**Appendix**

Supplementary Table 1

*Summary of 88 Included Studies*

| **Author/Year/****Country** | **Sample Size** | **Sample Inclusion** | **Location of Dwelling** | **Measure of ADL** | **Variables independently associated with disability outcomes controlling for major confounders:** |
| --- | --- | --- | --- | --- | --- |
| **Disability(1 time point)** | **Disablement (over 2 time points)** | **Disablement (over 3+ time points)** |
| Abizanda et al2014Spain | 842 | - Age 70+ (mean 78.6) | Mix - 15.6% institutionalized- 84.4% community-dwelling  | Barthel Index  |  | **Yes.**- Frailtya- Living in LTCb- Baseline functional dependenceb**No.**- Multimorbiditya (2+ chronic conditions) - Charlson Comorbidity Index of 3+a - Female sexb |  |
| Banaszak-Holl et al 2011USA | 3,634 | - Nursing home residents in Michigan  | Nursing home | ADL Hierarchy Index (RAI-MDS)- 7 item scale (0: independent, 7: totally dependent) based on independence in:- mobility in bed- transfer- locomotion- dressing- eating - toilet use- bathing  |  |  | **Yes.**- Cognitive impairment (linear)a- Baseline ADLa- Married (quadratic)b - Age 85+(linear)b- Hip fracture (linear)a- Heart condition (linear)a **No.**- Cognitive impairment (quadratic)a- Male genderb- Married (linear)b- Age 85+ (quadratic)b- Educationb - Diabetesa- Hip fracture (quadratic)a- Strokea- Cancera- Heart condition (quadratic)a  |
| Barker et al 1998USA | 243  | Resident in nursing home participating in Medicare Influenza Vaccine Demonstration | Nursing home | Independent, partially dependent, completely dependent for: - bathing- dressing- mobility - transfer  |  | **Yes.**- Influenza infection at baselinea |  |
| Barnes et al 2013US | 449 | - Aged ≥70 years- Participants in one of 2 RCTs of Acute Care for Elders (ACE) unit versus usual care in hospitalized elders- Admitted to a general medical service of one of two study hospitals - Fully independent in all 5 basic ADLs 2 weeks prior to hospital admission- Had ≥1 ADL dependency at dischargeExcluded if: - Admitted to subspecialty unit- Admission elective - Length of stay less than 2 days | Community-dwelling | Continued dependence in ≥1 of 5 basic ADLs at 1 year post-discharge from hospital: - dressing- bathing- transferring- eating- toileting  |  | **Yes.** - ≥3 IADL dependencies in 2 weeks prior to hospital admission (vs. 0)c**-** 2-4 ADL limitations at discharge from hospital (vs. 1)c**No.**- Age 80-89, ≥90 (vs. 70-79)c- female sexc- 1-2 IADL dependencies in 2 weeks prior to hospital admission (vs. 0)c- Chief reason for hospitalizationc - Dementiac- Cancerc - Number of other chronic conditionsc- Creatinine levelc - 5 ADL limitations at discharge from hospital (vs. 1)c  |  |
| Bayliss et al 2007US | 352 | - Members of a not-for-profit health maintenance organization - Aged ≥65 years- Had coexisting diagnoses of diabetes, depression and osteoarthritis for 2-year period prior to study  | Community-dwelling | Physical functioning measured from: “Does your (physical) health now limit you in these activities? If so, how much?- Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports. - Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf. - Lifting or carrying groceries;- Climbing several flights of stairs- Climbing one flight of stairs- Bending, kneeling or stooping;- Walking more than a mile; - Walking several blocks;- Walking one block; or dressing yourself.- Response choices (chose one): Yes, limited a lot; Yes, limited a little; No, not limited at all. | **Yes.** - persistent depressive symptomsc - financial constraintsc- lower income levelc - higher level of patient-clinician communicationc- compound effect of conditionsc- disease burden \* financial constraintsc- disease burden \* patient-clinician communicationc - disease burden \* compound effects of conditionsc  |  |  |
| Boeckxstaens et al 2014Belgium  | 567 | - Aged 80+ (mean 84.7)**Excluded if**: severe dementia, palliative situations, medical urgency  | Community-dwelling | Self-reported difficulty (1: I can’t do this to 5: I can do this without any problems) at: - climbing stairs- walking 5 minutes outdoors without rest- getting up and down from sitting in a chair- dressing and undressing oneself- using transportation- caring for ones toenails Scores range from 6 – 30  |  | **No.**- simple count of 22 chronic conditionsa - modified Charlson comorbidity indexa - Cumulative Illness Rating Score (CIRS)a |  |
| Bond et al 2006UK | 8,452 | - Age ≥65 years at baseline- Participant in the MRC Cognitive Function and Aging Study - Resident in one of 5 areas in England and Wales- No IADL or ADL dependence at baseline | Community-dwelling | Development of functional impairment over 10 years classified as a 1 or 2 in the following 4 categories based on ADLs and IADLs: (1) ADL disability = Needed help several times a week with washing, hot meals, putting on shoes and socks, or getting around outside(2) IADL disability = needed help regularly with heavy housework or shopping and carrying heavy bags (3) Had no IADL or ADL disability (4) Unclassified because hadn’t answered all questions (included many cognitively frail people)  |  | **Yes.** - having “good” self-rated health at baseline vs. excellent self-rated healtha- having fair or poor self-rated health at baseline vs. good self-rated healtha |  |
| Boockvar et al 2013 USA | 136 | - Nursing home residents in metropolitan New York- Expected to remain in nursing some for ≥2 months - Receiving opioids, antidepressants, or antipsychotics routinely **Excluded if**: had an acute illness at the time of screening | Nursing home  | ADL-Hierarchy score in RAI-MDS |  | **Yes.**- transfer to hospital for treatment of acute illnessb**No**. - delirium (assessed using CAM)a |  |
| Bostrӧm et al 2014Sweden | 391 | Participants in Umeå 85+ Gerontological Regional Database Study - Age ≥ 85 yearsOR Participant in Frail Older People Activity and Nutrition OR Residential Care Facilities – Mobility, Activity and Nutrition Study - Age ≥ 65 years- dependency in personal ADLs- Ability to chair rise from chair with armrests with assistance from only on person- MMSE ≥10 | Mix - Community-dwelling and nursing home (67%) | 10-item Barthel Index Range 0 – 20 (20 = independent)  | **Yes.** - higher burden of depressive symptoms, measured using the Geriatric Depression Scale (GDS-15)a |  |  |
