Disability among the Elderly in Indonesia: An Analysis of Spatial and Socio-demographic Correlates

Puguh Prasetyoputra [1,*] and Ari Purwanto Sarwo Prasojo [1]

[1] Research Center for Population, Indonesian Institute of Sciences, Gd. Widya Graha Lt. 10, Jl. Jend. Gatot Subroto No. 10, Jakarta 12710, Indonesia.

* Corresponding author: pprasetyoputra@gmail.com

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INDONESIAN INSTITUTE OF SCIENCES

Abstract: Disability is more prevalent among the elderly. However, evidence on the factors associated with disability among them is limited. Therefore, this paper addresses the spatial and socio-demographic correlates of disability among individuals aged 60 and over in Indonesia. We employ data from the 2013 Indonesian National Socioeconomic Survey (SUSENAS). We defined disability as having any difficulties in doing daily activities using the 'Low Threshold' assumption. We fitted a multivariable logistic regression model to the dataset and evaluated statistical significance at the 95% level. The final regression model is statistically significant ($P<0.001$) with a sample of 23,709 individuals. The results show that 45.35% of the elderly reported being disabled. Moreover, higher age is associated with higher odds of being disabled (OR = 1.16; 95%; 95% CI = 1.10-1.23). An elderly living without a spouse is more likely to be disabled (OR = 1.54; 95% CI = 1.43-1.64). We also observed provincial differences in disabilities. Furthermore, elderly living in rural areas have higher odds of being disabled (OR = 1.18; 95% CI = 1.12-1.25) compared to their urban counterparts. Our results imply that the Indonesian elderly with certain characteristics are more vulnerable than others which requires long term care.

Keywords: disability; older persons; rural areas; socio-demographic indicator; long-term care; Indonesia

Introduction

- Elderly people are more prone to poverty and poor health **(Mahwati, 2014; Priebe, 2017)**
- Elderly constitute 9% of the Indonesia population in 2017 **(SUSENAS 2017)**
- Disability is more prevalent among Indonesia elderly **(Priebe, 2018)**
- Priebe **(2018)** analysed the correlates of disability of individuals aged 15+
- However, studies on the correlates of disability among such vulnerable population are limited
- **Objective**: this paper addresses the spatial and socio-demographic correlates of disability among individuals aged 60 and over in Indonesia

