



# The State of Malawi's Older Population

Frontiers of Longitudinal Research in Malawi  
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+ Why look at growing older in  
Sub-Saharan Africa?



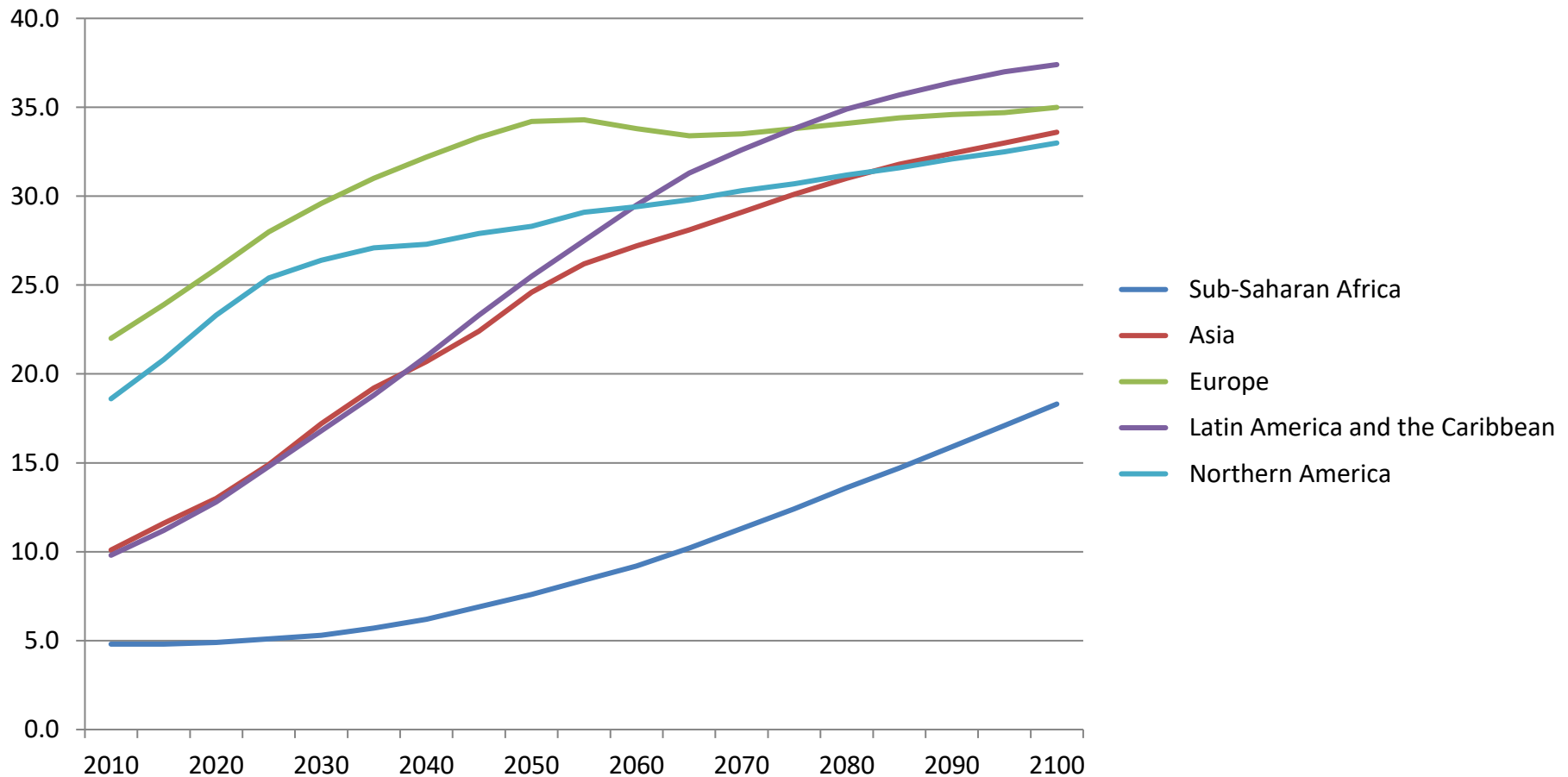
Population ageing is slower than any other world region