| Bowling et al 2011US | 357 | - Participants in the University of Alabama at Birmingham Study of Aging- Community-dwelling- African American or white- Medicare beneficiaries - Live in 5 central Alabama counties | Community-dwelling | Decline in BADL score over 2 years; given 1 point for each activity they had difficulty with: - bathing- transferring out of a bed or chair- eating- toileting- dressing  |  | **Yes.****-** presence of chronic kidney disease at baselinea- stage >3B chronic kidney at baselinea**No.**- stage 3A chronic kidney at baselinea  |  |
| Boyd et al2008US | 799 | - Age ≥ 70- Had non-elective admissions to general medicine services- Participants in a randomized controlled trial to improve functional outcomes in older hospitalized medical patients- Discharged with new or additional disability in ADLs**Excluded if**: - Expected length of stay less than 2 days- Admitted to the intensive care unit | Mix- hospitalized community-dwelling adults and nursing home residents | Failure to return to baseline function 1 year post-discharge, measured pre- and post with “need the help of another person to complete [following] self-care ADLs:- bathing - dressing- eating- transferring from a bed to a chair- using the toilet |  | **Yes.** - solitary or metastatic cancer (vs. none)a- presence of cardiovascular disease (stroke, myocardial infarction, peripheral vascular disease, coronary artery disease)a- dementiaa- low blood albumin (<4.0 g/L) levelsa - higher dependency in IADLs at baselinea- age ≥ 90 a |  |
| Boyd et al2009US | 457 | - Participants in the Women’s Health and Aging Study I- Women- Live in Eastern Baltimore City and Country - Aged ≥65 years- MMSE score ≥18- Self-report of difficulty or dependence in ≥2 functional domains: mobility, upper extremity function, higher functioning tasks, self-care tasks- Hospitalized at least once during 3 year follow-up | Community-dwelling | Functional decline = increase in number of ADLs (0 – 6) dependent in, from pre- to post- hospitalization: - toileting- bathing- transferrin- eating - dressing- walking across a small room  |  | **Yes.** **-** Having 0 – 8 years of education (vs. ≥12)c- length of stay in hospitalc - frailtyc **No.** **-** age c- black race c- Having 9 – 11 years of education (vs. vs. ≥12) c- lower MMSE score c - prefrail c - live alone c- adequate emotional support c - emotional vitality c - depressionc - 2 or ≥3 hospitalizations during follow-up (vs. 1)c  |  |
| Boyd et al 2005US | 595 | - ≥65 years old- Female- Community-dwelling- ADL-independent at baseline- Participants in Women’s Health and Aging Study I | Community-dwelling | ADL dependence: positive response to any of fie questions, with the format “Do you usually receive help from another person in…”- toileting- bathing- transferring- eating - dressing |  | **Yes.**- 1 (vs. 0) incident hospitalization over 18 monthsa- 2 (vs. 0) incident hospitalization over 18 monthsa- 3 (vs. 0) incident hospitalization over 18 monthsa- severe walking limitation at baselineb- age 85+ (vs. 65 – 84)b |  |
| Büla et al2004Switzerland  | 1,324 | - Residents of 39 nursing homes in western Switzerland - Aged 65+ (mean 85.7)  | Nursing home | Katz ADL scaleor combined outcome: Katz ADL decline or death |  | **Yes.** - occurrence of any infection (respiratory, urinary, miscellaneous)a - number of infections (0, 1, 2+) during 6 month follow-up perioda- respiratory infectionsa- miscellaneous infectionsa**No.**- urinary infectionsa |  |
| Bürge et al 2013Switzerland | 10,199 | - Residents of 90 Swiss nursing homes | Nursing home | ADL-Hierarchy Score in RAI MDS |  | **Yes.**- malec- ≥80 years oldc- BMI <19c- Year of nursing home entryc- No daily contact with proxiesc- moderate to severe difficulties with eye sightc- cognitive impairment (measured with cognitive impairment scale)c- Slight hearing difficultiesc- Urine or bowel incontinencec- Worsening balancec- Absence of exercise or sport activityc- Absence of outdoor walking or wheelingc- Depression (MDS depression scale)c - Parkinson’s diseasec- Cardiovascular diseasec- Psychiatric diseasesc- Endocrinopathyc- Neoplasiac**No.** - BMI ≥25c - No regular alcohol consumptionc - Slight difficulties with eye sightc - Moderate to severe hearing difficultiesc- Vascluar cerebral diseasec- Musculoskeletal diseasec- Lung diseasec |  |
| Buttar et al 2001USA | 3,995 | - Resident in one of 254 nursing homes in 10 US states - Age ≥65- Length of stay >60 days | Nursing home | ADL-Long Form Score (from RAI-MDS) > 8: medium to high ADL dependencyor: among those with ADL LFS ≤8, worsening ADL or death over 6 months  | **Yes.** - Female genderc - DNR orders on filec - Lived with others before admissionc - urinary incontinencec- pressure ulcersc- balance problemsc- moderate/severe cognitive impairment (CPS score >5)c - Diagnosis of seizuresc- Vision impairmentc - Eats ≤75% of food in trayc - Diagnosis of strokec- Medicare insurancec- BMI <19c- Absence of antianxiety medicationsc  | **Yes.** - Age in yearsc - Pressure ulcersc- Diagnosis of peripheral vascular diseasec- Decreased alertnessc- Urinary incontinencec- Moderate to severe cognitive impairment (CPS score >5)c - Diagnosis of strokec- Decreased appetitec- >6 medicationsc - Private payc- Shortness of breathc - Did not live alone prior to admission to nursing homec**No.** - Anxiety diagnosisc |  |
| Caljouw et al 2014the Netherlands | 890 | - Resident in one of 21 Dutch long-term care homes- Participant in CRANBERRY trial - Age ≥65 years old **Excluded if**:- Life expectancy <1 month - Using Coumadin | Nursing home. | Care Dependency Score (CDS) measures dependence in 15 activities on 5 point scale: - eating- drinking continence- body posture- mobility - day and night pattern - getting (un)dressed- body temperature- hygiene - avoidance of danger - communication- contact with others - sense of rules and values - daily activities- recreational activitieslearning ability Range: 15 (completely dependent) to 75 (almost independent of care)  |  | **Yes.** - female genderc - Age in yearsc - Baseline CDS scorec - Cancerc - Urinary incontinencec - Dementiac **No**. - Dummy variable for long-term care facilityc  |  |
| Caljouw et al 2013the Netherlands  | 473 | - Age ≥85 years  | Community-dwelling | Groningen Activity Restriction Scale (GARS) measures independence on 9 basic ADLs(1: fully independent, without any difficulty, 4: not fully independently, only with someone’s help): getting around the house, getting into and out of bed, standing up from a chair, going to the toilet, dressing oneself, washing hands and face, washing whole body, preparing breakfast and drinking and feeding oneself Range: 9 to 36 |  | \*Among those with no ADL-Dependence at baseline (n = 194) **Yes.** - Infection with UTI or LRTI.a  | \*Among those with no ADL-Dependence at baseline (n = 194)**Yes.** - Infection with UTI or LRTI.a |
