

# Aging at home: factors associated with independence in activities of daily living among older adults in Norway— a HUNT study

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# Background

- Population aging is increasing globally and in Norway
- Maintaining independence in activities of daily living (ADL) is essential for well-being
- Aging in place is a key policy goal in Norway, and other countries



# Theoretical perspective




- Aging in place: living independently in one's own home and community
- Competence–Press Model (C-PM): balance between individual abilities and environmental demands
- C-PM expanded to include social relationships and sense of belonging as critical for successful aging



# Aim of the study

- To examine the relationship between demographic and living situation factors and ADL independence among community-dwelling older adults in Norway.

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**Background:** Maintaining independence in activities of daily living (ADL) is essential for the well-being of older adults. This study examined the relationship between demographic and living situation factors and ADL independence among community-dwelling older adults in Norway.

**Methods:** Data was collected in Norway between 2017 and 2019 as part of the fourth wave of the ongoing Trøndelag Health Study (HUNT) survey, sent to all citizens in Trøndelag county over 20 years of age, which is considered representative of the Norwegian population. Included in the current cross-sectional study were 22,504 community-living individuals aged 70 years or older who completed the survey and responded to all items constituting the ADL outcome measure. Group differences in ADL independence were examined with Chi Square tests, while crude and

# Methods



- Cross-sectional data from the HUNT4 Study (2017–2019)
- Sample: 22,504 community-dwelling adults aged 70 years and older
- ADL independence assessed across 16 primary and instrumental ADLs
- Group differences were tested using chi-square analyses.
- Associations were examined with logistic regression ( $p < 0.05$ ).

# Results

- 80.4% of participants were independent in all ADLs
- Independence was higher in primary ADL than instrumental ADL
- ADL independence decreased with increasing age



# Results

- In the fully adjusted analyses, independence in activities of daily living (ADL) was associated with:
  - younger age, higher levels of education and income,
  - greater subjective well-being,
  - the absence of chronic or disabling disease, and
  - having someone with whom to speak in confidence.

TABLE 3 Logistic regression analyses showing univariate and multivariate associations with ADL independence (multivariate model:  $n = 18,146$ ).

Independent variables	Unadjusted associations			Adjusted associations		
	OR	95% CI	<i>p</i>	AOR	95% CI	<i>p</i>
<b>Sociodemographic</b>						
<b>Age</b>						
70–74 years	11.27	10.09–12.58	<0.001	8.75	7.61–10.06	<0.001
75–79 years	5.51	4.95–6.13	<0.001	5.14	4.49–5.87	<0.001
80+ years	2.83	2.53–3.17	<0.001	2.75	2.39–3.16	<0.001
85+ years (ref.)	–	–	–	–	–	–
<b>Gender</b>						
Female	1.11	1.04–1.18	<0.01	1.33	1.22–1.45	<0.001
Male (ref.)	–	–	–	–	–	–
<b>Education level</b>						
Higher education	2.06	1.90–2.23	<0.001	1.39	1.24–1.56	<0.001
High school/vocational	1.31	1.21–1.43	<0.001	1.14	1.02–1.27	<0.05
Elementary (ref.)	–	–	–	–	–	–
<b>Household income (NOK)</b>						
> 750,000	4.11	3.55–4.77	<0.001	1.63	1.32–2.01	<0.001
451,000–750,000	2.53	2.29–2.79	<0.001	1.39	1.20–1.60	<0.001
250,000–450,000	1.69	1.54–1.86	<0.001	1.30	1.15–1.47	<0.001
< 250,000 (ref.)	–	–	–	–	–	–
<b>Health-related</b>						
<b>Subjective well-being (cont.)</b>						
Chronic and disabling disease	3.95	3.72–4.19	<0.001	2.96	2.74–3.19	<0.001
<b>Chronic and disabling disease</b>						
No	4.64	4.27–5.04	<0.001	1.79	1.61–1.99	<0.001
Yes (ref.)	–	–	–	–	–	–
<b>Living situation</b>						
<b>Marital status</b>						
Married	1.21	1.13–1.30	<0.001	0.75	0.68–0.83	<0.001
Not married (ref.)	–	–	–	–	–	–
<b>Social support</b>						
Someone can provide support	1.22	1.00–1.49	0.05	0.91	0.70–1.18	0.46
No-one can provide support (ref.)	–	–	–	–	–	–
<b>Closeness</b>						
Someone to talk to in confidence	1.42	1.24–1.64	<0.001	1.34	1.12–1.61	0.001
No-one to talk to in confidence (ref.)	–	–	–	–	–	–
<b>Model parameters</b>						
Hosmer Lemeshow test, <i>p</i>					8.83	0.36
Model Chi Square, <i>p</i>					3,587	<0.001
Cox & Snell <i>R</i> <sup>2</sup>					0.18	
Nagelkerke <i>R</i> <sup>2</sup>					0.29	

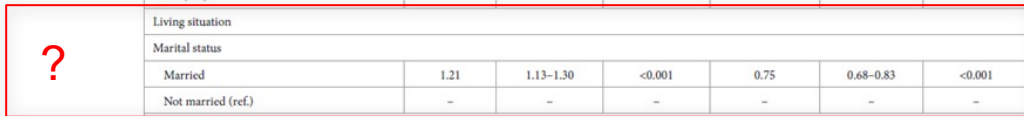
The adjusted model shows associations adjusted for all variables in the model. In the adjusted model, 4,358 cases had one or more missing values on the included variables, and these cases were removed from the analysis.

# Results

- The association between marital status and ADL independence differed between women and men.
- Marriage was linked to greater ADL independence in women but lower ADL independence in men.

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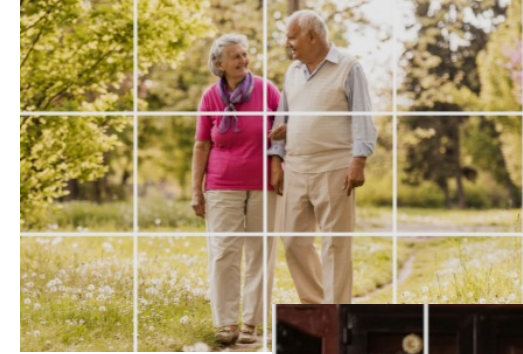
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The adjusted model shows associations adjusted for all variables in the model. In the adjusted model, 4,358 cases had one or more missing values on the included variables, and these cases were removed from the analysis.

# Conclusion

- Independence in ADL is influenced not only by demographic and disease-related factors but also by social context, with socioeconomic disadvantage and social isolation increasing vulnerability to dependency.
- The findings indicate that even well-developed healthcare systems must implement targeted measures to address social inequalities and support at-risk older adults.



# Reference

Redzovic, S. E., Vereijken, B., & Bonsaksen, T. (2023). Aging at home: factors associated with independence in activities of daily living among older adults in Norway—a HUNT study. *Frontiers in Public Health, 11*, 9. <https://doi.org/http://dx.doi.org/10.3389/fpubh.2023.1215417>





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