

Arabic (Jordan) Version-Tilburg Frailty Indicator: Pilot Study

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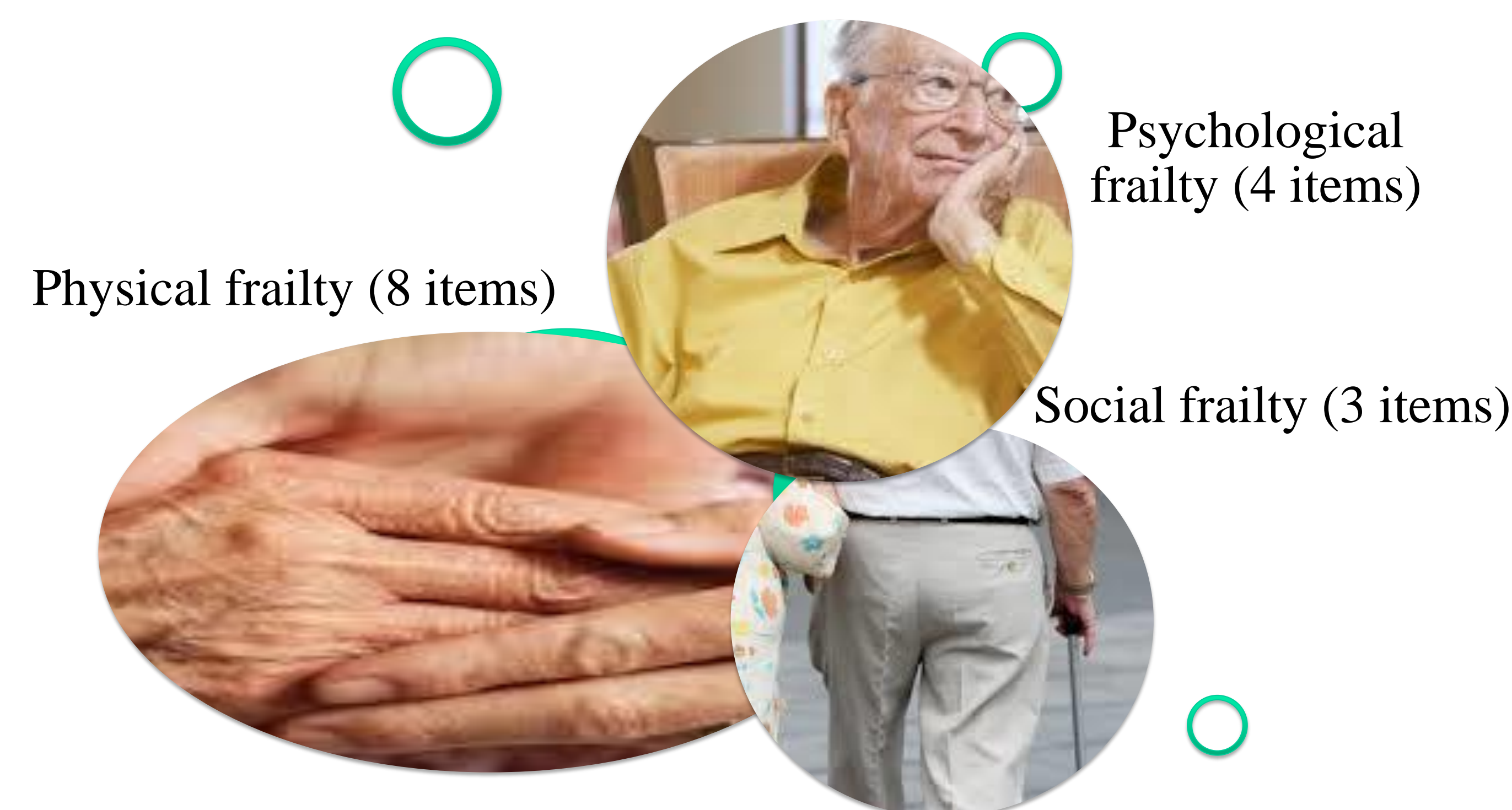
Background

Frailty is a loss in one or more domains of human functioning (Physical, psychological, and social) leading to adverse health outcomes (e.g. hospitalization, disability, nursing home admission).¹

No Arabic frailty instrument has been developed in the literature. Jordanian older adults are at higher risk for health complications. The existence of a frailty instrument for Jordanians would contribute significantly to screening efforts for community dwelling older adults in Jordan, and thereby offer insights for developing health interventions in an appropriate time prior to frailty complications. One common frailty instrument for detecting frailty in healthcare settings is the Tilburg frailty indicator (TFI).



Tilburg Frailty Indicator



Previous Estimates of Reliability and Validity

Original Study/TFI domain ²	Physical	Psychological	Social
Gobbens et al. 2010	0.70	0.63	0.34

Objective

This study aims to provide preliminary assessment of the validity and reliability of the Arabic (Jordan) version among Jordanian community dwelling older adults.

Design

This pilot study used a cross-sectional design.

Translation and Cultural Adaptation

Forward and Backward translation of the TFI:

✓Two translators: Forward

✓Two translators: Backward

Cultural Adaptation Committee:

✓A sociologist, a speech Specialist, and two faculty members with geriatric publications.

Methodology

Fifty community dwelling older adults, aged 60 years and older, were recruited from Irbid governorate, Jordan and were interviewed face-to-face to complete the Arabic version of the TFI. Demographic and health data were collected. The median age was 64 years old (range = 60-75) and 42% were female. The Arabic (Jordan) version-Tilburg frailty indicator was translated forward and backward by four translators, the concordance was checked, and the final version underwent cultural adaptation. KR 20s, and item analysis and correlation with Geriatric Depression Scale (GDS) were done to evaluate the reliability and validity, respectively.

