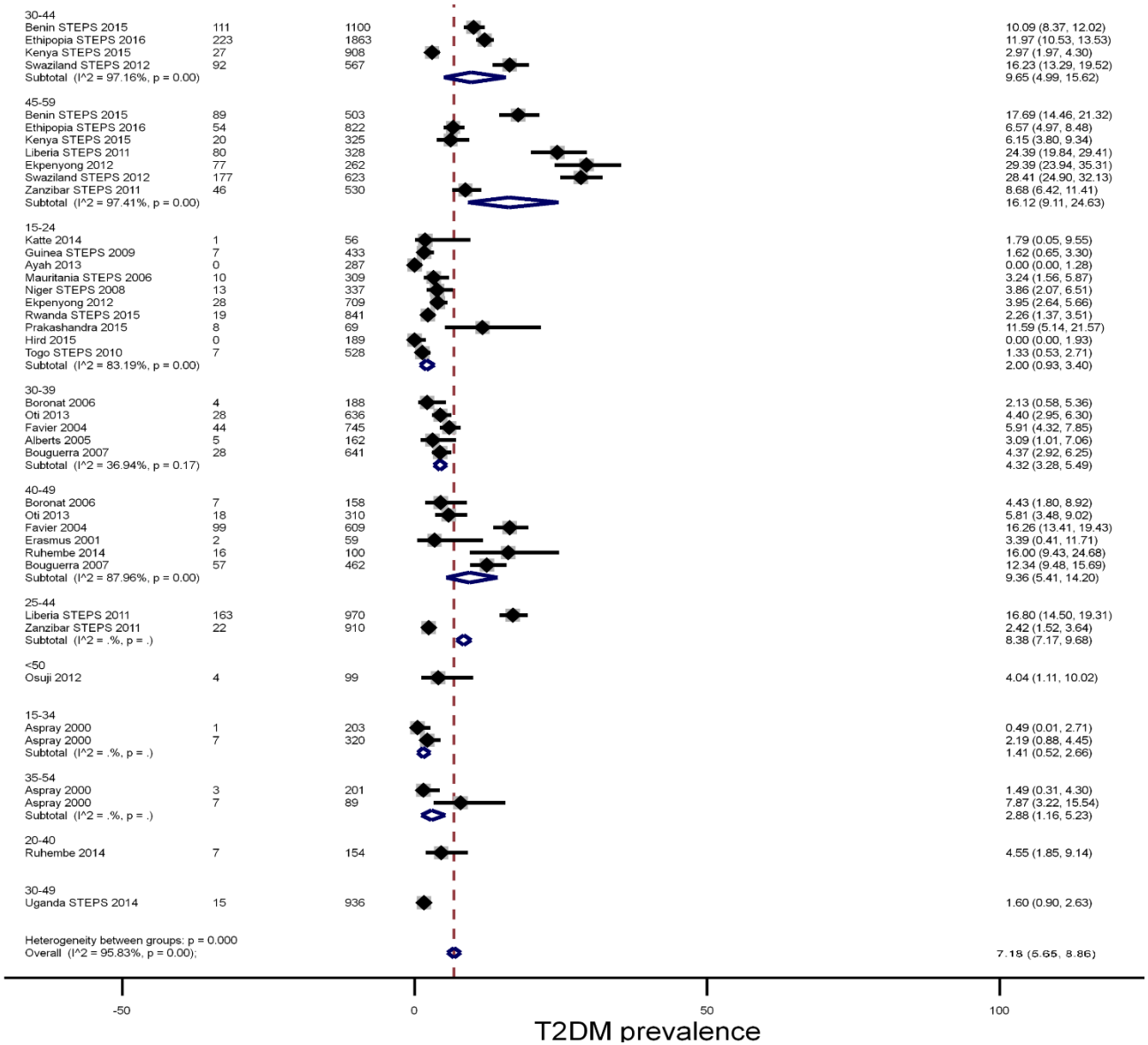
Tanzania	2014	Ruhembe 2014	Low	High	Low	High	Low	Low	Low	Low	Low	Low	Low	8
Togo	2010	Togo STEPS 2010	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Tunisia	2013	Belfki 2013	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Tunisia	2014	Romdhane 2014	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Tunisia	2007	Bouguerra 2007	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Uganda	2014	Uganda STEPS 2014	Low	Low	Low	NCS	Low	Low	Low	Low	Low	Low	Low	9
Uganda and Tanzania	2016	Chiwanga 2016	High	High	High	High	Low	Low	Low	Low	Low	Low	High	6
Uganda	2013	Mayega 2013	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
Zambia	2006	Zambia STEPS 2006	Low	Low	Low	NCS	Low	NCS	Low	NCS	Low	NCS	Moderate	6
Zanzibar	2011	Zanzibar STEPS 2011	Low	Low	Low	High	Low	Low	Low	Low	Low	Low	Low	9
Zimbabwe	2005	Zimbabwe STEPS 2005	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10

Risk of bias using the tool by Hoy et al (79), adapted by Werfalli et al (80). High risk, and unclear scored as zero “0”, while low risk was scored as one “1” for each item. Total score out of 10 where 10 depicts low overall risk and 0 high overall risk. See Supplementary Table 1 for more details