Because fertility is still high

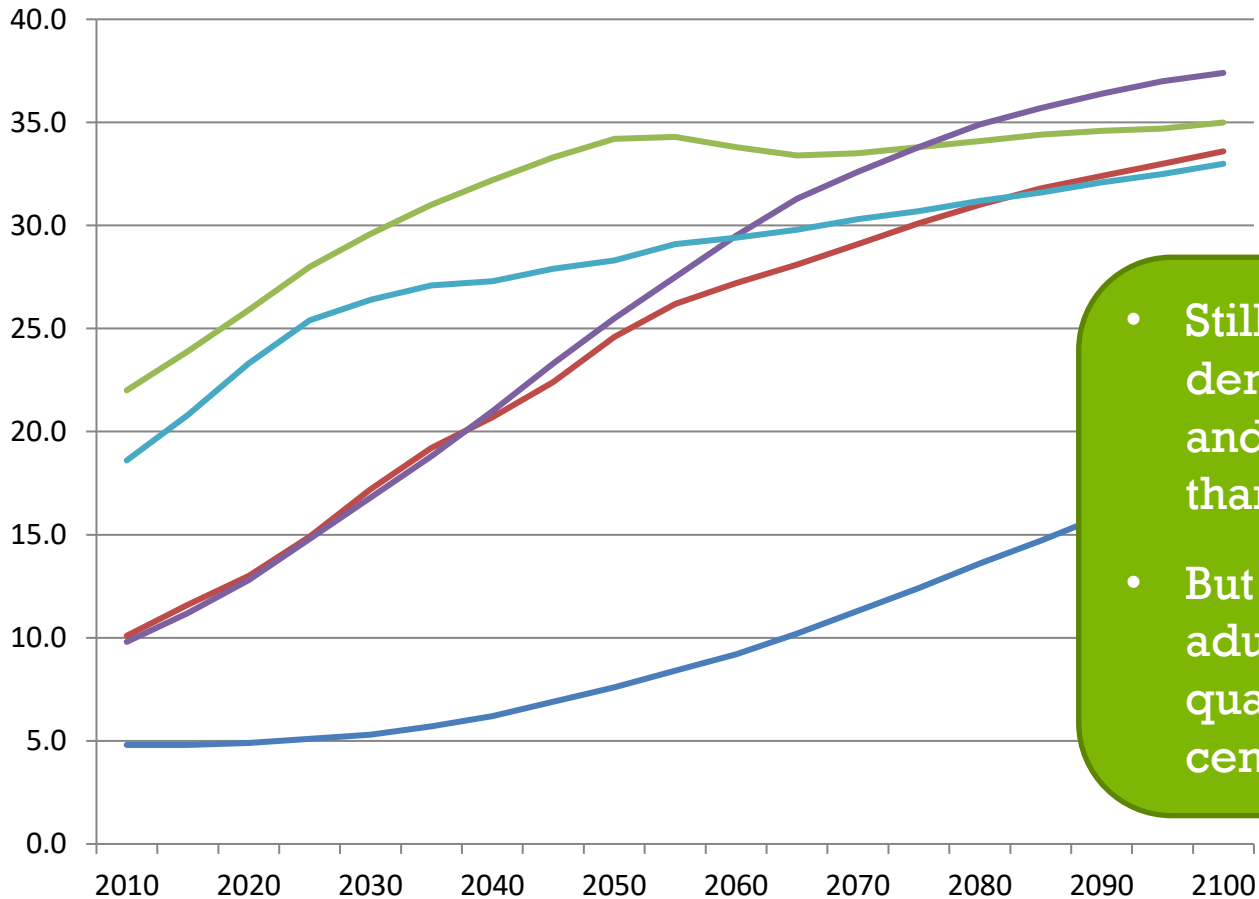


# Rise in population share (%) of older adults (aged 60+), 2010-2015





# Rise in population share (%) of older adults (aged 60+), 2010-2015



- Still in earlier stages of demographic transition and will remain younger than rest of the world
- But proportion of older adults with nonetheless quadruple by end of the century