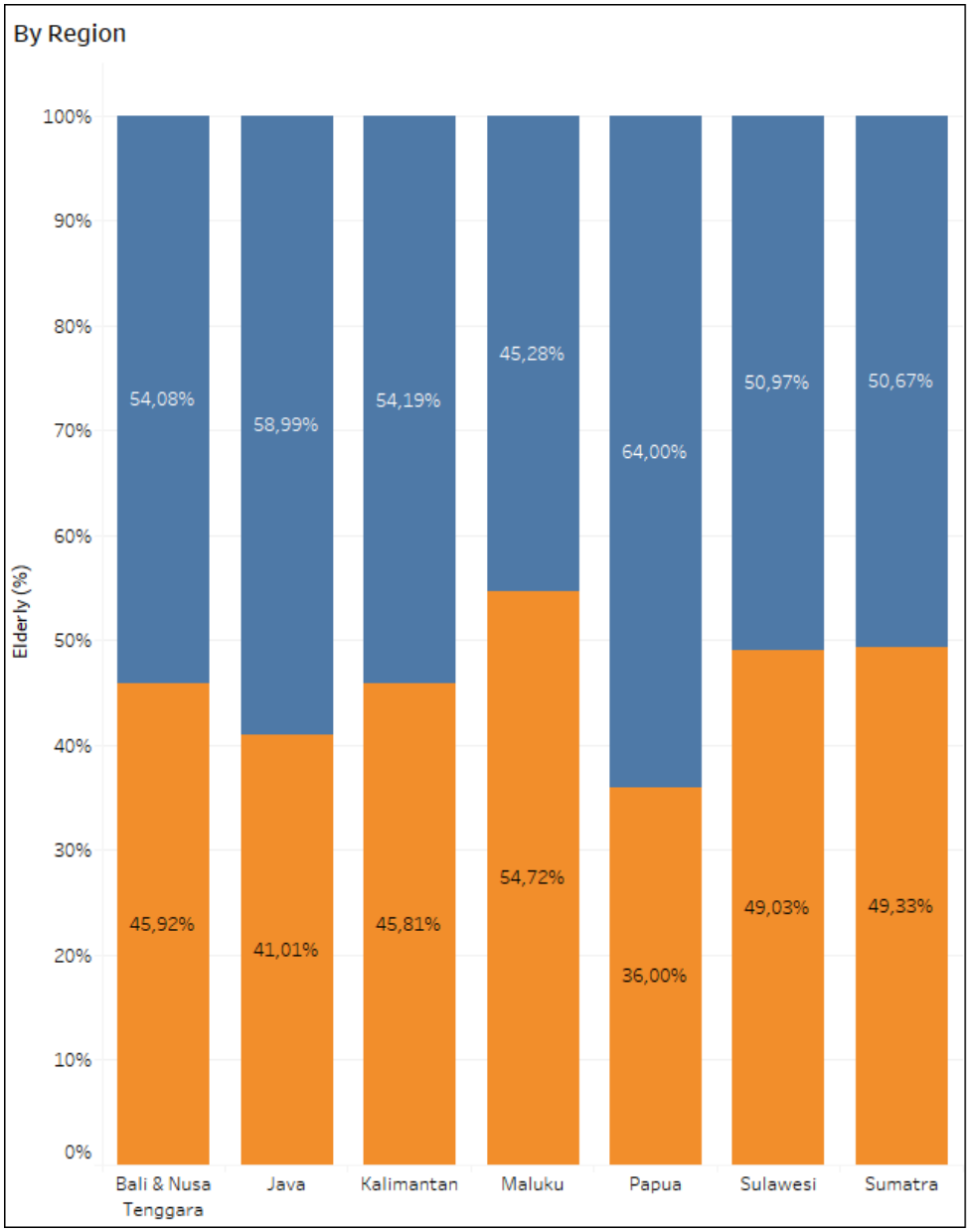
Materials and Methods

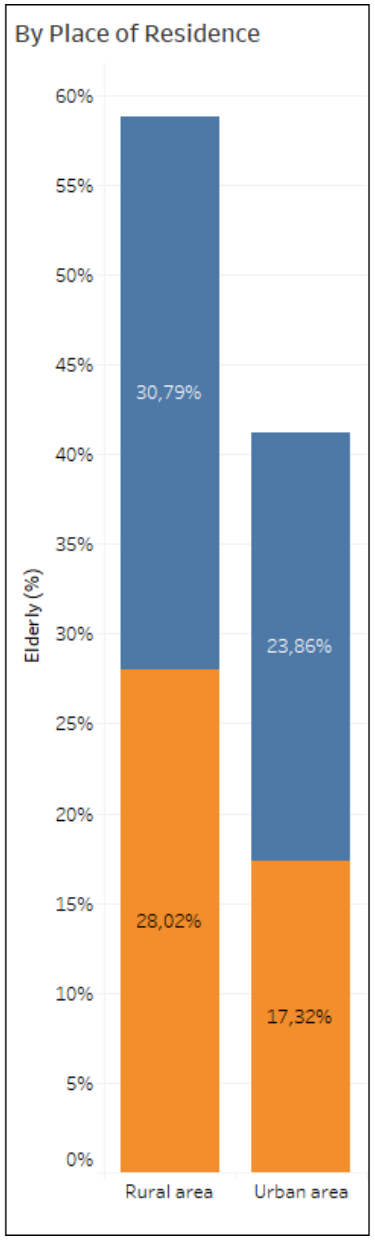
- ***Data Source***: the 2013 National Socioeconomic Survey (SUSENAS) – most recent round with disability data
- ***Sample***: elderly persons (age of 60+) based on Act. no 13 of 1998
  - Size: **23,709** individuals residing in 18,571 households
- ***Dependent Variable***: Person with disability (PwD).
- Disability is defined as having any difficulties in doing daily activities using the 'Low Threshold' assumption **(Adioetomo et al., 2014; Priebe, 2018)**.
  - ***Activities***: vision, hearing, walking/stair climbing, remembering/concentrating/communicating, self-care
  - ***Categories***: none, some, severe

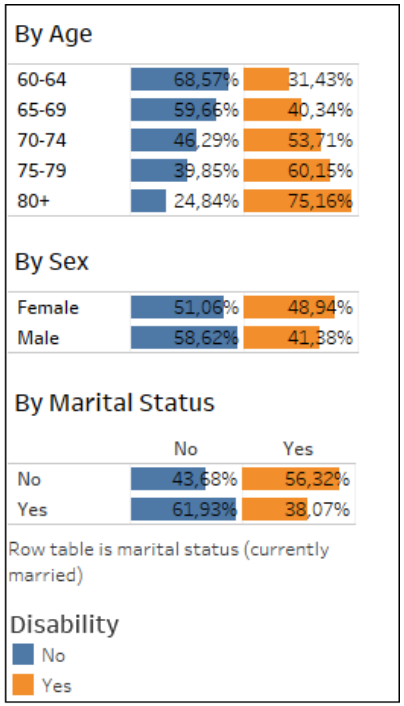
Materials and Methods (cont'd)