| Carrière et al 2011France | 3,191 | - Age ≥65 years- Citizens of three French cities | Community-dwelling | Need for assistance on Katz ADL tasks: bathing, dressing, transferring from bed to chair, toileting and eatingRequires help on >1 task = “disability” |  |  | *In Men*:**No.**- depressive symptomology burden (none, mild, severe) at baselinea*In Women*: **Yes.** - Severe depressive symptomology at baselinea **No.** - Mild depressive symptomology at baselinea |
| Chaudhry et al 2011US | 461 | - Participants in the Cardiovascular Health Study - Aged ≥65 years- Have newly diagnosed heart failure**Excluded if:** - Wheelchair bound- Receiving cancer or hospice treatment  | Community-dwelling | Onset of disability = self-report of “a lot of difficulty” or being “unable to do” at least 1 of the following: - bathing- dressing- walking around the home- getting out of bed or a chair- eating - using the toilet |  | **Yes.**- slowed gait speedc- decreased cognitionc **No.**- increasing age (in 5-year segments)c- female sexc- non-white racec- higher level of depressive symptomsc |  |
| Chen et al2012USA | 2,523 | - Age ≥50 years (mean 64)- Participant in Health and Retirement Study  | Community-dwelling | Independent, has difficulty or dependent in each of 5 ADLs:- eating- dressing- transferring- toileting- bathing  |  | **Yes.**- low subjective social statusa  |  |
| Chen et al2012Taiwan | 442 | - Age ≥65 years | Community-dwelling | Physical Activities of Daily Living Scale – degree of difficulty reported with:- eating- dressing- grooming- walking- transferring - bathing- toileting  |  |  | **Yes.** - depressive symptomsa- disability at baselinea |
| Chen et al 2013Taiwan  | 1,045 | - Male - Aged ≥65 years- Resident in one of two veteran’s care homes in northern Taiwan - Participant in the Longitudinal Older Veteran’s study **Excluded if:** - Severely disabled at enrolment- Had severe communication difficulties - Could not complete the evaluations in the 18 months of follow-up - Moved out of the facilities  | Nursing home | Odds of decline (increase in score more than 1 SD) in RUG-III ADL score in RAI-MDS over 18 months, based on dependence in: - bed mobility- transfer - toilet use- eating Range: 4 to 18 (where 18 = completely dependent)  |  | **Yes.**- increased agec - sum of RAI “Resident Assessment Protocol” (RAP) Triggers (e.g. delirium, visual function, falls)c- cerebrovascular diseasec - dementiac- long-term institutionalizationc- absence of social engagement c**No.** - body mass index (continuous measure)c  |  |
| Chin et al 2014Korea | 984 | - Participants in the Korean Longitudinal Study on Health and Aging- Not dependent on renal replacement therapy | Community-dwelling | Change in ADL score (score/# items) over ~59.4 monthsSeven ADL items: - dressing- washing hands and face- bathing- toileting- eating-ambulating in and out of bed- maintaining control of bladder/bowel functionScored: - 1: without any assistance- 2: with the assistance of another person- 3 with absolute dependence on another personRange: 7 – 21  |  | **Yes.** - having GFR<44 (vs. GFR ≥60)a**No.** - having GFR 45-59 (vs. GFR ≥60)a |  |
| Chu et al2006Hong Kong | 1,419 | - Age ≥65 years- Chinese- Living at home- Able to walk independently or with walking aid- Provide informed consent | Community-dwelling | Barthel Index |  | **Yes.** - Incident fall in a year follow-upa\- Increasing ageb- Parkinson’s diseaseb- Coronary heart diseaseb- Fear of fallingb- Slow gait speedb |  |
| Cigolle et al 2007US | 11,093 | - ≥65 years- Participants in the 2000 Health and Retirement Study  | Mix - Community-dwelling and nursing home (2.4% of sample) | Dependence in any of the following ADLs: - bathing- eating- toileting- transferring  | **Yes.**- having 1, 2, or ≥3 geriatric syndromes (cognitive impairment, injurious falls, incontinence, low BMI, dizziness, vision impairment, hearing impairment)a vs. 1.- having 1, 2, or ≥3 chronic conditions b- heart disease b- lung disease b- diabetes b- musculoskeletal b - strokeb- psychiatric disorderb**No.**- cancerb  |  |  |
| Ciol et al 2008US | 10,180 – 16,788 per year | - Participants in the Medicare Current Beneficiaries survey from 1992 to 2004- Age ≥65 years old at baseline | Community-dwelling | Change in the Number of ADLs done with difficulty over 4 years: - bathing- dressing- eating- getting in or out of bed and chairs- walking using the toilet Range: 0 – 6  |  | **Yes.**- lower ageb - male sexb- Black or Asian (vs. white non-Hispanic)a- age \*black racea- age\*Asian racea- male\*white Hispanica **No.**- white Hispanic race (vs. white non-Hispanic)a- age\*white Hispanica - male\*blacka - male\*Asiana  |  |
| Clark et al2012USA | 3,213 | - Age ≥65 years- Independent in all ADLs at baseline- Participant in Health and Retirement Study | Community-dwelling | “ADL Dependency” = requiring help from another person to complete any one of following ADLs: - eating- dressing -bathing- transferring- toileting  |  | **Yes.**- Age >80 yearc- Diabetesc- Difficulty walking several blocksc- Need help with personal financesc- Difficulty lifting 10 poundsc- Unable to name vice presidentc- Low body mass indexc- Incident hospitalizationsc- Diabetesc- Lung diseasec- Congestive heart failurec- Strokec**No.** - Fall in past yearc- Arthritisc |  |
| Covinsky et al 2003USA | 2,293 | - Age ≥ 70- Had non-elective admissions to general medicine services- Participants in a randomized controlled trial to improve functional outcomes in older hospitalized medical patients- Discharged with new or additional disability in ADLs**Excluded if:** - Expected length of stay less than 2 days- admitted to the intensive care unit | Mix - hospitalized community-dwelling adults and nursing home residents | ADL dependence: positive response to any of fie questions, with the format “Do you usually receive help from another person in…”- toileting- bathing- transferring- eating - dressingFive functional trajectories identified: (1) Stable course of functional dependency. (Reference group)(2) Declined between baseline and admission, recovered baseline function by discharge.  |  |  | **Yes.** - age 80 – 84a - age 85 – 89a  - age ≥ 90a(vs. 70 – 74) **No.** - age 75-79 (vs. 70-74)a |
| (3) Did not decline between baseline and admission, but declined between baseline and discharge.  |  |  | **No.** - age 75-79a  - age 80 – 84a  - age 85 – 89a  - age ≥ 90a(vs. 70 – 74)  |