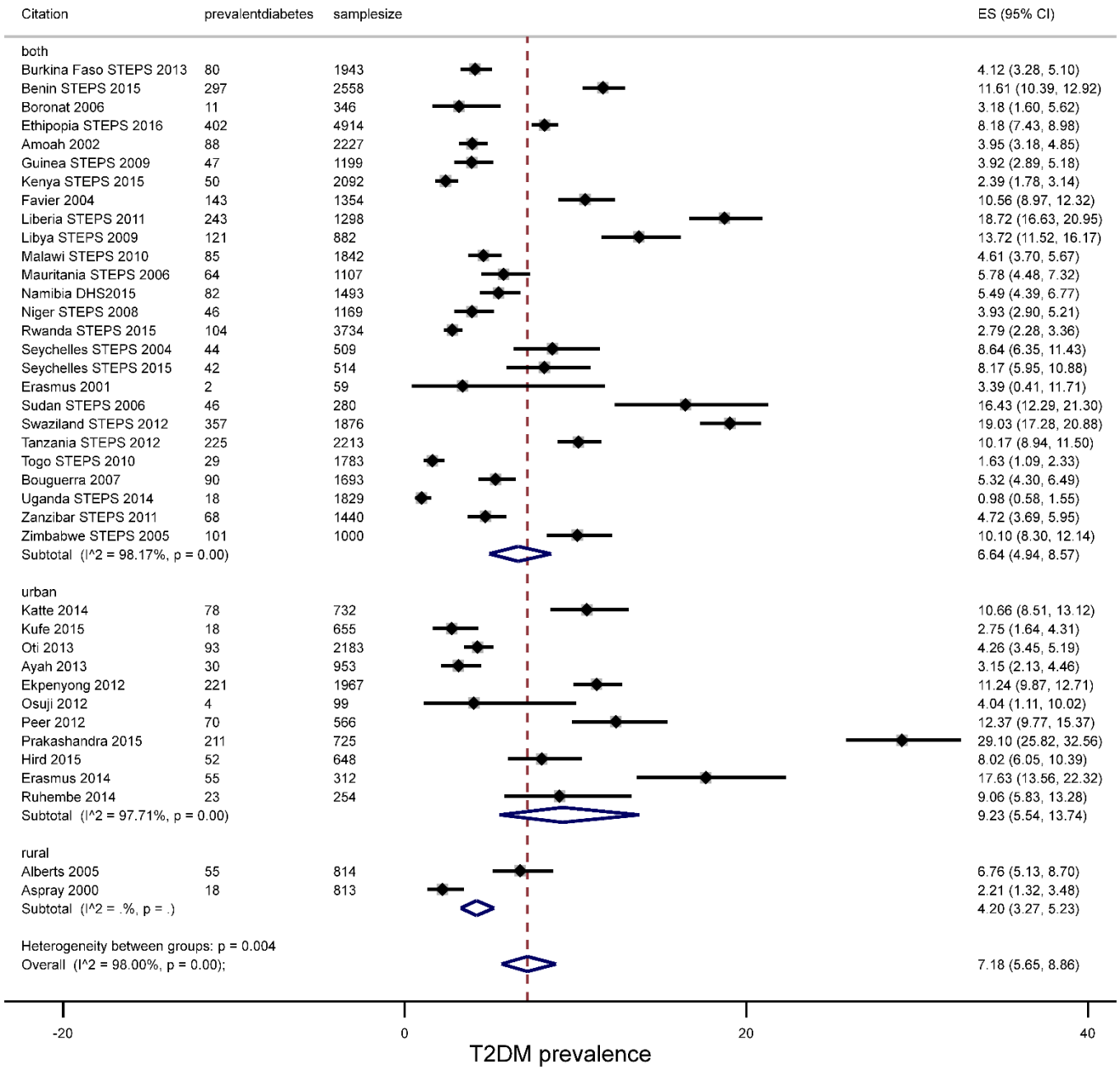
Supplementary Figure 1 - Prevalent T2DM in different age categories