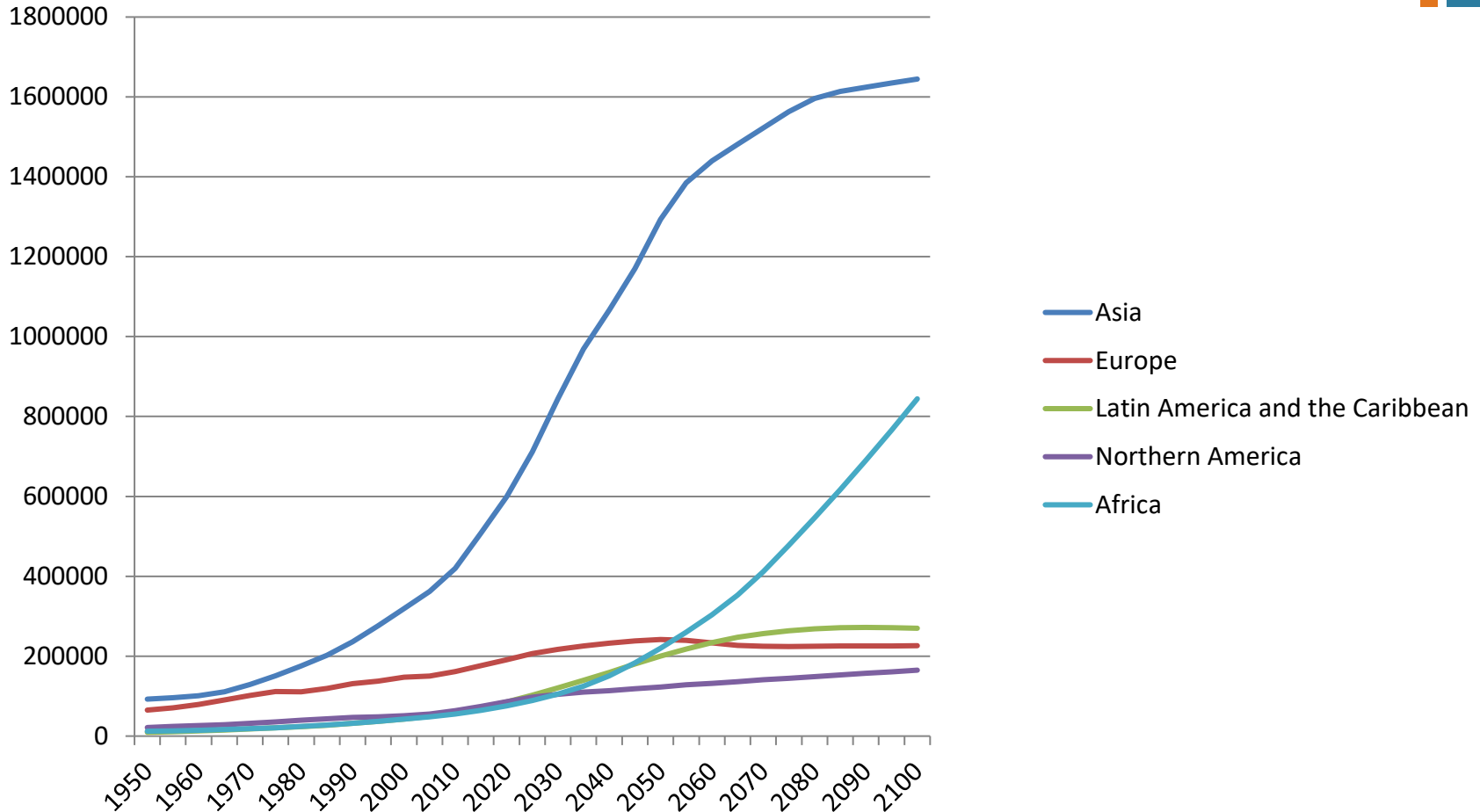


# + Population growth in Africa

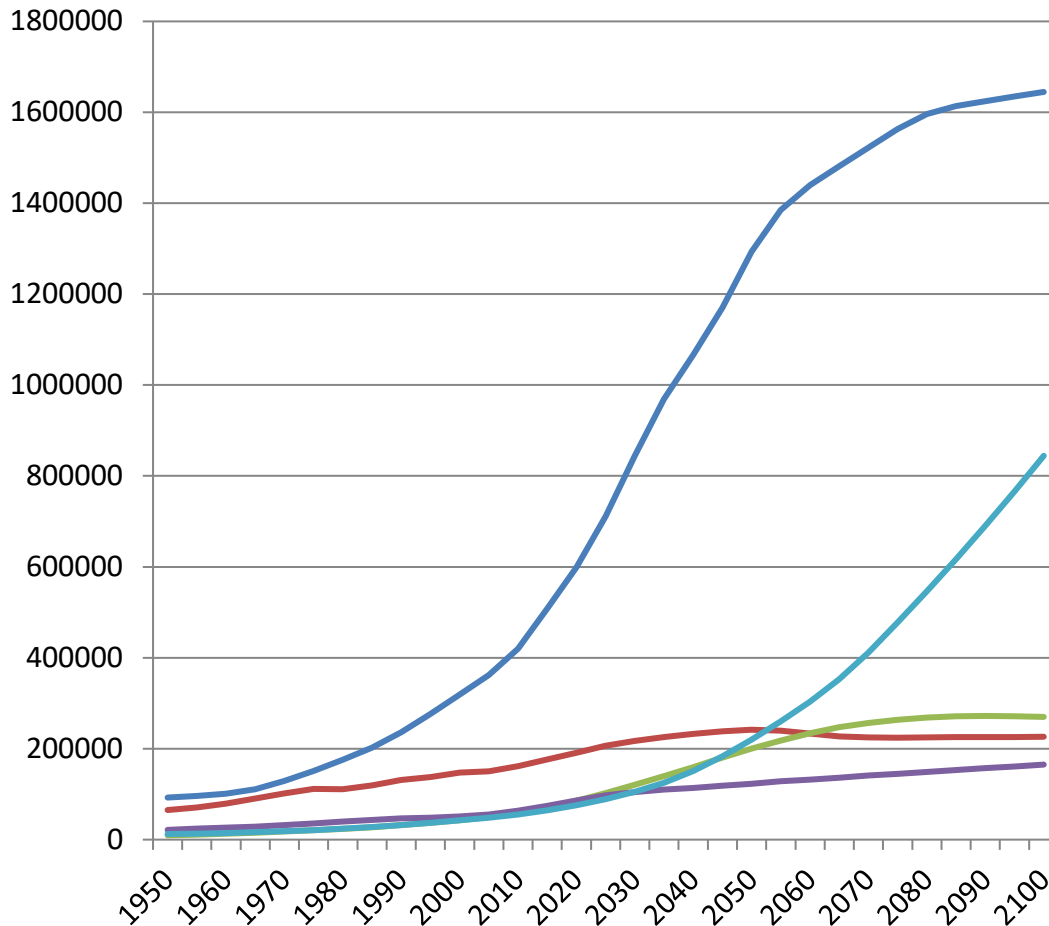
- Africa's population is growing because of high fertility, but also major **gains in life expectancy**
- **80% of the person years lived among adults as a result of increasing life expectancies will occur among people aged 45+:** 38% of the overall Life expectancy gains (4.4 additional years) will occur among adults aged 45-64, and 45% (5.2 years) will be among those aged 65+ (Kohler 2012)



# + Number of people aged 60+ (thousands)



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Population aged 60+ is now 62.5 million, expected to increase by 40% in the next 10 years and more than double to 127.5 million in the next 20 years



The populations growing old in sub-Saharan Africa will be different from those in other developing countries

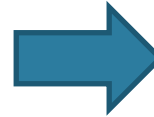




# Context to growing old in sub-Saharan Africa



- High fertility
- Significant maternal death
- Micro- and macro-level economic strain
- Infrastructural strain
- Migration
- Governance challenges and security
- Youth unemployment
- HIV/AIDS – profound health and social implications and the ageing of the HIV epidemic itself
- Healthcare systems that can't meet the demands of the population



Influences both how people will grow old and what other priorities for governments and funders have

**An old age more likely to be spent with greater need for care**



+

Older African's need for care



# What do we know about functional health and disability in older age in Africa?

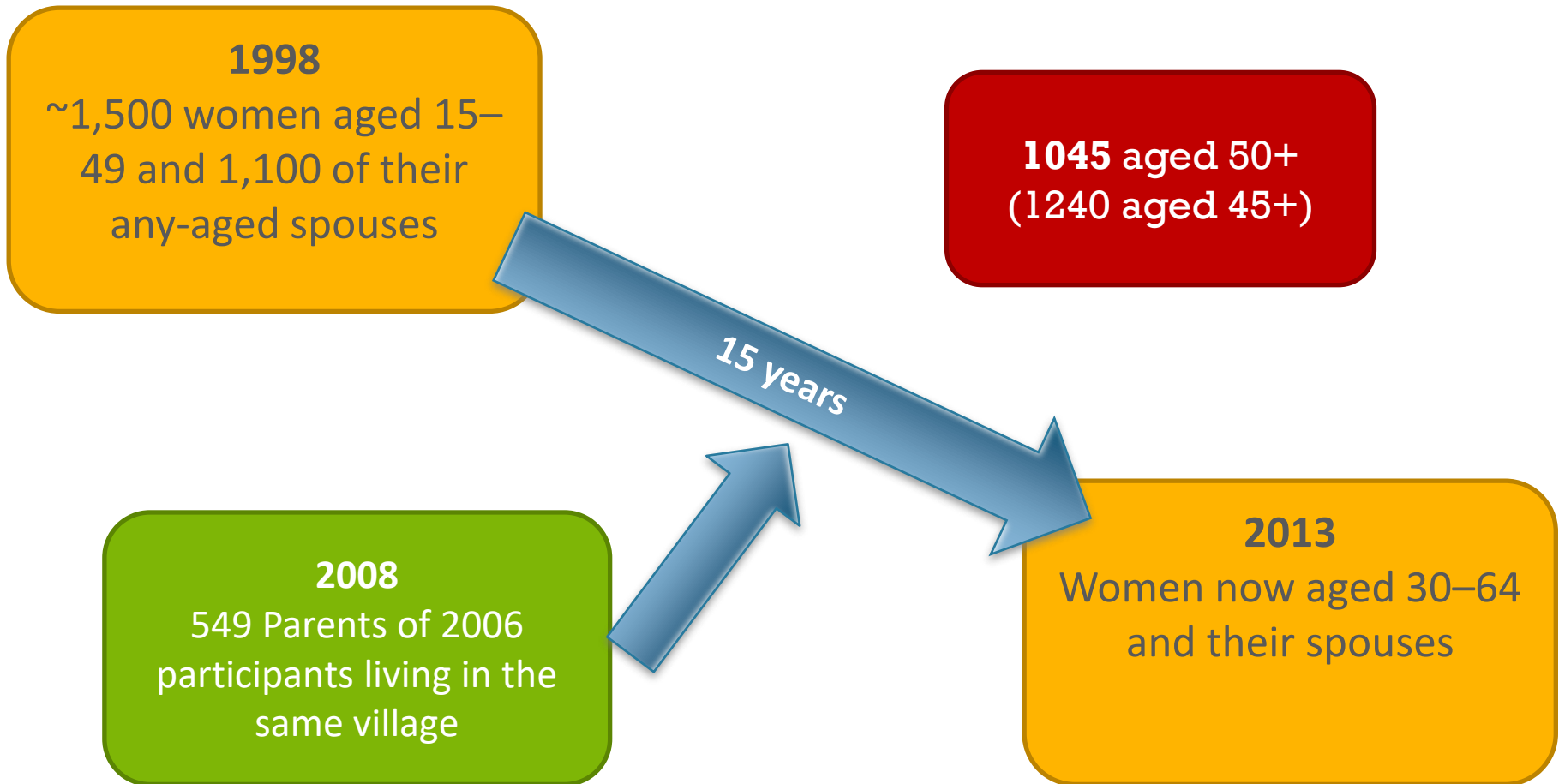


## ■ Four studies and datasets:

- 1 INDEPTH Study on Global Ageing and Adult Health, South Africa, 2006 (**N=425** people aged 50+)
- 2 INDEPTH Study on Global Ageing and Adult Health, Ghana, 2007 (**N=593** people aged 50+)
- 3 Wellbeing of Older People Study (WOPS), in collaboration with the WHO Study on Global Ageing and Health (SAGE), South Africa, 2010 (**N=422** people aged 50+)
- 4 Wellbeing of Older People Study (WOPS), in collaboration with the WHO Study on Global Ageing and Health (SAGE), Uganda, 2009 (**N=510** people aged 50+)