| (4) Declined between baseline and admission, did not recover baseline function by discharge.  |  |  | **Yes.** - age 80 – 84a  - age 85 – 89a  - age ≥ 90a(vs. 70 – 74) **No.** - age 75-79 (vs. 70-74)a |
| (5) Declined between baseline and admission, declined further between admission and discharge. |  |  | **Yes.** - age 85 – 89a  - age ≥ 90a(vs. 70 – 74) **No.** - age 75-79a- age 80 – 84a   (vs. 70-74) |
| Drewes et al2011the Netherlands | 594 | - 85 years old at baseline- Inhabitants of Leiden | Community-dwelling | Groningen Activity Restriction Scale (GARS). Assesses an individual’s competence in the following nine basic activities: - walk inside- get up out of bed- get into and out of a chair- visit the toilet- wash hands and face- wash body- dress and undress- eat and drink - make breakfast |  |  | **Yes.**- Multimorbidity (in people with optimal cognitive function, MMSE ≥28)a- Cognitive impairment (MMSE <19)a- Depressive symptomsb- Heart failureb- Myocardial infarctionb- Strokeb**No.** - Multimorbidity (in people decreased cognitive function, MMSE <19)a- Arthritisb- Chronic obstructive pulmonary diseaseb- Diabetes mellitusb- Parkinson diseaseb |
| Dutcher et al 2014US | 15,538 | - Medicare beneficiaries with newly diagnosed Alzheimer’s disease and related dementias - Aged ≥ 66 - Recipient of fee-for-service Medicare Parts A, B, D, and prescription drug plan coverage- Resident of a nursing home for at least part of the two-year study period  | Nursing home | Change in ADL long-form score (RAI MDS) over two years Range: 0 – 28 (28 = complete dependence)  |  |  | **Yes.** - non-use of antidepressant drugsa - antipsychotic drugs \* sex: female users declined most quickly, followed by male non-users, female nonusers and male usersa- mood stabilizers \*sex (same trend as above: associated with faster ADL decline in women but not men)a- time elapsed since baselineb **No.**- use of anti-dementia medicationsa - use of mood stabilizersa  |
| Ferrucci et al 1996USA | 6,640 | - Age ≥65 years- No severe functional disability at baseline  | Community-dwelling | - Severe functional disability = need help from another person or unable to perform 3+ of following ADLs: - walking across small room- bathing- dressing- eating- transferring from bed to chair- using the toilet |  | **Yes.** - Increasing agea**No.** - Female gendera |  |
| Finlayson et al2012USA | 6,822 | - Age ≥65 years- Nursing home residents - Underwent surgery for colon cancer in US between 1999 and 2005- Survived a year post-surgery  | Nursing home | ADL-Long Form Score (from RAI-MDS)Range: 0 – 28  |  | **Yes.** - Colon cancer surgerya- Age >80b- Functional decline in the 6 months before surgery- Poor pre-surgery functional depenedenceb- Lower Charlson scoreb- Hospital readmission after 30 daysb- Surgical complicationsb**No.** - Male sexb- Non-white raceb |  |
| Fried et al1999USA | 3,841 | - Age ≥65 years- Female- Living in Baltimore- Participants in Women’s Health and Aging Study | Community-dwelling | Any self-reported difficulty in one or more of the following self-care tasks: - Bathing/ showering- Dressing- Eating - Toileting  | **Yes.** - Heart diseasea- Arthritisa- Strokea- Lung diseasea- Cancera- Hearing impairmenta- Arthritis\*Strokea- Heart disease\*Cancera- Lung disease\*Cancera- Hypertension\* Hearing impairmenta**No.** - Visual impairmenta- Diabetesa- Hypertensiona- Arthritis\*Visual impairmenta- Heart disease\*Arthritsa |  |  |
| Friedman et al 2015US | 1,229 | - Participants in the Survey of Midlife Development in the United States - Non-institutionalized - English speaking adults (mean age 54.5, range 34-84) | Community-dwelling | BADL scores determined from level of dependence (1 = not at all, 4 = a lot) reported for three items:- bathing or dressing- climbing one flight of stairs- walking one block  | **Yes.** - female sexb- lack of complete college educationb - having 2+ chronic conditions (effect mediated by CRP)a- lack of regular exerciseb- inflammation (measured via IL-6, CRP, fibrinogen levels in blood) a **No.** - increasing ageb- black raceb- some college educationb- smokingb |  |  |
| Fultz et al2003USA | 5,646 | - Age ≥70 years- Participant in Health and Retirement Study | Community-dwelling | Katz ADLs: - bathing-dressing-eatingwalking across a room- getting in and out of bed- using a toiletScore: 0 – 6  |  | **Yes.**- Strokea- Cognitive impairmenta- Depressive symptomsa- Diabetesa- Diabetes x cognitive impairmenta- Stroke x cognitive impairmenta - Older ageb- Female sexb- # Comorbid conditionsb- Baseline limitationsb- Black raceb**No**. - Diabetes x depressive symptomsa- Hispanic raceb- Educationb  |  |
| Gill et al 2010US | 754 | - Participants in the Precipitating Events Project - Community-dwelling- Aged ≥ 70 years - No disability at baseline **Excluded if:** - Cognitive impairment with no available proxy- Inability to speak English- Diagnosis of a terminal illness with a life expectancy less than 12 months- Plan to move out of the New Haven area during the next 12 months  | Community-dwelling | Transition from non-disabled to mildly or severely disabled state (or from mildly to severely disabled) based on following activities: - bathing- dressing- walking inside the house- transferring from a chair Mild Disability: dependence in 1-2 activitiesSevere Disability: dependence in 3-4 activities  |  | **Yes.** - Physical frailtya - Hospitalizationa - Restricted Activitya  |  |
| Gill et al2004USA | 754 | - Age ≥70 years- No ADL dependence at baseline- Members of Precipitating Events Project**Excluded if:** - Had significant cognitive impairment and no available proxy- Inability to speak English- Terminal illness with life expectancy <12 months  | Community dwelling  | - Onset of disability, measured as self-report of needing help with any of following activities - bathing- dressing- walking inside the house- transferring from a chair  |  | **Yes.** - Hospitalizations since baselinea- Period of restricted activitya- Increasing ageb- Not living aloneb- Diabetes mellitusb- Myocardial infarctionb- Strokeb- Congestive heart failureb- Depressive symptomsb- Physical frailtyb**No.**- Hospitalizations prior to baselinea- Period of restricted activity prior to baselinea- Female sexb- Non-hispanic whiteb- Years of eduationb- Hypertensionb- Arthritisb- Cancerb- Fractures other than hip since age 50b- Chronic lung diseaseb- Hip fractureb- Cognitive impairmentb |  |