Citation	prevalentdiabetes	samplesize	ES (95% CI)
25-34			
Burkina Faso STEPS 2013	39	1044	3.74 (2.67, 5.07)
Katte 2014	18	174	10.34 (6.25, 15.86)
Kufe 2015	4	451	0.89 (0.24, 2.26)
Amoah 2002	19	901	2.11 (1.27, 3.27)
Guinea STEPS 2009	12	387	3.10 (1.61, 5.35)
Ayah 2013	6	335	1.79 (0.66, 3.86)
Libya STEPS 2009	34	324	10.49 (7.38, 14.35)
Malawi STEPS 2010	33	898	3.67 (2.54, 5.12)
Mauritania STEPS 2006	11	316	3.48 (1.75, 6.14)
Niger STEPS 2008	12	325	3.69 (1.92, 6.36)
Ekpenyong 2012	40	412	9.71 (7.03, 12.99)
Rwanda STEPS 2015	31	1341	2.31 (1.58, 3.27)
Seychelles STEPS 2004	6	157	3.82 (1.42, 8.13)
Seychelles STEPS 2015	4	161	2.48 (0.68, 6.24)
Peer 2012	14	235	5.96 (3.29, 9.79)
Prakashandra 2015	13	99	13.13 (7.18, 21.41)
Hird 2015	8	184	4.35 (1.90, 8.39)
Erasmus 2014	0	1	0.00 (0.00, 97.50)
Sudan STEPS 2006	12	98	12.24 (6.49, 20.41)
Tanzania STEPS 2012	79	885	8.93 (7.13, 11.00)
Togo STEPS 2010	5	589	0.85 (0.28, 1.97)
Zimbabwe STEPS 2005	34	371	9.16 (6.43, 12.57)
Subtotal (I^2 = 90.02%, p = 0.00)			2.96 (1.67, 4.51)
35-44			
Burkina Faso STEPS 2013	20	524	3.82 (2.35, 5.83)
Katte 2014	23	245	9.39 (6.04, 13.75)
Kufe 2015	4	178	2.25 (0.62, 5.65)
Amoah 2002	30	769	3.90 (2.65, 5.52)
Guinea STEPS 2009	11	227	4.85 (2.44, 8.50)
Ayah 2013	9	219	4.11 (1.90, 7.66)
Libya STEPS 2009	37	353	10.48 (7.49, 14.16)
Malawi STEPS 2010	26	544	4.78 (3.15, 6.92)
Mauritania STEPS 2006	23	264	8.71 (5.60, 12.79)
Namibia DHS2015	42	835	5.03 (3.65, 6.74)
Niger STEPS 2008	10	273	3.66 (1.77, 6.63)
Ekpenyong 2012	76	584	13.01 (10.39, 16.02)
Rwanda STEPS 2015	32	933	3.43 (2.36, 4.81)
Seychelles STEPS 2004	11	171	6.43 (3.25, 11.22)
Seychelles STEPS 2015	12	170	7.06 (3.70, 12.01)
Peer 2012	17	163	10.43 (6.19, 16.17)
Prakashandra 2015	64	221	28.96 (23.07, 35.42)
Hird 2015	7	124	5.65 (2.30, 11.29)
Erasmus 2014	20	146	13.70 (8.57, 20.36)
Alberts 2005	13	334	3.89 (2.09, 6.56)
Sudan STEPS 2006	14	98	14.29 (8.04, 22.81)
Tanzania STEPS 2012	87	789	11.03 (8.93, 13.42)
Togo STEPS 2010	5	397	1.26 (0.41, 2.91)
Zimbabwe STEPS 2005	37	331	11.18 (7.99, 15.08)
Subtotal (I^2 = 91.48%, p = 0.00)			7.13 (5.34, 9.14)
45-54			
Burkina Faso STEPS 2013	21	375	5.60 (3.50, 8.43)
Katte 2014	36	257	14.01 (10.01, 18.86)
Kufe 2015	10	26	38.46 (20.23, 59.43)
Amoah 2002	39	557	7.00 (5.03, 9.45)
Guinea STEPS 2009	17	152	11.18 (6.65, 17.30)
Ayah 2013	15	112	13.39 (7.69, 21.13)
Libya STEPS 2009	50	205	24.39 (18.68, 30.86)
Malawi STEPS 2010	26	400	6.50 (4.29, 9.38)
Mauritania STEPS 2006	20	218	9.17 (5.69, 13.81)
Namibia DHS2015	40	658	6.08 (4.38, 8.19)
Niger STEPS 2008	11	234	4.70 (2.37, 8.26)
Rwanda STEPS 2015	22	619	3.55 (2.24, 5.33)
Seychelles STEPS 2004	27	181	14.92 (10.07, 20.96)
Seychelles STEPS 2015	26	183	14.21 (9.50, 20.12)
Peer 2012	39	168	23.21 (17.06, 30.34)
Prakashandra 2015	126	336	37.50 (32.31, 42.92)
Hird 2015	37	151	24.50 (17.88, 32.16)
Erasmus 2014	35	165	21.21 (15.24, 28.25)
Alberts 2005	37	318	11.64 (8.33, 15.68)
Sudan STEPS 2006	20	84	23.81 (15.19, 34.35)
Tanzania STEPS 2012	59	539	10.95 (8.44, 13.89)
Togo STEPS 2010	12	269	4.46 (2.33, 7.66)
Zimbabwe STEPS 2005	30	298	10.07 (6.90, 14.06)
Subtotal (I^2 = 94.27%, p = 0.00)			13.10 (9.76, 16.83)
15-29			
Benin STEPS 2015	97	955	10.16 (8.31, 12.25)
Ethipopia STEPS 2016	125	2229	5.61 (4.69, 6.65)
Oti 2013	47	1237	3.80 (2.80, 5.02)
Kenya STEPS 2015	3	859	0.35 (0.07, 1.02)
Swaziland STEPS 2012	88	686	12.83 (10.42, 15.56)
Bouguerra 2007	5	590	0.85 (0.28, 1.97)
Uganda STEPS 2014	3	893	0.34 (0.07, 0.98)
Subtotal (I^2 = 98.05%, p = 0.00)			3.64 (1.16, 7.39)

