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**VALIDATION OF THE PHENOTYPE OF FRAILTY MEASUREMENT IN THE WHITEHALL II STUDY**

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**Background** Frailty is a multi-dimensional geriatric entity shown to be associated with a high risk of disability, hospitalisation, and mortality. In the literature, disability and comorbidity are often used as synonyms of frailty but in fact these are distinct clinical entities. With population ageing, prevention of frailty is increasingly important. To date, there is no standardised measurement of frailty. However, the Phenotype of Frailty definition has been widely used.

**Objective** To examine the concurrent and predictive validity of the Phenotype of Frailty measurement in the ongoing prospective Whitehall II cohort study.

**Participants** A total of 5,196 (26% women) British civil servants aged 55 to 79, who participated in the latest phase (phase 9) of the study between 2007 and 2009.

**Measurements** According to the Phenotype of Frailty, participants were classified as frail if they had at least three out of five of the following: weight loss, slowness, weakness, exhaustion, and low physical activity. They were considered as disabled if they had any difficulties in one or more basic activities of daily living. Comorbidity was defined as two or more self-reported longstanding illnesses. Hospitalisation information until January 2010 was provided by the NHS Information Centre for health and social care.

**Analysis** Concurrent validity of the Phenotype of Frailty definition was studied using logistic regression models to describe multi-adjusted effects of frailty status on disability and comorbidity. Its predictive validity for hospitalisation was performed using multivariate Cox model.

**Results** Of all participants, 3.2% (n=164) participants met frailty criteria, 9.1% were disabled and 35.3% had comorbidity.

Multivariable adjusted logistic regression analyses showed that frail participants were more likely to be disabled and to have comorbidity (OR=5.6, 95% CI: 3.7 to 8.5 and OR=1.3, 95% CI: 0.9 to 1.9, respectively) than their non-frail counterparts. With a median follow-up of 17.3 months, the frail group was 43% (RR=1.43, 95% CI: 1.1 to 1.9) more likely to be hospitalised than the non-frail group in a multivariable adjusted Cox model. High risk of hospitalisation among frail participants persisted even after entering in the model disability and comorbidity data.

**Conclusion** Our findings suggest that the Phenotype of Frailty used in the Whitehall II study has a good level of concurrent and predictive validity and is a distinct risk factor for hospitalisation than disability or comorbidity. This measurement appears to be clinically relevant in further research in ageing.