| Gopinath et al 2014Australia | 1,149 | - Participant in the Blue Mountains Eye Study - Non-institutionalized residents of suburbs west of Sydney - Age ≥ 49 years | Community-dwelling | Disability = needing help with any of activities in Older American Resources and Services activities of daily living scale. Includes 7 BADL items:- eating- dressing- undressing- grooming- walking  |  | **No.**- total diet score, based on optimal food intake and sources, as well as energy balance and leisure time physical activitya |  |
| Groll et al 2005Canada  | - 9,423 (derivation sample) - 28,349(validation sample)  | - Derivation sample: Non-institutionalized Canadians ≥25 years of age sampled at random with random digit dialing- Validation sample: US adults seeking treatment for spine ailment at 26 participating centers in the US | Community-dwelling | SF-36 physical function (PF) subscale- if ≤66“low” physical function- if >66 “high” physical function - SF-36 PF made up of 10 items relating to walking, climbing stairs, lifting, bathing and dressing | **Yes.** - Arthritisc - Osteoporosisc- Stroke/TIAc- Heart attackc- Hearing impairmentc- Anginac - BMI > 30c- Vision impairmentc- Diabetesc - COPDc- Congestive heart failurec- Peripheral vascular diseasec- Anxietyc- Asthmac- Upper gastrointestinal diseasec- Depressionc- Back painc- Lung diseasec- Heart diseasec- Nervous system disordersc - Neurological disease (such as multiple sclerosis or Parkinson’s) c  |  |  |
| Helvik et al 2014Norway | 932 | - Resident one of 26 nursing homes in 4 counties in Norway- Minimum stay of 14 days- Presence of dementia (Clinical Dementia Rating Scale ≥1) | Nursing home | Physical Self-Maintenance Scale (Range: 6 – 30) based on dependence in following six activities: - toileting - feeding- dressing- grooming- ambulation- bathing |  |  | **Yes.** - severity of dementiaa - longer length of stayb- Younger ageb- Being marriedb - Higher comorbidity burdenb- Severe vision impairmentb - Apathyb- Use of anxiolticsb- Absence of use of cognitive enhancersb **No.** - female genderb- ≤10 years education- Severe hearing impairmentb- Agitation sub-syndomeb- Use of antipsychoticsb- Use of antidepresentsb- Use of sedativesb |
| Kelley-Moore & Ferraro2005USA | 3,642 | - Age ≥65 years old- Live in one of five counties in North Carolina | Community-dwelling | Disability, measured as being able to perform following ADLs independently (0), with some help (1), or not at all (2): - walking- bathing- grooming- dressing- eating - transferring from bed to chair- using the toilet  | **Yes.** - Number of chronic conditions (of possible 7)a**No.** - Depressiona |  | **Yes.** - Level of disability measured at previous time pointa **No.**- Depression measured at baseline and midpoint of follow-upa- Number of chronic conditions (of possible 7) measured at mid-point of follow-upa |
| Koster et al 2006the Netherlands | 2,366 | - Participants in the Longitudinal Aging Study Amsterdam - Aged 55-85 years - Community-dwelling | Community dwelling | Baseline and rate of decline in ADLs according to following measure , from 1992 to 2001Self-report of ability (0: not able to do; 1: only with help, 2: with much difficulty, 3: with some difficulty, 4: without difficulty) to carry out 6 activities: - walking up and down 15 steps without resting- getting (un)dressed- getting up from and sitting down in a chair- cutting own toenails- walking 5 minutes outdoors without resting- using own or public transport | **Yes.** - low vs. high education (if ≥70 years old)a**No.**- low, medium income vs. high income a - low, medium education vs. high education (if <70 years old)a - medium vs. high education (if ≥70 years old)a |  | **Yes.** - low, medium income vs. high income (if <70 years old)a- low education vs. high education (if <70 years old)a**No.**- medium education vs. high education (if <70 years old)a - low, medium vs. high education (if ≥70 years old) a- low, medium income vs. high income (if ≥70 years old) a |
| Kruse et al 2013US | 40,128 | - long-stay nursing home residents with fee-for-service Medicare eligibilitywho survived a hospitalization - ≥67 years old**Excluded if**- Had hospitalization in 90 days prior to index hospitalization- Had fewer than two completed RAI-MDS assessments of ADL function prior to hospitalization- Had >15 hospital stays in prior 2 years - Was member of health maintenance organization during follow-up period- Lacking Part A coverage for either follow-up year | Nursing home  | ADL Long-Form ScoreRange 0 – 28 (where 28 = complete dependence)  | **Yes.**- female sexb - higherb Charlson comorbidity indexb - cognitive impairmentb **No.**- age >85b |  | **Yes.** - higher functional dependence pre-hospitalizationb- cognitive impairmentb- baseline ADL score ≤4b- baseline ADL score <24b **-** hospitalization for reason other than hip fracturea- hospitalization for strokea- hospitalization for renal failurea- hospitalization for septicemiaa- hospitalization for urinary tract infectiona - hospitalization for pneumoniaa - hospitalization for congestive heart failurea**No.**- length of stay in most recent hospitalizationa  |
| Kurella Tamura et al 2009US | 3,702 | - Nursing home residents who started treatment with dialysis between June 1998 and October 2000- Diagnosis of end stage renal disease occurred after admission to nursing home - Length of stay in nursing home ≥90 days- Had assessment of functional status in RAI-MDS prior to the start of dialysis  | Nursing home | ADL Long-Form Score (in RAI-MDS) 12 months after initiation of dialysisRange: 0 – 28  |  | **Yes.** - initiation of dialysisa - older ageb - white raceb- cerebrovascular diseaseb- dementiab - hospitalizationb- serum albumin below 3.5g/dLb  | **Yes.** - initiation of dialysisa  |
| Laan et al 2013The Netherlands | 1,187 | - Patients in one of three primary care networks in Utrecht - Age ≥60 years old- Have multimorbidity or using 5+ different types of drugs  | Community-dwelling | Modified Katz-15 scale. Includes 6 ADL items from original Katz scale + 8 items from the Lawton IADL scale + whether need help with:- brushing/combing hair or shaving- walking about | **Yes.** - increasing agec- Annual # of medication reiumbursementsc- Arthrits and arthrosis (women only)c- COPD and asthma (men and women)c- Hearing difficulties (women only)c- Kidney problems (men only)c - Psychiatric disorders (women only)c - TIA and CVA (men only)c - vision disorders (women only)c |  |  |