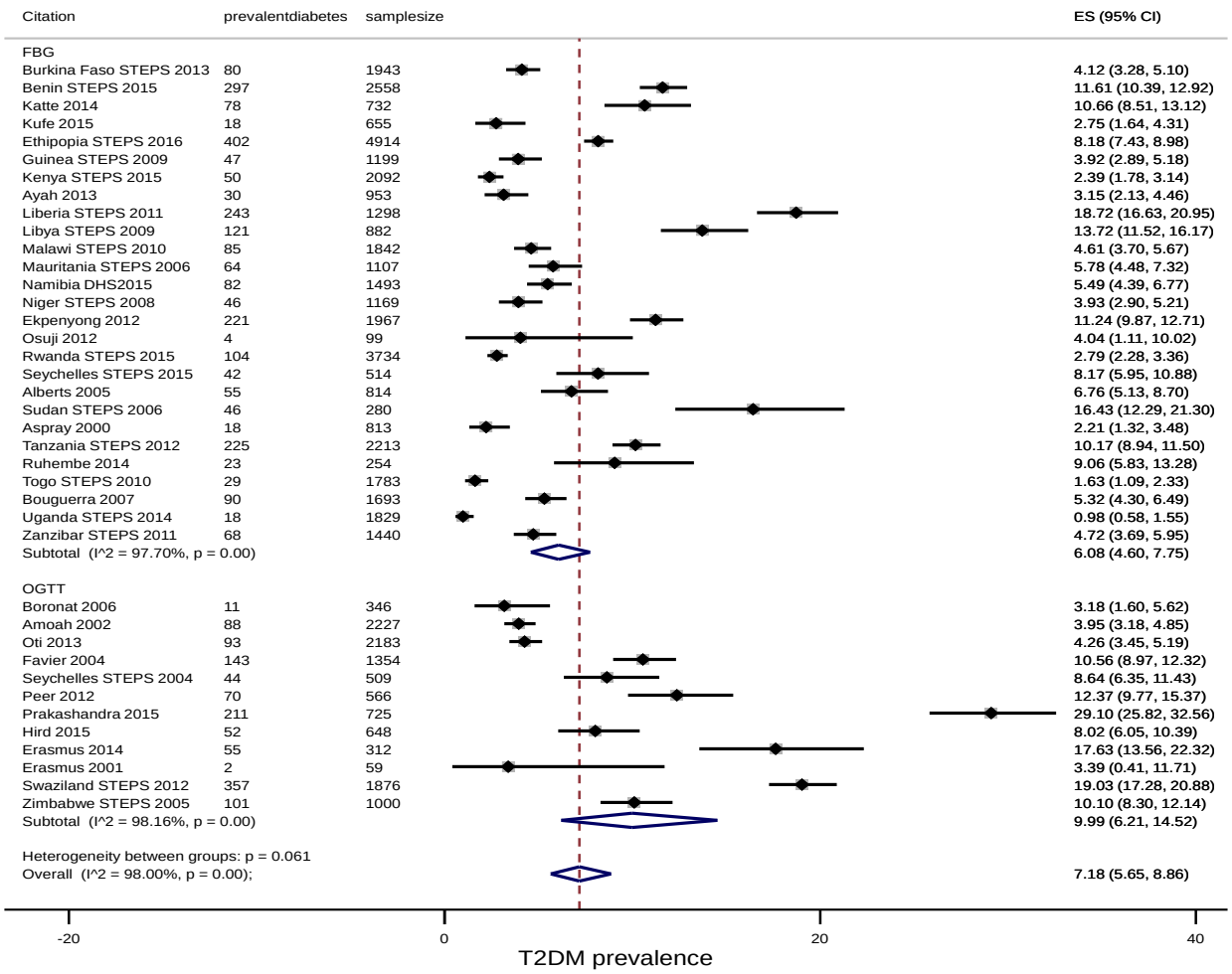



30-44
Benin STEPS 2015 111 1100 10.09 (8.37, 12.02)
Ethipopia STEPS 2016 223 1863 11.97 (10.53, 13.53)
Kenya STEPS 2015 27 908 2.97 (1.97, 4.30)
Swaziland STEPS 2012 92 567 16.23 (13.29, 19.52)
Subtotal (I^2 = 97.16%, p = 0.00) 9.65 (4.99, 15.62)
45-59
Benin STEPS 2015 89 503 17.69 (14.46, 21.32)
Ethipopia STEPS 2016 54 822 6.57 (4.97, 8.48)
Kenya STEPS 2015 20 325 6.15 (3.80, 9.34)
Liberia STEPS 2011 80 328 24.39 (19.84, 29.41)
Ekpenyong 2012 77 262 29.39 (23.94, 35.31)
Swaziland STEPS 2012 177 623 28.41 (24.90, 32.13)
Zanzibar STEPS 2011 46 530 8.68 (6.42, 11.41)
Subtotal (I^2 = 97.41%, p = 0.00) 16.12 (9.11, 24.63)
15-24
Katte 2014 1 56 1.79 (0.05, 9.55)
Guinea STEPS 2009 7 433 1.62 (0.65, 3.30)
Ayah 2013 0 287 0.00 (0.00, 1.28)
Mauritania STEPS 2006 10 309 3.24 (1.56, 5.87)
Niger STEPS 2008 13 337 3.86 (2.07, 6.51)
Ekpenyong 2012 28 709 3.95 (2.64, 5.66)
Rwanda STEPS 2015 19 841 2.26 (1.37, 3.51)
Prakashandra 2015 8 69 11.59 (5.14, 21.57)
Hird 2015 0 189 0.00 (0.00, 1.93)
Togo STEPS 2010 7 528 1.33 (0.53, 2.71)
Subtotal (I^2 = 83.19%, p = 0.00) 2.00 (0.93, 3.40)
30-39
Boronat 2006 4 188 2.13 (0.58, 5.36)
Oti 2013 28 636 4.40 (2.95, 6.30)
Favier 2004 44 745 5.91 (4.32, 7.85)
Alberts 2005 5 162 3.09 (1.01, 7.06)
Bouguerra 2007 28 641 4.37 (2.92, 6.25)
Subtotal (I^2 = 36.94%, p = 0.17) 4.32 (3.28, 5.49)
40-49
Boronat 2006 7 158 4.43 (1.80, 8.92)
Oti 2013 18 310 5.81 (3.48, 9.02)
Favier 2004 99 609 16.26 (13.41, 19.43)
Erasmus 2001 2 59 3.39 (0.41, 11.71)
Ruhembe 2014 16 100 16.00 (9.43, 24.68)
Bouguerra 2007 57 462 12.34 (9.48, 15.69)
Subtotal (I^2 = 87.96%, p = 0.00) 9.36 (5.41, 14.20)
25-44
Liberia STEPS 2011 163 970 16.80 (14.50, 19.31)
Zanzibar STEPS 2011 22 910 2.42 (1.52, 3.64)
Subtotal (I^2 = .%, p = .) 8.38 (7.17, 9.68)
<50
Osuji 2012 4 99 4.04 (1.11, 10.02)
15-34
Aspray 2000 1 203 0.49 (0.01, 2.71)
Aspray 2000 7 320 2.19 (0.88, 4.45)
Subtotal (I^2 = .%, p = .) 1.41 (0.52, 2.66)
35-54
Aspray 2000 3 201 1.49 (0.31, 4.30)
Aspray 2000 7 89 7.87 (3.22, 15.54)
Subtotal (I^2 = .%, p = .) 2.88 (1.16, 5.23)
20-40
Ruhembe 2014 7 154 4.55 (1.85, 9.14)
30-49
Uganda STEPS 2014 15 936 1.60 (0.90, 2.63)
Heterogeneity between groups: p = 0.000
Overall (I^2 = 95.83%, p = 0.00); 7.18 (5.65, 8.86)
-50
0
50
100
T2DM prevalence