# + Malawi Longitudinal Study of Families and Health



	Females	Males	Total
	%	%	%
N	711	529	1240
Mean Age	60.65 (sd=11.51)	61.34 (sd=10.84)	60.94 (sd=11.23)
Age Group			
45-54	37.83	32.51	35.56
55-64	30.10	33.27	31.45
65-74	17.72	21.93	19.52
75+	14.35	12.29	13.47
Married	60.76	95.09	75.40
Muslim	26.44	24.95	25.81
Relative life satisfaction**			
Much more	6.52	12.19	8.94
More	29.60	32.76	30.95
Equally	41.22	38.86	40.21
Less	20.68	15.24	18.36
Much less	1.98	0.95	1.54
Economic situation in the last year			
Improved a lot	1.41	2.65	1.94
Improved somewhat	29.96	30.49	30.19
Same	33.19	31.06	32.28
Worsened somewhat	28.83	30.30	29.46
Worsened a lot	6.61	5.49	6.13

\*\*P<0.001

# + Working hours

- Mature and older adults are *very* productive
- Work (paid & unpaid) in the last week

	Female	Male	Total
None	4.64	5.68	5.08
0.5-10 hrs	11.25	14.96	12.83
11-20 hrs	14.49	19.13	16.46
21-30 hrs	20.96	19.70	20.42
31-40 hrs	17.58	17.05	17.35
40+ hrs	31.08	23.48	27.85



# + (Some) gendered divisions of labour

	Female	Male	Total
<b>Hours of Paid Work Last Week**</b>			
<i>None</i>	74.68	64.27	70.24
<i>0.5-10 hrs</i>	14.35	14.74	14.52
<i>11-20 hrs</i>	6.33	10.40	8.06
<i>21+ hrs</i>	4.64	10.59	7.18
<b>Hours of unpaid farm work last week</b>			
<i>None</i>	20.85	21.29	21.04
<i>0.5-10 hrs</i>	26.48	25.67	26.13
<i>11-20 hrs</i>	30.70	27.76	29.45
<i>21-30 hrs</i>	13.80	14.45	14.08
<i>31-40 hrs</i>	3.24	5.13	4.05
<i>40+ hrs</i>	4.93	5.70	5.26

\*\*P=0.000





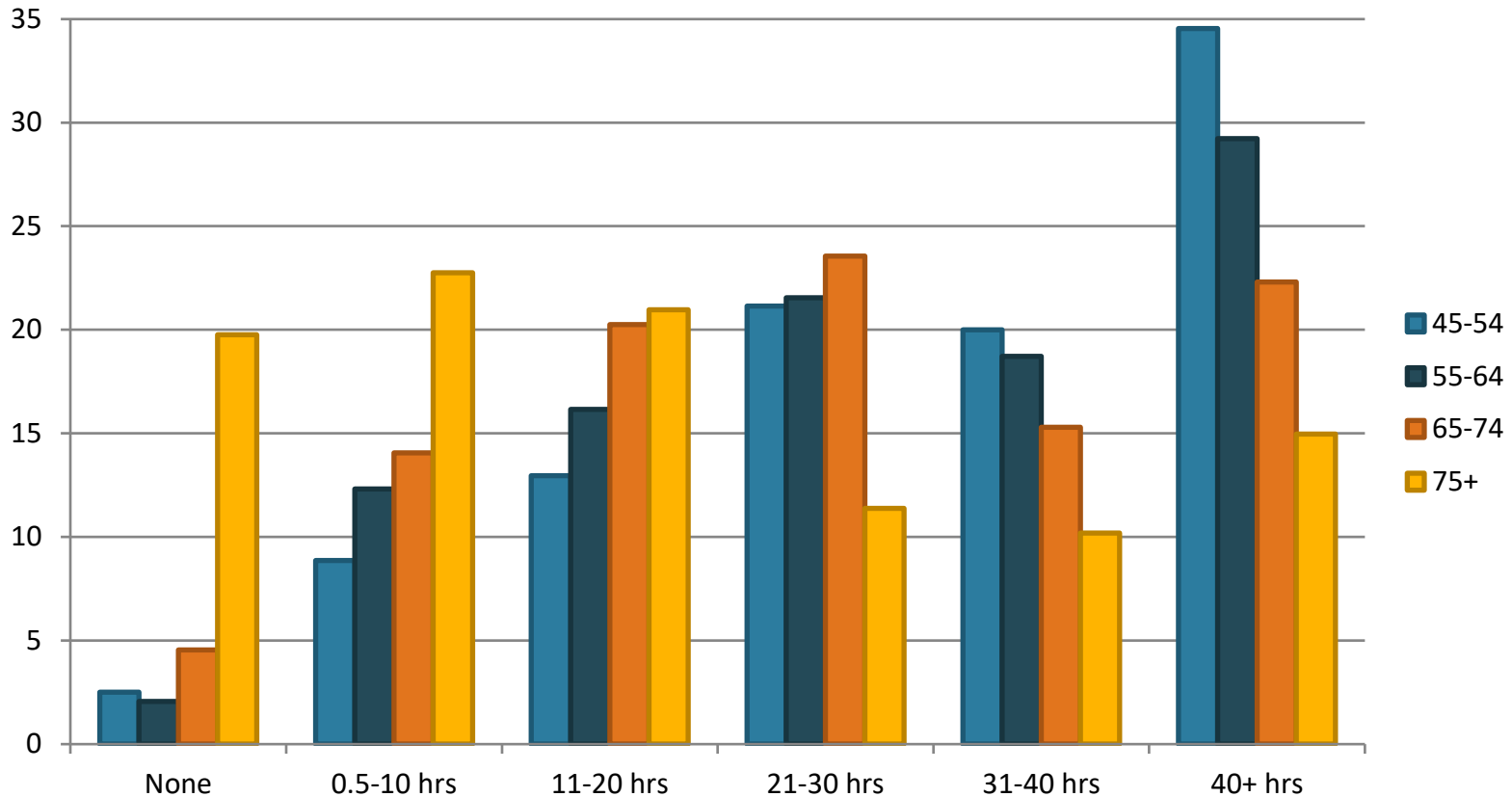
# (Some) gendered divisions of labour



	Female	Male	Total
<b>Hours of unpaid housework last week**</b>			
<i>None</i>	6.05	24.62	13.96
<i>0.5-10 hrs</i>	36.57	52.27	43.26
<i>11-20 hrs</i>	31.65	16.48	25.18
<i>21-30 hrs</i>	18.71	5.30	12.99
<i>31-40 hrs</i>	5.34	0.95	3.47
<i>40+ hrs</i>	1.69	0.38	1.13
<b>Hours of unpaid work on someone's farm/home last week</b>			
<i>None</i>	82.67	86.78	84.42
<i>0.5-10 hrs</i>	14.77	12.45	13.78
<i>11-20 hrs</i>	1.56	0.77	1.22
<i>21+ hrs</i>	0.99	0.00	0.57