| Landi et al 2006 Italy | 355 | - Patients with stroke- Admitted to home care programs after post-acute rehabilitation program with at least a year of follow-up | Community-dwelling  | Classified as “unchanged, improved, or worsened” based on 1-year, 1 point (or more) changes in ADL-Hierarchy Score in RAI HC |  | **Yes.** - Cognitive impairment (CPS score ≥2)c- Pressure ulcerc- Urinary incontinencec- Hearing impairmentc **No.** - increasing agec- female gendec- living alonec- Number of chronic conditionsc- Depressionc- Deliriumc - Vision impairmentc- Daily painc- Swallowing problemc |  |
| Latham 2012USA | 8,087 | - Age ≥65 years old- Participant in Health and Retirement Survey | Community-dwelling | Progressive or accelerated development of severe disability = have difficulty completing 3+ of following ADLs (from RAND HRS): - walking across the room- bathing/showing- dressing-eating- getting in/out of bed (Range 0 – 5)  |  | **Yes.****-** black or Hispanic race (vs. white)a- Less than high school education (vs. high school)a - Ageb - Lower incomeb- Absence of physical activityb- Current smokerb- Obese (BMI >30)b- No private insuranceb- Past 2 year frequency of hospitalizationsb- Arthritisb- Cancerb- Diabetesb- Lung diseaseb- Psychological problemsb- Strokeb**No.** - Female sexb- Marital statusb- Underweight or overweight (BMI>25)b- Past 2 year frequency of doctor visitsb- Heart problemsb- High blood pressureb |  |
| Lee & Rantz2008US | 38,591 | - Medicare admissions to one of 458 short-stay skilled nursing facilities from acute care hospitals - Age ≥ 65 | Nursing home (short stay) | ADL Long-form score at 3, 6, 9 and 12 months post admission Range 0 – 28  |  | **Yes.** - pressure ulcer (all time points)a- urinary incontinence (all time points)a- weight loss (all time points)a- pain (all time points)a - history of falls (all time points)a- ADL score at admissionb- cognitive impairmentb- strokeb- renal impairment (at 3 and 6 months)b- neuropathyb **No.** **-** diabetes mellitusb- cancerb- renal impairment (at 9 and 12 months)b |  |
| Li et al 2013Taiwan | 2727 | - Age ≥ 65- Participant in the National Health Interview survey in Taiwan  | Community-dwelling | Self-report of limitations in carrying out ≥1 of following activities: - eating- bathing- dressing- using the toilet- getting in or out of bed- walking across a small room  | **Yes.**- presence of geriatric syndrome (depressive symptoms or cognitive impairment) alonea - presence of a geriatric syndrome + a cardiovascular disease (heart disease, hypertension or stroke)a - presence of diabetes + cardiovascular diseasea- presence of diabetes + geriatric conditiona - presence of diabetes + geriatric condition + cardiovascular diseasea (vs. no diabetes, cardiovascular disease or geriatric syndromes) **No.**- presence of cardiovascular disease alonea - presence of diabetes alonea (vs. no diabetes, cardiovascular disease or geriatric syndromes) |  |  |
| Li 2005USA | 3,161 | - Age ≥60 years old- Participants in Michigan’s Home and Community-Based Medicaid Waiver Program (low income older adults at risk of institutionalization)  | Community-dwelling | ALD long form score from RAI-HC; scores individuals from 0 (independent) for 4 (totally dependent) on following 8 items:- mobility in bed- transferring between surfaces- locomotion in home- dressing- eating- toilet use- personal hygiene - bathing Range: 0 – 32  | **Yes.**- black racec- increasing agec- owns homec- living with others (spouse or non-spouse) c- residing in more populated areac - were not current smokersc- strokec - Parkinson’s diseasec- cognitive limitationc - vision limitationc - bladder incontinencec- bowel incontinencec **No.** - self-efficacy about functional improvementc |  | **Yes.** - black racec- increasing agec- lack of self-efficacy about functional improvementc**No.** - owns homec- living with others (spouse or non-spouse) c- residing in more populated areac - current smokingc |
| Li et al 2009 USA | 13,129 | - Age ≥60 years old- Participants in Michigan’s Home and Community-Based Medicaid Waiver Program (low income older adults at risk of institutionalization) | Community-dwelling | ALD long form score from RAI-HC; scores individuals from 0 (independent) for 4 (totally dependent) on following 8 items:- mobility in bed- transferring between surfaces- locomotion in home- dressing- eating- toilet use- personal hygiene - bathing Range: 0 – 32 Dichotomized into: 1- needs physical help in one or more ADL or 0 – needs supervision only or independent in all ADLs |  |  | **Yes.** - incident cognitive declinea- incident fallb- incident acute health episodeb- incident flare up of chronic conditionsb **No.** - incident depressiona  |
| Liang et al2010USA | 18,486 | - Age ≥50 years old- Participants in the Health and Retirement Study  | Community-dwelling | Count of difficulties with 6 ADLs:- dressing- walking- bathing - showering And 5 IADLs:- preparing hot meals- grocery shopping- making phone calls- taking medications- managing own money and expenses  |  |  | **Yes.** - being black or Hispanic (vs. white)a - female sexb- increasing ageb- educationb- baseline ADL/IADL scoreb**No.**- being black versus Hispanica |
| Mänty et al 2014Denmark  | 1,117 | - Aged 92 to 93 at baseline- Non-proxy interviews- Participants in Danish 1905 cohort study | Mix- Community-dwelling older adults and nursing home residents (32%) | Modified Katz ADL: asked about degree of independence in performing 5 ADLs- transferring from bed to chair- dressing- bathing- using the toilet- walking indoorsBaseline disability: number of individual tasks with disability were summed Range 0 – 5 Follow-up: persons ranked as:- No disability- Moderate disability (in 1-2 tasks) - Severe disability (in 3-5 tasks)  | **Yes.** - pain at 1, 2 or 3 sites vs. nonea | **Yes.** - pain at multiple sites (vs. no pain)a predicts onset of severe disabilitya **No**. - pain at single sitea(vs. no pain) does not predict onset of moderate or severe disability |  |
| Marcantonio et al 2003 USA | 551 | - Consenting patients newly admitted to one of 85 post-acute care facilities, 55 rehabilitation hospitals and 30 skilled nursing facilities- Age ≥65 years old  | Mix - Patients in post-acute care hospitals and skilled nursing facilities  | ADL long-form score (Range 0 – 42) and IADL score (Range 0 – 30) MDS for Post-Acute Care  |  | **Yes.** - delirium symptoms that persisted or worsened after admissiona  |  |