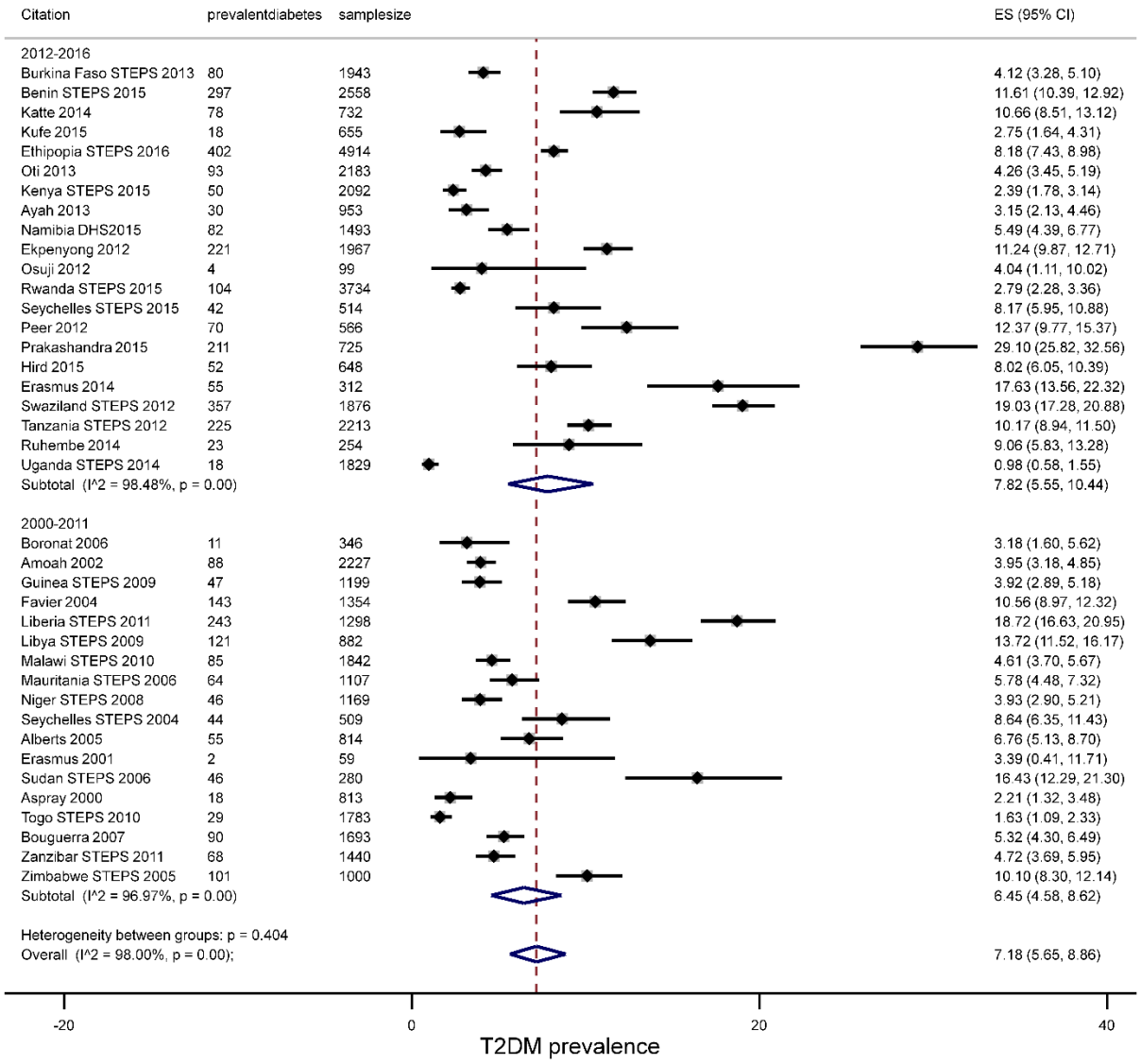
Supplementary Figure 2 - Prevalent T2DM in urban and rural settings