\*\*P=0.000

# + Working hours by age



- Even oldest adults continue to work, although there is an association between lower hours of work and older age (-0.2425) and functional limitations (-0.2617)

# + Functional limitations & activities of daily living (ADLs)



**Basic self-care tasks**, akin to the kinds of skills that people usually learn in early childhood. They include:

- Feeding
- Toileting
- Maintaining continence
- Grooming
- Putting on clothes
- Bathing
- Walking and transferring (e.g. moving about the home)

# + Functional limitations & instrumental activities of daily living (IADLs)

**Complex skills needed to successfully live independently.** These skills are usually learned during the teenage years and include:

- Managing finances
- Handling transportation (e.g. navigating buses or bicycle taxis)
- Preparing meals
- Housework and basic home maintenance
- Using available communication devices (e.g. radio, telephones)
- Managing medications







# What data do we have from sub-Saharan Africa?



- Few large scale surveys capture difficulty with ADLs and receipt of related care
  - 1 Wellbeing of Older People Study (WOPS), in collaboration with the WHO Study on Global Ageing and Health (SAGE), South Africa, 2010
  - 2 Wellbeing of Older People Study (WOPS), in collaboration with the WHO Study on Global Ageing and Health (SAGE), Uganda, 2009
  - 3 Less available from Malawi Longitudinal Study of Families and Health

Qualitative data from Balaka 2008-2010 indicates that questionnaire research might not be best way to capture meaningful disability anyway

# + Instrumental activities of daily living in MLSFH-13



	Female	Male	Total
<b>Health limits moderate activities **</b>			
Lots	5.63	3.78	4.84
Moderately	26.72	14.93	21.69
Does not	67.65	81.29	73.47
<b>Health limits strenuous activities **</b>			
Lots	12.8	7.58	10.57
Moderately	38.12	22.73	31.56
Does not	49.09	69.70	57.87

\*\*P=0.000

- **Moderate** = cooking and cleaning, walking to meetings in the village, or tending to cattle and livestock
- **Strenuous** = carrying heavy loads, working on the farm, pounding maize, or digging a pit latrine
- The two measures are strongly correlated in this sample: Spearman rank correlation = **0.7288**
- **Only 57.42% of respondents indicated that they had no limitations in either set of activities**, 31.77% reported being “somewhat limited” on either, and 10.8%1 reported being severely limited in either set of activities

# + IADLs in MLSFH-13: social activities

- A neglected element of social care related to IADLs is occupations that are valued
- MLSFH asks about whether health (physical or mental) limits social activities (e.g. visiting friends)

Health limits social activities**	Female	Male	Total
All of the time	1.13	1.51	1.29
Most of the time	7.31	5.10	6.37
Some of the time	11.95	6.99	9.84
A little of the time	28.27	19.28	24.44
None of the time	51.34	67.11	58.06



	Female	Male	Total
<b>Accomplish less work or activities than preferred because of physical health**</b>			
<i>All of the time</i>	2.25	2.46	2.34
<i>Most of the time</i>	10.97	6.62	9.11
<i>Some of the time</i>	18.99	11.53	15.81
<i>A little of the time</i>	26.58	21.55	24.44
<i>None of the time</i>	41.21	57.84	48.31
<b>Accomplish less work or activities than preferred because of mental (“emotional”) health**</b>			
<i>All of the time</i>	1.27	0.95	1.13
<i>Most of the time</i>	8.16	4.35	6.53
<i>Some of the time</i>	12.80	6.43	10.08
<i>A little of the time</i>	22.22	19.66	21.13
<i>None of the time</i>	55.56	6.62	61.13
<b>Mean grip strength</b>	19.45	25.59	22.09

\*\*P=0.000



# Correlation of functional ability indicators and health (Men)



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	Functional Ability	Hours of Work/Week	Health Interferes with Social Activities	Grip Strength	Depression	Anxiety
Functional Ability	<b>1</b>					
Hours of Work/Week	-0.2604*	<b>1</b>				
Health Interferes with Social Activities	-0.6088*	0.2450*	<b>1</b>			
Grip Strength	-0.3407*	0.1424*	0.3326*	<b>1</b>		
Depression	0.5933*	-0.2148*	-0.7056*	-0.3113*	<b>1</b>	
Anxiety	0.6261*	-0.2090*	-0.7282*	-0.2910*	0.8999*	<b>1</b>

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# + Mental health among MLSFH's mature adult sample

	Female	Male	Total
<b>Feeling downhearted*</b>			
<i>All of the time</i>	0.70	1.51	1.05
<i>Most of the time</i>	9.85	6.05	8.23
<i>Some of the time</i>	15.47	8.32	12.42
<i>A little of the time</i>	27.72	26.47	27.18
<i>None of the time</i>	46.27	57.66	51.13
<b>Feeling calm and peaceful*</b>			
<i>All of the time</i>	25.6	39.77	
<i>Most of the time</i>	35.72	36.36	
<i>Some of the time</i>	23.35	13.45	
<i>A little of the time</i>	14.21	8.14	11.62
<i>None of the time</i>	1.13	2.27	1.61

Significant correlation between measures (-0.7031)



# Mental health among MLSFH's mature adult sample



	Female	Male	Total
<b>Depression*</b>			
<i>None</i>	31.50	45.37	37.42
<i>Minimal</i>	39.66	37.62	38.79
<i>Mild</i>	21.24	12.67	17.58
<i>At least moderate</i>	7.59	4.35	6.21
<b>Anxiety*</b>			
<i>None</i>	29.72	42.53	35.19
<i>Some</i>	40.42	40.83	40.60
<i>Mild</i>	26.06	13.80	20.82
<i>Moderate or severe</i>	3.80	2.84	3.39

\*\*P=0.000

# + Physical health among MLSFH's mature adult sample

	Females	Males	Total
Hands look arthritic	9.30	7.56	8.56
Visually impaired*	29.82	25.00	27.76
Hearing impaired	8.58	7.18	7.98
Alcohol misuse among drinkers (n= 325)	14.75	24.24	22.46

\*P<0.10



+ Patterns in functional ability  
and poor health

# + Significance of age for needing care

As significant differences between men and women's functional abilities (difficulty with IADLs), mental health and possibly physical health, these health indicators are all **significantly different by age**

1. To what degree are they associated?
2. How does increase in age predict a health outcome?
3. What risk factors might be confounding this association?