| Marengoni et al 2009Sweden | 1099 | - Participants in the Kungsholmen Project: - Age ≥75 years old in October 1987  | Mix - Community-dwelling older adults and nursing home residents | Functional decline = a change in functional status – from being independent or partially dependent to becoming partially or totally dependent during the follow-up period, as defined by the Katz ADL index.  |  | **Yes.** - Multimorbidity with no disabilitya - Multimorbidity with disabilitya- ≥85 (vs. 77-84)b **No.** - single chronic condition without baseline disabilitya - single chronic condition with baselinea disability - female sexb- educationb  |  |
| Marventano et al 2014Spain | 2,818 | n = 892- Age ≥65 years old- Living in communities across Spain n = 1903- Age ≥65 years old- Enrolled in a multicenter study about falls in hospitals  | Community-dwelling | Barthel Index: assessment of independence in performing: - feeding- moving from wheelchair to bed and back - grooming - transferring to and from a toilet - bathing- walking on a level surface- going up and down stairs- dressing - continence of bowels and bladderRange: 0 to 100 where 100 = independence Dichotomized into completely independent (100) vs. not completely independent  | **Yes.** - bone diseasea- visual impairmenta- hearing impairmenta - Dementiaa- Parkinson’s diseasea- cardiovascular diseasea- diabetesa mellitusa - cancera - bone disease x hypertensiona- cardiovascular disease x hypertensiona- bone disease x hypertensiona- cardiovascular disease x bone diseasea- cardiovascular disease x visual impairmenta- visual impairment x hearing impairmenta- diabetes mellitus x hypertensiona- hearing impairment x hypertensiona- bone disease x hearing impairmenta- increasing ageb- having only primary education or lessb**No.**- pulmonary diseasea- hypertensiona- gastrointestinal diseasea- visual impairment x hypertensiona - female sexb |  |  |
| McCusker et al 2001Canada | 315 | - Age ≥65 years old (with delirium) - Age ≥70 years old (without delirium)- Admitted to hospital from Emergency Department to medical services at large academic hospital in Montreal **Excluded if:**- In a nursing home prior to hospital admission- Transferred to nursing home- Admitted to oncology, ICU- Language or communication barrier- Residence outside geographic area - Primary diagnosis of stroke  | Community-dwelling (Hospitalized) | Modified Barthel Index at 2, 6, 12 months post-enrollment Range 0 – 100, where 100 = complete independence  |  | **Yes.** - Delirium + dementiaa **No.** **-** Delirium without dementiaa  |  |
| Mendes de Leon et al 2014US | 5,306 | - Participants in the Chicago Health and Aging Project- Age ≥ 65 years- No ADL disability at baseline- Fewer than 3 non-missing disability assessments | Community-dwelling | # of 6 Katz ADLs required assistance with or was unable to perform: - e.g. bathing, eating, dressingRange 0 – 6  |  | (Onset of disability)**Yes.**- lower levels of social engagement (how oftenattended religious services, went to a museum, participatedin activities or groups outside the home, whether currently worked a part-time or full-time job)a - more time (in years) since baselineb- increasing ageb- increasing age x time in years since baselineb- interview done via telephone (vs. in person)b- higher number of medical conditionsb- lower physical function (timed walk, chair stand, and tandemstand)b- lower cognitive functionb**No.**- social networks (# children, friends, and relatives a participant reported seeingon at least a monthly basis)a- male sexb- black raceb- level of educationb - body mass indexb | (Progression of disability among those with onset of disability n = 1,302)**Yes.** - lower levels of social engagement a- time (in years) since onset of disabilityb- younger ageb - increasing age x time since onset of disabilityb- male sexb- interview done via telephoneb- lower BMIb- lower number of medical conditionsb- lower cognitive functioningb- level of educationb- lower physical function (timed walk, chair stand, and tandemstand)b**No.** - social networksa- black raceb |
| Mor et al2011US | 9,398 nursing homes | (For nursing home):- Free-standing, in urban counties (as defined by Area Resource File)- For each interval, had to have at least 20 residents at risk of ADL decline (ADL-Long form scores ≤24)- Only long-stay residents (had been in the nursing home for at least 90 days) were eligible for “at risk” population**Excluded if:** - Rural  | Nursing home (long-stay) | Whether fewer than 5% of long-stay residents in each home experienced an ADL long-form score increase of 4 points or more (indicating worsening functional decline) over the past quarter (90 days), over period from 1999 – 2004 Range: 0 – 28 (where 28 = completely dependent)  |   | **Yes.** - Absence of a $10 increase in consumer price-index adjusteda Medicaid rate - lower area wage indexb - higher number of admissions per bedb - higher Nursing Case Mix Index on admissionb - lower % of resident population that is Blackb **No.**- case mix reimbursementb - average number of empty beds in countyb  |  |
| Park et al 2008USA | 784 | - Age ≥65 years old- Medicare beneficiaries - Participants in the University of Alabama at Birmingham Study of Aging  | Community-dwelling | Number of following ADLs individuals had difficulty with: - turning from side to side in bed- going up and down stairs- getting out of bed or a chair- bathing or showering- dressing or undressing- eating- walking- getting outside- getting to or using the toilet Range: 0 – 9  | **Yes.** - irregular or non-attendance at religious servicesa  - increasing ageb- female sexb- rural location of dwellingb- regular receipt of help from othersb- income inadequacyb- higher comorbidity burdenb **No**.- frequency of prayera- level of intrinsic religiousnessa - black raceb- black race x female sexb- being marriedb- perceived social supportb- educationb - cognitive functioning (MMSE score) b |  | **Yes.** - do not receive help from othersb- income adequacyb - lower comorbidity burdenb- lower MMSE score (more cognitive impairment)b- increasing ageb- black raceb**No.**- regular attendance at religious servicesa- frequency of prayera- level of intrinsic religiousnessa - female sexb- black race x female sexb- rural location of dwellingb- being marriedb- perceived social supportb- educationb |