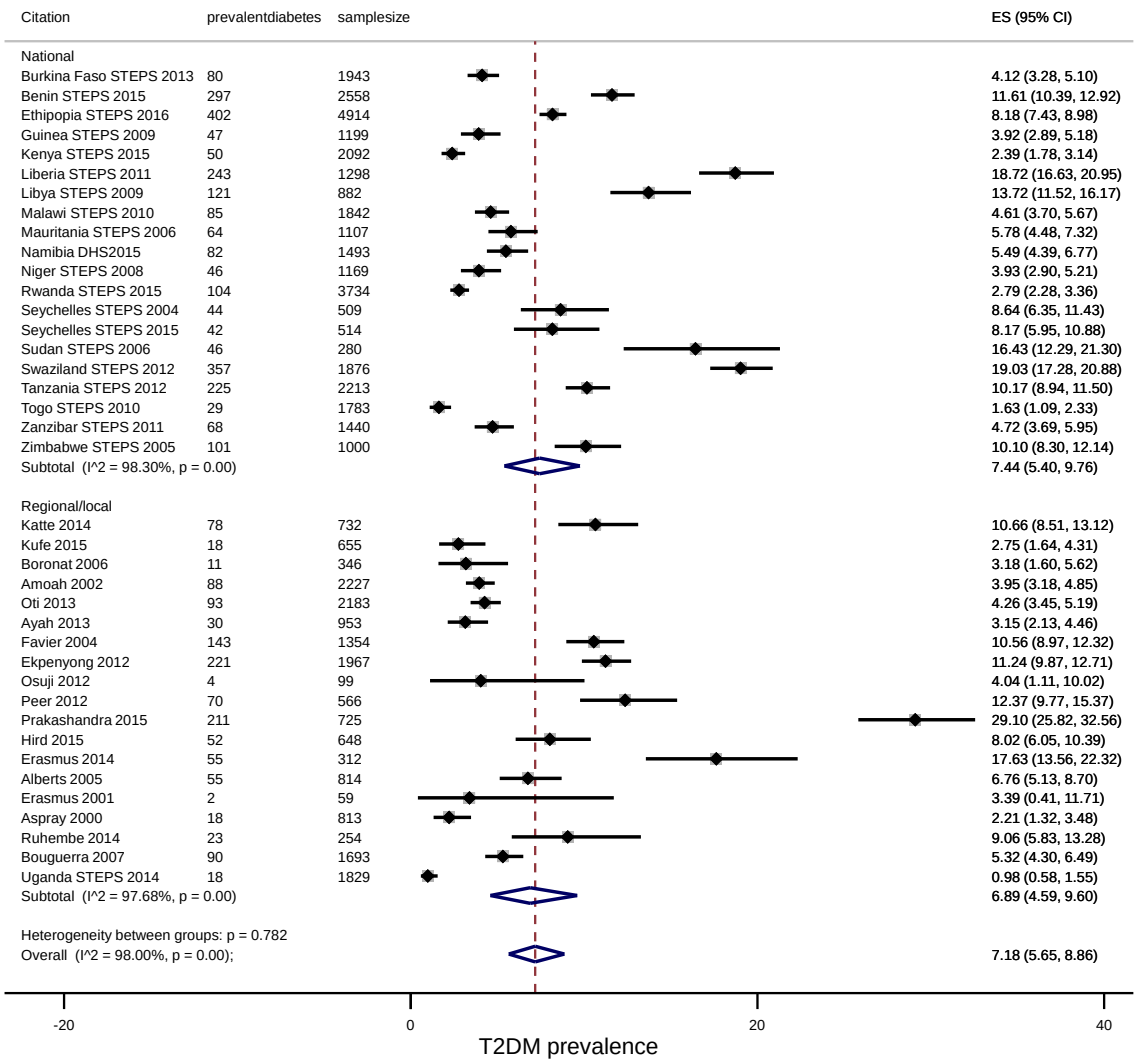
Supplementary Figure 3- Prevalent T2DM comparing OGTT and FPG diagnostic methods



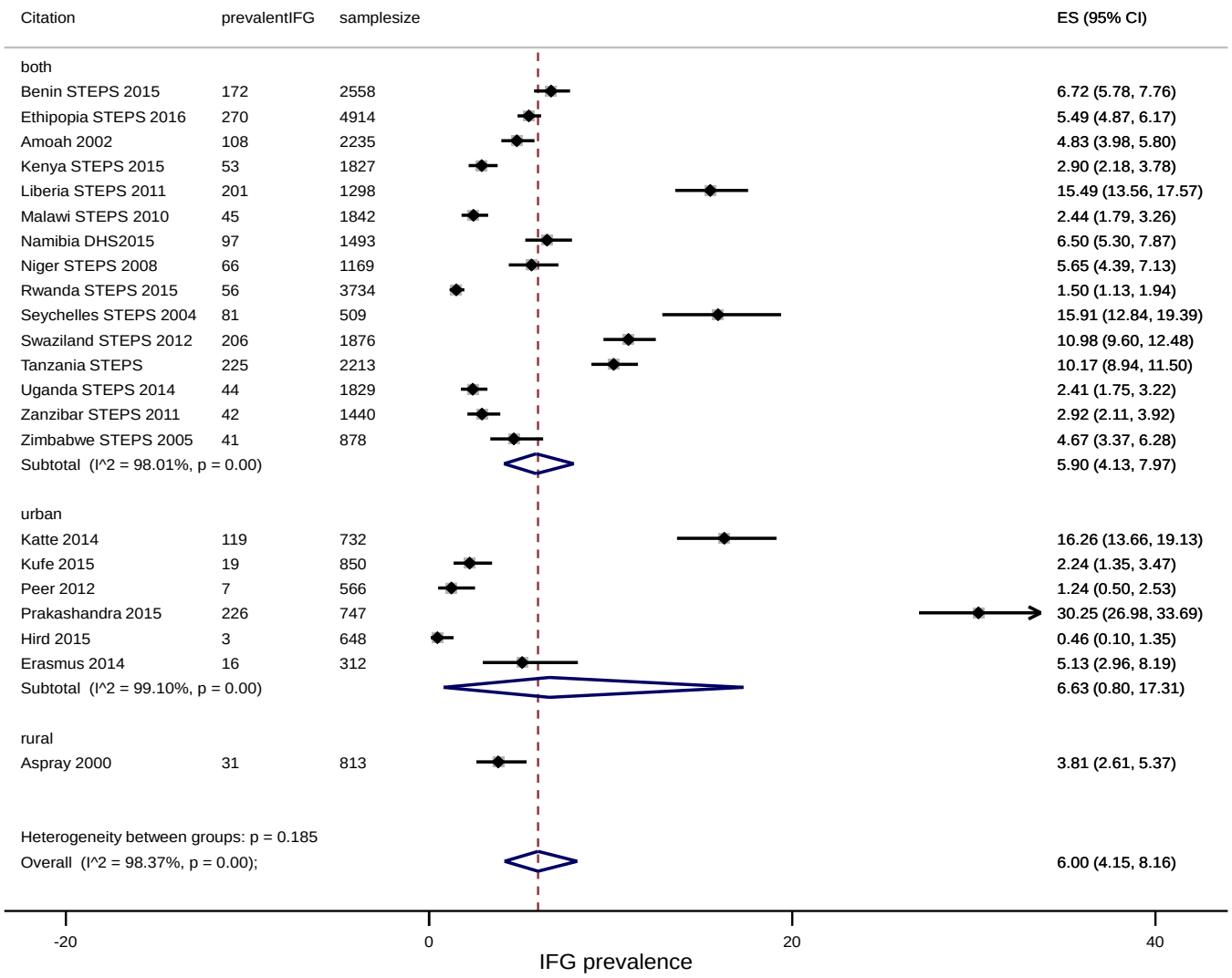
Supplementary Figure 4 - Prevalent T2DM comparing studies published during 2000-2011 and studies published during 2012-2016