# Significance of age for needing care

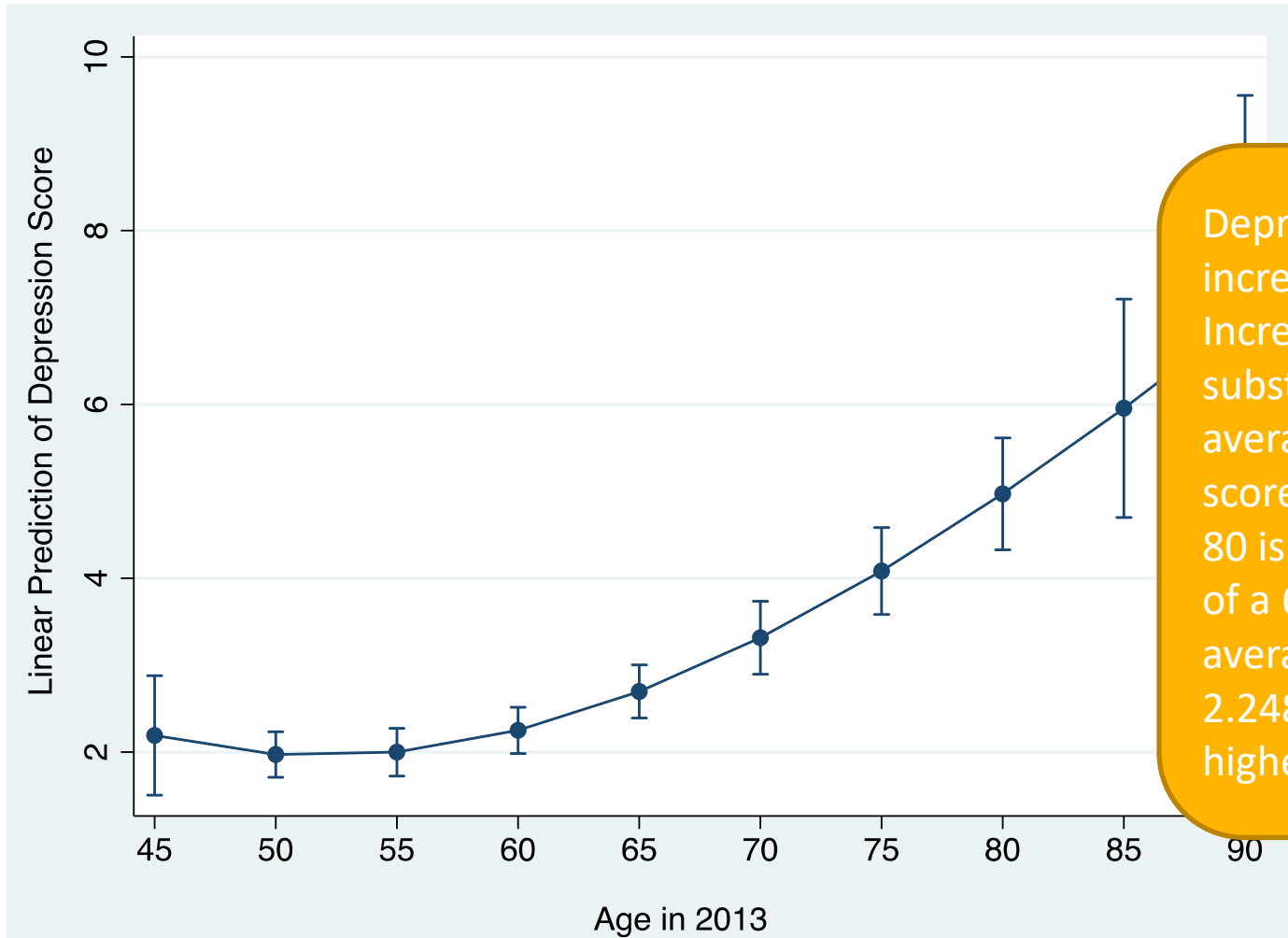


As significant differences between men and women's functional abilities (difficulty with IADLs), mental health and possibly physical health, these health indicators are all significantly different by age

- 1. To what degree are they associated?**
- 2. How does increase in age predict a health outcome?**
- 3. What risk factors might be confounding this association?**



# Age pattern of depression (PHQ-9): Predictive Margins with 95% CIs



Depression scores increase at age 60. Increases with age are substantial: the average depression score for those aged is 80 is over double that of a 60 year old: on average 2.71 (4.97011-2.248335) points higher

# + Linear approximation of the age-gradient to show the predicted change in depression with age and gender



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<b>Age (single years)</b>	<b>0.091542**</b>
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<b>Male</b>	<b>-1.115877**</b>
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Constant	-1.56434
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Observations	1176
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\*\*P=0.000