Demographic and Health Characteristics

Characteristics	N(%)	or	Median (Min, Max)
Age (yrs.)			64.00 (60, 75)
Gender			
Male	29 (58.0)		
Female	21 (42.0)		
Marital status			
Single	0 (00.0)		
Married	35 (70.0)		
Divorced	0 (00.0)		
Widow	15 (30.0)		
Education			
No school	5 (10.0)		
Basic	22 (44.0)		
Primary	3 (6.0)		
Secondary	3 (6.0)		
Diploma	11 (22)		
University	6 (12)		
Income			
Less than 450JD	22 (44.0)		
450-650 JD	15 (30.0)		
650-950 JD	3 (6.0)		
More than 950JD	3 (6.0)		
Do not know	6 (12.0)		
Refuse	1 (2.0)		
Hospitalized during last year	15 (30.0)		
Chronic Diseases			
Hypertension	28 (56)		
Coronary Artery Diseases	6 (12)		
Stroke	0 (0)		
Asthma	2 (4)		
Arthritis	16 (32)		
Diabetes	21 (42)		
Vision impairment	24 (48)		
Hearing impairment	8 (16)		

Results

Arabic (Jordan) version-Tilburg frailty indicator has scale-content validity index of 96.7. KR-20s were 0.703, 0.047, and 0.354 for each of the physical subscale, psychological subscale, and social subscale, respectively. In terms of validity, inter-item correlations of: physical domain-TFI ranged from -0.320 to 0.569; psychological domain-TFI from -0.007 to 0.220; and social domain-TFI from 0.073 to 0.283. Low corrected inter-item correlations of physical domain-TFI ranged from 0.018 to 0.618, psychological domain-TFI from 0.045 to 0.204, and social domain-TFI from 0.183 to 0.394. The psychological domain-TFI was significantly correlated with Geriatric Depression Scale (GDS) scores ($r = 0.357, p=0.011$).

KR-20s	Internal consistency	KR-20 of Physical sub-scale (8 items)	KR-20 of Psychological sub-scale (4 items)	KR-20 of Social sub-scale (3 items)
α /KR-20 of 0.9 or greater	Excellent			
α /KR-20 = 0.7 to 0.89	Good	0.703		
α /KR-20 = 0.6 to 0.69	Acceptable			
α /KR-20 = 0.5 to 0.59	Poor			
α /KR-20 < 0.5	Unacceptable	0.047	.354	

Table 3. Inter-item and item-total correlations of the TFI domains

Item-total r	Ph1	Ph2	Ph3	Ph4	Ph5	Ph6	Ph7	Ph8	Ps1	Ps2	Ps3	Ps4	So1	So2	So3
Ph1	0.62														
Ph2	0.15	0.02													
Ph3	0.57	0.04	0.53												
Ph4	0.49	0.15	0.4	0.38											
Ph5	0.62	0.13	0.29	0.43	0.52										
Ph6	0.07	-0.32	0.24	-0.01	0.12	0.16									
Ph7	0.3	0	0.24	0.14	0.46	0.29	0.44								
Ph8	0.24	0.07	0.19	0.06	0.16	0.19	0.36	0.38							
Ps1	0.23	-0.1	0.1	0.23	0.18	0.01	0.09	0.03	0.15						
Ps2	0.16	-0.03	0.19	0.16	0.13	0.05	-0.02	0.06	-0.09	0.2					
Ps3	0.09	0.05	0.23	-0.1	-0.09	0.3	0.07	0.11	-0.16	0.22	0.16				
Ps4	0.22	-0.16	0.13	0.14	0.07	-0.13	-0.02	-0.04	0.04	-0.01	-0.03	0.05			
So1	0.23	0.15	0.1	0.23	0.35	-0.14	0.24	0.19	0.19	0.22	0.01	-0.11	0.34		
So2	0.19	-0.01	0.3	0.23	0.05	0.26	0.45	0.39	0.08	0.1	0.29	-0.05	0.23	0.39	
So3	0.09	0.05	0.01	0.09	0.26	-0.12	0.03	0.25	0.14	0.11	-0.11	0.13	0.28	0.07	0.18

Note: Ph: Physical, Ps: Psychological, and So: Social.

Discussion

The Arabic (Jordan) version of Tilburg frailty indicator-physical domain has a adequate reliability (KR-20=0.703). The items of psychological and social domains need to be revised and reworded (low KR-20s, corrected inter-item, and item-total correlations). However, 3 or 4 items scales hard to have a good alpha/KR-20. The TFI administration was feasible and the pilot study was doable. These findings pave the road for improving the Arabic (Jordan) version-TFI to use for screening frailty in Jordanian community dwelling older adults.

Application

The Arabic (Jordan) version-TFI enables Jordanian nurses to screen frail older adults, and implement the additional interventions.

Limitations

Convenience sampling and sample size limit generalizability of results, but do provide pilot findings to build upon. This point recommends using larger sample size in the future research.

- Gobbens, R. J., Luijckx, K. G., Wijnen-Sponselee, M. T., & Schols, J. M. (2010a). In search of an integral conceptual definition of frailty: Opinions of experts. *J Am Med Dir Assoc*, 11, 338-343. doi:10.1016/j.jamda.2009.09.015
- Gobbens, R., van Assen, M., Luijckx, K., Wijnen-Sponselee, M., & Schols, J. (2010). The Tilburg Frailty Indicator: psychometric properties. *Journal Of The American Medical Directors Association*, 11(5), 344-355. doi:10.1016/j.jamda.2009.11.003