- *Explanatory variables*:
  - Spatial: region of residence, place of residence (urban vs. rural)
  - Socio-demographic: age, sex, marital status, person as household head, and housing tenure
- ***Statistical Analysis***: Multivariable Logistic Regression Analysis with Stata 13.1

Distribution of Elderly Disability in Indonesia







Sponsors:

MDPI geriatrics

Results and Discussion

- **45.35% of Indonesian elderly** reported having some form of disability (PwD)
- The final multivariable model is statistically significant (***P* < 0.001**)
- **Regional differences** in prevalence of PwD
  - Maluku highest (54.72%)
  - Papua lowest (36.00%)
- Older persons living in rural areas are **more likely** to have some form of disability (**OR = 1.10; 95% CI = 1.03-1.17**)
- Higher age corresponds to **higher likelihood** of disability **(OR = 1.08; 95% CI = 1.07-1.08)**
- Females are more likely to be disabled **(OR = 1.11; 95% CI = 1.02-1.21)**
- Living without spouse associated with **higher odds** of disability **(OR = 1.52; 95% CI = 1.43-1.62)**

Results and Discussion (cont'd)

- Number of household members **negatively associated** with odds of disability **(OR = 0.95; 95% CI = 0.94-0.96)**
- Former smoker, compared to non smoker, are **more likely** to be disabled **(OR = 1.39; 95% CI = 1.25-1.55)**
- Drinking water source (proxy of SES) → poor access associated with higher odds of disability
  - Improved vs. piped **(OR = 1.23; 95% CI = 1.12-1.34)**
  - Unmproved vs. piped **(OR = 1.28; 95% CI = 1.16-1.40)**
- Current use of solid fuel (proxy of SES) associated with higher odds of disability **(OR = 1.15; 95% CI = 1.08-1.22)**

Results and Discussion (cont'd)

- Disability prevalence is higher in female older adults **(Yount & Agree, 2005; Kaneda et al., 2009; Miszkurka et al., 2011)**
- Family structure → unmarried elderly are more likely to have some form of disability
- Smoking also plays a role in explaining the likelihood of disability **(Kaneda et al., 2009)**
- Consistent with previous studies, rural elderly are more prone to disability **(Kaneda et al., 2009)**
- As the population of Indonesia continues to age, disability prevalence will also increase
- This increase would have social and economic consequences, and elevate the burden of health care and long term care

Conclusions

- This paper investigates the spatial and socio-demographic correlates of disability among older persons in Indonesia
- Our results imply that the Indonesian elderly with certain characteristics are more vulnerable than others which requires long term care.
- These results can be used to inform policy making related to older persons or long term care in Indonesia.
- We recommend a nationally representative survey of disability to provide more recent and in-depth information of prevalence and correlates of disability

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Supplementary Materials

Logistic regression

Number of obs	=	23709	
LR chi2(18)	=	2712.71	
Prob > chi2	=	0.0000	
Log likelihood = -14974.6	Pseudo R2	=	0.0831

lpwd	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
reg7c						
Java	.6612112	.0235483	-11.62	0.000	.6166313	.7090141
Bali & Nusa Tenggara	.855871	.0459099	-2.90	0.004	.7704579	.950753
Kalimantan	.8881139	.0512883	-2.05	0.040	.7930709	.994547
Sulawesi	.9410991	.0435054	-1.31	0.189	.8595789	1.030351
Maluku	1.295796	.1198923	2.80	0.005	1.080886	1.553435
Papua	.6462264	.0727721	-3.88	0.000	.5182392	.8058221
rural						
Yes	1.09505	.0357403	2.78	0.005	1.027193	1.167388
age	1.07822	.0022118	36.71	0.000	1.073893	1.082564

Supplementary Materials (cont'd)

sex						
Female	1.108516	.0497737	2.29	0.022	1.015131	1.210492
marr2c						
No	1.523776	.0498494	12.87	0.000	1.42914	1.624679
smoke4c						
Yes, every day	.9141385	.0441656	-1.86	0.063	.8315476	1.004932
Yes, occasionaly	1.065761	.0795526	0.85	0.394	.9207097	1.233664
No, but I've smoked before	1.394038	.0762487	6.07	0.000	1.252325	1.551788
hhsize	.9527227	.0067467	-6.84	0.000	.9395907	.9660383
tenure						
Yes	.9000894	.0449576	-2.11	0.035	.8161499	.992662
dwats3c						
Improved source	1.226466	.0573214	4.37	0.000	1.11911	1.34412
Unimproved source	1.276432	.0617392	5.05	0.000	1.160984	1.403359
csfuel						
Yes	1.145313	.0373181	4.16	0.000	1.074457	1.220841
_cons	.0042127	.0006693	-34.43	0.000	.0030856	.0057516

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THANK YOU

Questions, comment, and suggestions are welcomed