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#### Review

# Are health assets associated with improved outcomes for hospitalised older adults? A systematic review



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#### ABSTRACT

Objective: Health assets are protective factors that support health and wellbeing, rather than risk factors that are associated with disease. This concept was developed in the community setting. In hospitalised older adults, the dominant approach has been to identify risk factors, with little examination of health assets. The purpose of this systematic review was to determine whether, in hospitalised older people, individual health assets decrease the risk of post hospital mortality, functional decline, new need for residential care, readmission or longer length of stay.

Methods: MEDLINE, EMBASE, CINAHL and PsycINFO were searched to identify studies examining outcomes for hospitalised older adults. Included studies examined at least one potential individual health asset, which was a psychosocial characteristic or health characteristic. Study quality was assessed, and findings are narratively described.

*Results:* Nine prospective cohort and two retrospective cohort studies were identified. subjective, functional and biological health assets were identified. Health assets were associated with decreased risk of post-hospital mortality, functional decline, new need for residential care and readmission.

Conclusion: The complex interplay between health status and psychological and social factors is incompletely understood. Health assets are associated with improved outcomes for hospitalised older adults. The small number of studies suitable for inclusion indicates the need for further research in this area.

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#### 1. Background

Hospitalisation is a sentinel life event for many older adults. In addition to the risk of death, around 30–40% of older adults will leave hospital with a new, often persistent, disability leaving them reliant on family or needing formal care (Boyd et al., 2008; Covinsky, Pierluissi, & Johnston, 2011). Although disability can occur insidiously in community dwelling older people, the incidence of onset increases markedly with hospitalisation (Gill, Allore, Holford, & Guo, 2004). Older adults are also at increased risk for longer lengths of stay and readmission (Evans, Sayers, Mitnitski, & Rockwood, 2014).

Pre-existing dependence in activities of daily living, malnutrition, depression and impaired cognition (Vaccarino, Kasl, Abramson, & Krumholz, 2001) are well established as risk factors for poor recovery from unplanned hospitalisation (Thomas, Cooney, & Fried, 2013). A higher level of frailty is predictive of increased risk of mortality, functional decline and increased length of stay for hospitalised older adults (Evans et al., 2014; Gill, Allore, Gahbauer, & Murphy, 2010; Gill et al., 2004).

Only including factors with negative associations does not explain why some frail older adults recover well following hospitalisation. An individuals' health status is also determined by resources they have at their disposal, which protect against negative health outcomes and promote wellness. 'Salutogenesis' describes an approach focusing on factors that support well-being and health rather than factors that cause disease (Lindstrom & Eriksson, 2005). Inclusion of health assets in a model of illness and health allows operationalisation of the concept of salutognesis. Health assets are determining factors that predict health and illness over and above conventional risk factors (Asset Based, 2011). They can be biological, subjective or functional (Seligman et al., 2013). A biological asset is an objectively measured health characteristic, such as a favourable blood lipid profile. Subjective health assets include psychological state and positive emotions. A functional health asset relates to the ability to undertake community and social participation and includes physical function and adequate finances (Seligman et al., 2013). Health assets have primarily been examined in the community setting. Potential assets in this setting are cardiorespiratory fitness, a stable marriage, positive emotions and social participation (Seligman et al., 2013).

Community studies have demonstrated that positive health factors can mitigate the consequences of frailty i.e. individuals with comparable frailty status have reduced mortality if they have a higher number of assets (Wang et al., 2014). An asset model is more empowering to individuals, as it encourages resilience and empowers people to be active participants in their own wellbeing.

The purpose of this systematic review was to determine whether individual health assets also improve outcomes in the acute hospital setting. The outcomes examined were post-hospital mortality, functional decline in activities of daily living, new need for residential care, readmission and length of stay.

#### 2. Methods

#### 2.1. Search strategy

A search of MEDLINE, EMBASE, CINAHL and PsycINFO was conducted in February 2015. The MEDLINE search used a combination of Medical Subject Heading (MeSH) terms and

keywords. Modified forms of the same terms were used for PsycINFO, EMBASE and CINAHL. Results were limited to articles published from 1990 onwards; English language, aged 65 and older and human subjects. Search terms were used to identify hospital inpatients, outcomes of interest, and studies looking at health determinants. These searches were then combined with the Boolean operator AND. A PubMed search was also conducted using keywords to identify any articles that had been published in the preceding two months and had not yet been assigned MeSH terms (see Appendix A for search strategies). The reference lists of included articles were also examined. The study protocol was registered with Prospero (http://www.crd.york.ac.uk/PROSPERO/, registration number: CRD42015019818)

#### 2.2. Study selection

#### 2.2.1. Inclusion criteria

Studies were included if the study population included adults aged 65 and older who had an unplanned hospitalisation. Health assets were only considered if they were examined independently. Studies where the health asset was identified in the community prior to admission were included. The domains included were biological, subjective and functional health assets. The outcomes examined were post hospital mortality, functional decline, new need for residential care, length of stay and readmission. Only articles which examined quantitatively an association between factor(s) of interest and adverse outcomes were included.

Studies were excluded if they looked at a specific patient population such as transplant recipients, patients undergoing a particular intervention, or stroke patients. Studies were excluded if the association was found with an established risk factor defined as poor baseline function, co-morbidity, depression, malnutrition and cognitive impairment. Environmental and hospitalisation care processes were not examined.

Study quality was evaluated using an adapted version of the epidemiological appraisal instrument by Genaidy et al. (2007) (see Appendix B)(KG reviewed all, KL and RM reviewed half each). The studies were characterised as low, medium or high methodological quality.

#### 2.3. Data extraction

Each study was interrogated for general information, population characteristics, outcome of interest, method and timing of data collection. A list of health assets was generated from the included studies.

#### 2.4. Data synthesis and analysis

The studies were grouped by type of health asset examined. Although two studies included the same cohort, both were included as they examined the outcome of different health related characteristics.

#### 3. Results

#### 3.1. Overview of included studies

Initial search, title and abstract review were performed by KG. Initial searches identified 3566 original articles. After review of

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