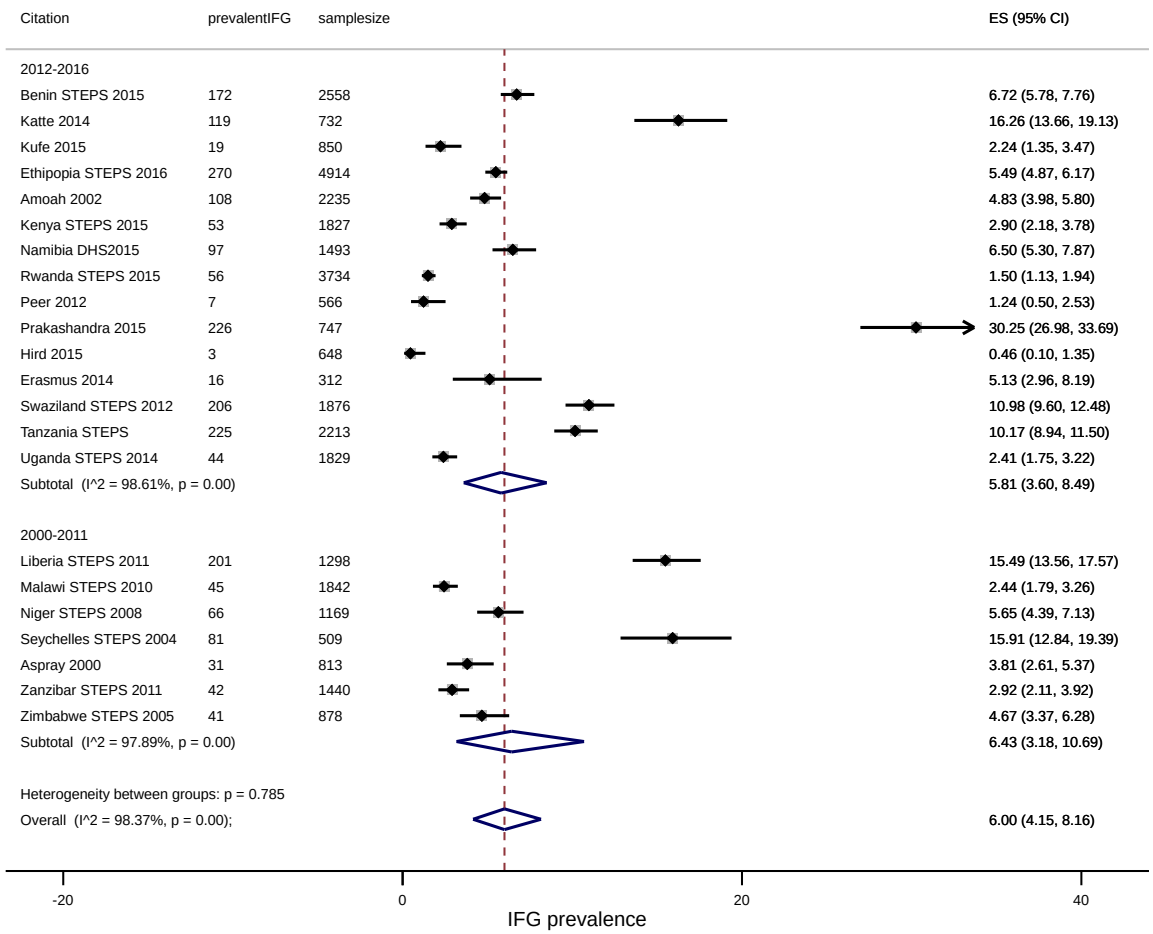
Supplementary Figure 5 - Prevalent T2DM comparing nationally representative studies and local/regional studies



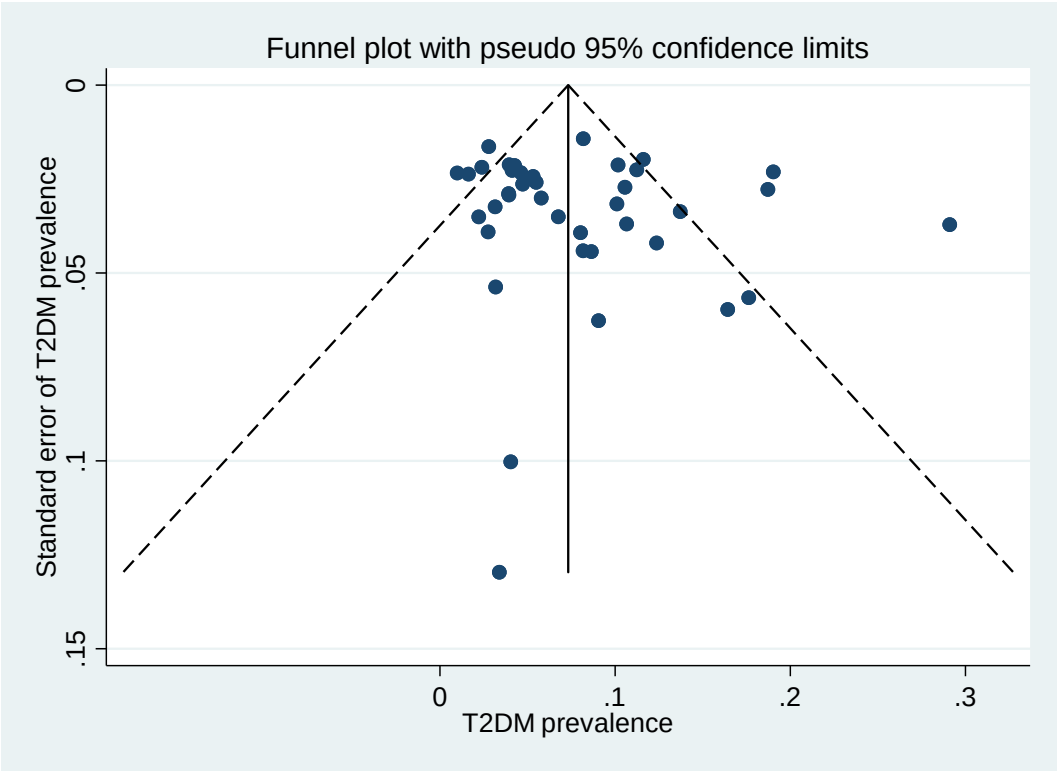
Supplementary Figure 6- Prevalent IFG comparing rural and urban studies