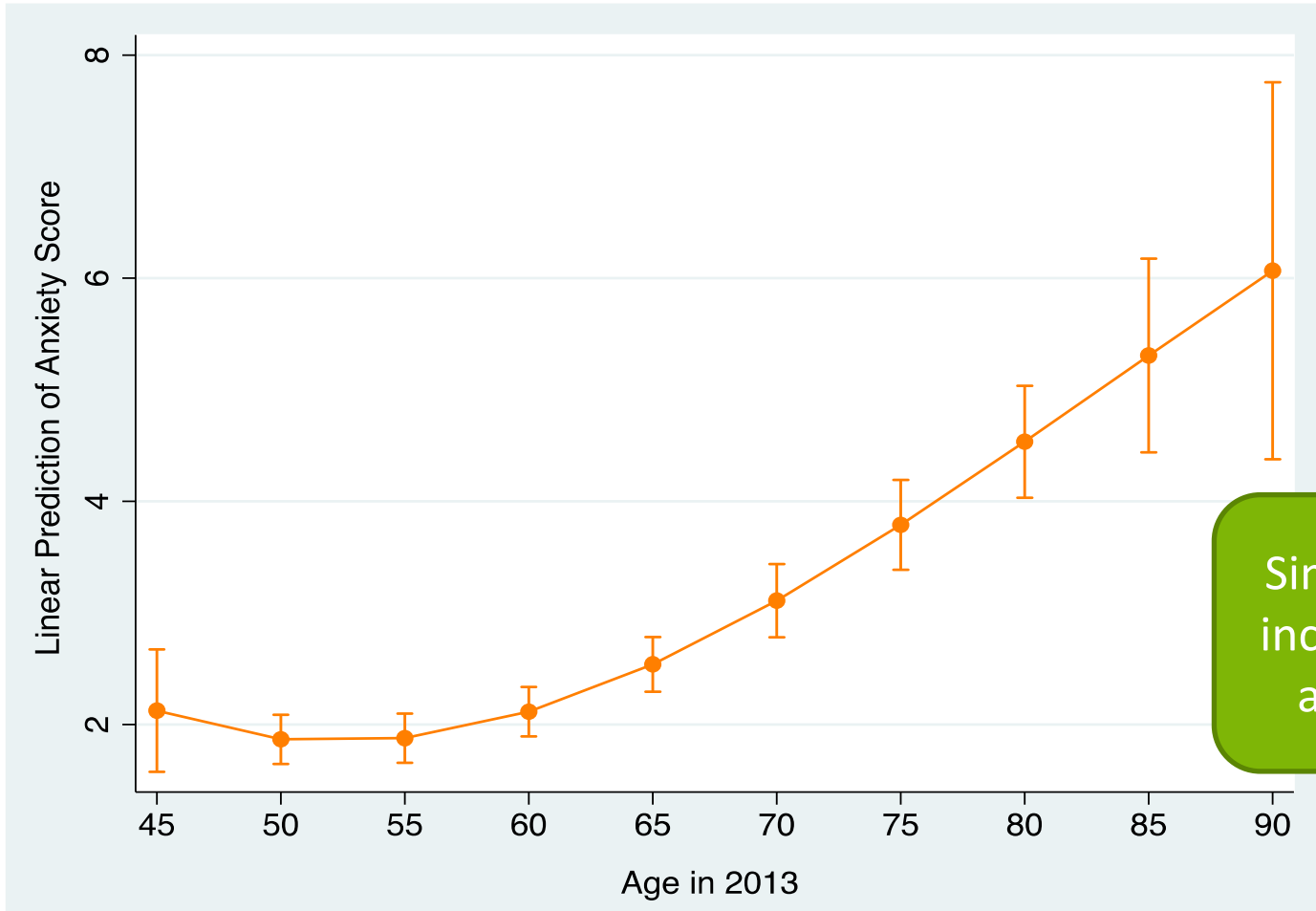
The PHQ9 score ranges from 0 to 27

For every additional year, a 0.0915 unit increase in depression score is predicted, holding all other variables constant

For males, the predicted depression score would be 1.116 points lower than for females holding all else constant



# Age pattern of anxiety (GAD7): Predictive Margins with 95% CIs



Similar pattern of increasing anxiety around age 60



## Linear approximation of the age-gradient to show the predicted change in anxiety with age and gender



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<b>Age (single years)</b>	<b>0.0809215**</b>
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<b>Male</b>	<b>-0.8672716**</b>
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Constant	-1.643498
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Observations	1176
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\*\*P=0.000

The GAD7 score ranges from 0 to 21

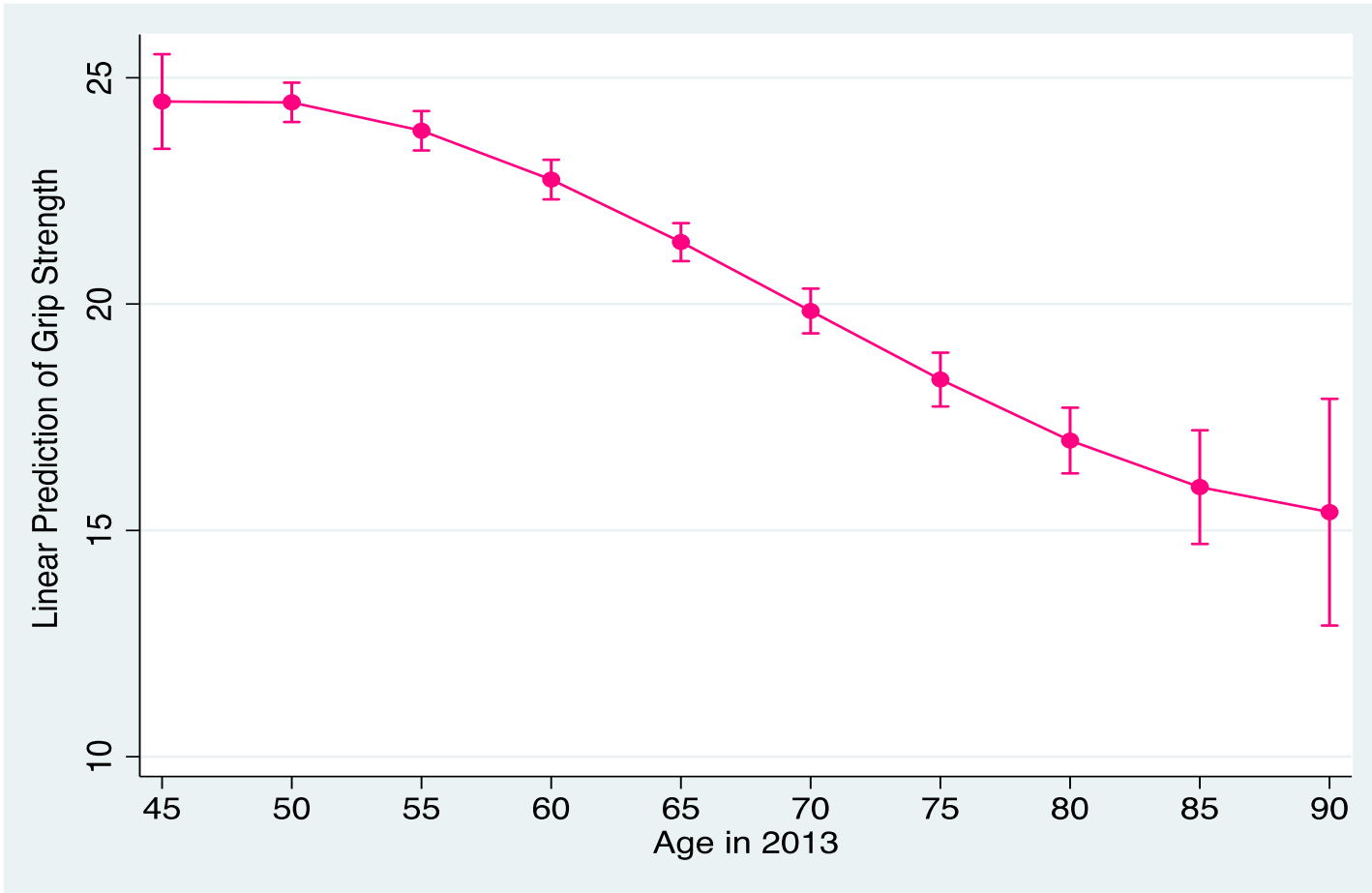
For every additional year, a 0.0809 unit increase in anxiety score is predicted, holding all other variables constant

For males, the predicted anxiety score would be 0.867 points lower than for females holding all else constant





# Grip strength: Predictive Margins with 95% CIs



Estimated using OLS regression, controlling for gender, region, schooling and censoring at age 90