Supplementary Figure 7- Prevalent IFG comparing studies published during 2000-2011 and studies published during 2012-2016



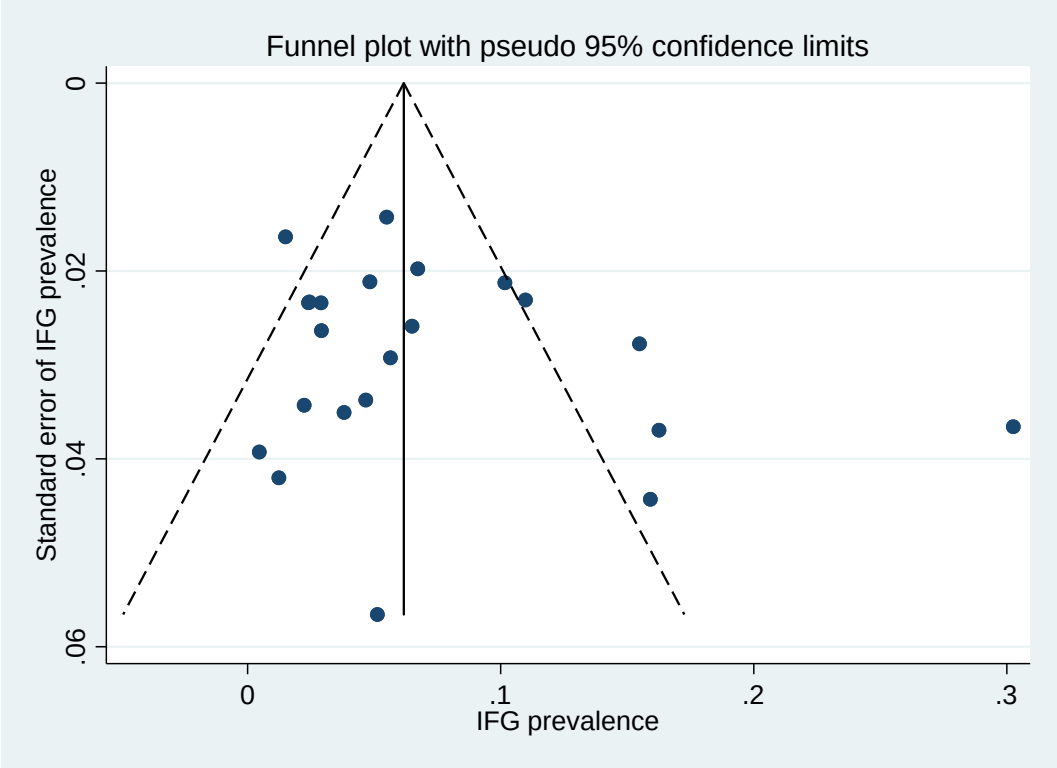
Supplementary Figure 8– Funnel plot for T2DM prevalence



Begg's test (Kendall's score 151, p = 0.07)

Egger's test (coefficient 0.05, p = 0.293)

Supplementary Figure 9 – Funnel plot for IFG prevalence



Egger's p-value 0.202

Begg's p-value 0.367

Supplementary Table 1: Hoy risk of bias assessment tool as adapted by Werfalli et al. (1)

1	Was the study's target population a close representation of the national population in relation to relevant variables, e.g. Age, sex, occupation? (low risk/unclear risk /high risk)

2	Was the sampling framing a true or close representation of the target population? (low risk/unclear risk /high risk)
3	Was some form of random selection used to select the sample, OR, was a census undertaken? (low risk/unclear risk /high risk)
4	Was the likelihood of non-response bias minimal? (low risk/unclear risk /high risk)
5	Were data collected directly from the subjects (as opposed to a proxy)? (low risk/unclear risk /high risk)
6	Was an acceptable case definition used in the study? (low risk/unclear risk /high risk)
7	Was the study instrument that measured the parameter of interest (e.g. prevalence of low back pain) shown to have reliability and validity (if necessary)? (low risk/unclear risk /high risk)
8	Was the same mode of data collection used for all subjects? (low risk/unclear risk /high risk)
9	Was the length of the shortest prevalence period for the parameter of interest appropriate? (low risk/unclear risk /high risk)
10	Were the numerator(s) and denominator(s) for the parameter of interest appropriate? (low risk/unclear risk /high risk)
11	Summary judgement on the overall risk of study bias (low risk/unclear risk /high risk)

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