# + Linear approximation of the age-gradient to show the predicted change in grip strength with age and gender

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Age (single years)	- <b>0.2354947**</b>
Male	5.956484**
Constant	33.63159
Observations	1131

\*\*P=0.000

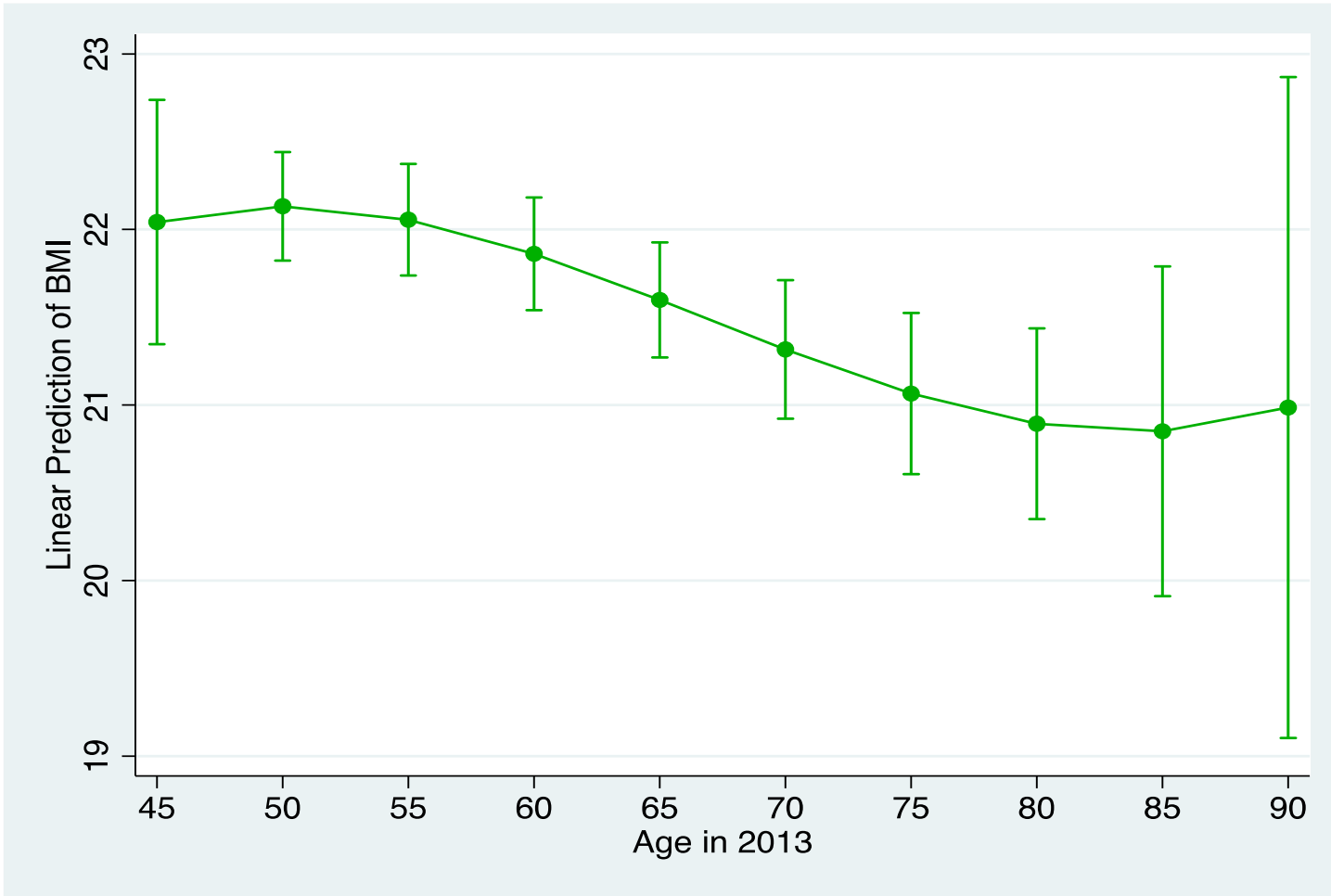
The PHQ9 score ranges from 0.65 to 45.75

For every additional year, a 0.235 unit decrease in average grip strength is predicted, holding all other variables constant

For males, the predicted grip strength is 5.956 points higher than for females holding all else constant



# BMI: Predictive Margins with 95% CIs



Estimated using OLS regression, controlling for gender, region, schooling and censoring at age 90

# + Linear approximation of the age-gradient to show the predicted change in BMI with age and gender



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**Age (single years) -0.0384213\*\***

Male -1.330896\*\*

Constant -1.56434

Observations 1176

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\*\*P=0.000

BMI ranges from 10.56 to 42.23

For every additional year, a 1.33 unit decrease in BMI is predicted, holding all other variables constant

For males, the predicted BMI score would be 1.33 points lower than for females holding all else constant



# What might risk factors for health outcomes in older age be?



- HIV infection
- Shocks
  - MLSFH asks about economic shocks experienced in the last 2 years – good and bad.
  - The most significant negative shocks for participants were illness or death in their household and poor crop yield. The most significant (mainly) positive shock was receiving fertiliser subsidy
- Wealth
  - Direction of influence? Longitudinal data means we can take earlier indicators (2010)



# + Receiving care?

- No significant age difference in care receipt
- Patterns in care (financial support and assistance with IADLs and ADLs) by experience of functional limitations exist. Very few people have severe problems with moderate or strenuous activities and don't receive any care
- Sample construction is important in generalising these results
- For now not included in model of risk factors



# Risk factors for health outcomes

	Depression	Anxiety	Grip strength	BMI
Age	0.926825**	0.0835615**	-.2201047**	-0.0232178*
Male	-0.9755308**	-.7866333**	5.954739**	-1.265649**
Household death or illness	0.6928998*	0.4990702*	0.4361047	0.1121572
Poor crop yield	0.6926212*	0.6179226**	-.4876622	-0.1461324
Fertiliser subsidy	-0.1794721	-0.2127138	-.2558777	-.2187698
HIV	0.5607977	0.7496421	0.9130045	-1.084159
Wealth quantile				
2	0.2723249	-0.0837728	0.0318372	-.0291872
3	-0.8126351*	-0.6730667*	0.0683274	0.6349935
4	-0.873713*	-.5989663*	1.315023*	0.5109207
5 (richest)	-0.9153667*	-.6340691	1.867633*	1.088905*
Constant	-1.939161	-2.064043	32.79759	22.79783
Observations	1115	1115	1071	1106

Estimated using OLS regression of health indicator controlling for region and schooling. \*\*p=0.000 \*p<5%

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# + Summary

- Functional limitations in older age are associated with mental and physical health
- Older women in this sample have more functional limitations and poor physical and mental health than men, even after controlling for other risk factors
- Age gradients in all measures are substantial indicating an increased need for care in older age
- Future research should look at this!