| Peng et al 2014Taiwan | 401  | - Admitted to the Geriatric Evaluation and Management Unit (GEMU) of Taipei Veterans Hospital between May 2011 and May 2012**Excluded if:** - Had communication difficulties- Were too acutely ill to conduct functional assessments | Community-dwelling(hospitalized) | Barthel Index: score of 0 (completely dependent) to 10 (independent with assistance) on following activities: - feeding- grooming- bathing- dressing- bowel and bladder care- toilet use- ambulation- transfers- stair climbingRange: 0 (dependent) – 100 (independent)  | **Yes.** - Mini-Nutritional Assessment (MNA)a - absence of a primary caregiverb - younger ageb - lower body mass indexb **No.** - Charlson Comorbidityb Indexa- Smokingb - Habitual alcohol drinkerb- sexb- education levelb - waist circumferenceb  |  |  |
| Phillips et al 2007USA | 36,584 | - Residents in Medicare- or Medicaid-certified nursing homes operating during 2002- Remained in nursing home for 3 months to receive first post-admission RAI-MDS assessment  | Nursing home | Difference in ADL Long-form score (from RAI-MDS) between admission and 3-month assessmentRange 0 – 28 |  | **Yes.** - Lower ADL impairment at baselinec - Lower CHESS (Changes in Health, End-stage disease and Symptoms and Signs) Scorec- Higher level of cognitive impairmentc- Higher mortality risk scorec- Increasing agec- Female sexc- Black (versus non-Hispanic white) c- Lived with others prior to admission to nursing homec- Admitted to nursing home from location other than acute-care hospitalc- Not having stayed in another nursing home in the past 5 yearsc**No.**- Depressionc- American Indian/Alaska Nativec- Asian/Pacific Islanderc- Hispanicc - Admitted from a rehabilitation home, private residence, assisted living, nursing home, or psychiatric settingc  |  |
| Piernik-Yoder & Ketchum 2013US | 35,243 | - Stroke patients in inpatient rehabilitation facilities - First admission to rehab facility between January 1, 2004 and December 31st, 2008 | Mix- Community-dwelling older adults and nursing home residents, currently residing in inpatient rehab. | Functional Independence Measure (FIM) at discharge from rehabilitation facility.18 tasks rated on 7 point ordinal scale that ranges from total assistance (or complete dependence) to complete independenceScores range from 18 (lowest) to 126 (highest) indicating level of functionScores are generally rated at admission and dischargeDimensions assessed include:EatingGroomingBathingUpper body dressingLower body dressingToiletingBladder managementBowel managementBed to chair transferToilet transferShower transferLocomotion (ambulatory or wheelchair level)StairsCognitive comprehensionExpressionSocial interactionProblem solvingMemory | **Yes.**- having diabetesa - reduced agea - white raceb- higher level of functioning at admissionb - lower comorbidity burdenb **No.**- female sexb- presence of diabetes x agea |  |  |
| Quinones et al2014Germany | 333 | - Participants in the KOR-INNA study - Age ≥ 65- Home-dwelling - Discharged from hospital of Augsburg between Sept. 2008 – May 2010 after treatment for first or recurrent AMI | Community-dwelling | Stanford Health Assessment Questionnaire Disability Index (HAQ-DI); consists of 8 domains: - dressing and grooming- arising- eating- walking - hygiene - reach - grip - activities Disability = HAQ-DI score ≥0.5 | **Yes.**- Did not receive percutaneous transluminal coronary angioplasty with stentc - female sexc- age in yearsc- diabetes mellitusc- hearing loss in both earsc- coronary artery bypass graftc- heart failurec- nutritional status deficiencyc  |  |  |
| Rajan et at2012US | 5,317 | - Age ≥65 years old-Non-disabled at baseline- participants in the Chicago Neighborhood and Disability study  | Community-dwelling | Progression of disability after onset, measured as number of basic self-care tasks needs assistance with: - bathing- dressing- eating- showering- toileting- getting out of bed to chairRange 0 – 6  |  |   | **Yes.** - time since onset of disabilitya - reduced cognitive functiona- reduced physical function (tandem stand, measured walk, chair stand)a- age x time since onset of disabilitya- lower body mass indexb - male sexb **No.** - number of comorbidb conditionsb - black raceb- educationb |
| Rist et al 2014US | 4,932 | - Participants in the Health and Retirement Study- age ≥ 50- No ADL limitations at baseline | Community-dwelling | Self- or proxy- reported ADL difficulty, based on past-30 day difficulty with any of 5 RAND HRS ADLs: - getting across a room- dressing- bathing- eating- getting in and out of bed |  | (Onset of disability)**Yes.** - lower cognitive functioninga- no physical activitya- depressiona**No.**- cognitive functioning x physicala activity level- cognitive functioning x depressiona - alcohol consumptiona - smokinga- low incomea  |  |
| Ritchie et al 2008US | 983 | - Participants in the University of Alabama at Birmingham Study of Aging- Medicare beneficiaries- Age ≥ 65- Living in 1 of 5 counties of central Alabama- Community dwelling **Excluded if:** - In nursing home- Unable to set own appointments- Height and weight could not be obtained | Community- dwelling | Baseline score and rate of change over 48 months in composite ADL score based on self-report of “Do you have any difficulty performing the task” (Yes: 1 = some, 2 = a lot, 3 = unable to do task; No = 0)- eating- using the toilet- dressing - transferring- bathing- walkingRange: 0 – 18Scores reversed so that 18: independence.  | **Yes.** - BMI ≥ 30 (vs. BMI ≥ 18.5 and <25a- unintentional weight lossa**No.**- intentional weight lossa - baseline BMI x weight lossa - BMI <18.5a |  | **Yes.** - unintentional weight lossa**No.** - BMI ≥ 25 (vs. BMI ≥ 18.5 and <25a- BMI <18.5a- intentional weight lossa  |
| Rosso et al 2011US | 62,829 | - Age ≥65 years old- Female- Participant in the Women’s Health Initiative  | Community-dwelling | 9-item physical functioning sub-scale of the SF-36Range 0 – 100 (100 = no limitations) Dichotomized at median into low versus high functioning.  | **Yes.** - coronary artery diseasea- coronary heart failurea- diabetesa - having one of above chronic conditionsa- having one geriatric syndrome (urinary incontinence, falls, depression)a- having a combination of the above chronic conditions and geriatric syndromesa |  |  |
| Rosso et al 2013US | 29,544 | - Female - Age ≥65 years old - Free of ADL disability at baseline- Participants in the Women’s Health Initiative **Excluded if:** - Had conditions that predicted survival of less than 3 years - History of cancer at baseline or cancer diagnosis during the follow-up period - Died before follow-up | Community-dwelling | - development of dependence in any of following activities during 3-year follow-up: - eating - dressing - getting in and out of bed- taking a bath or shower  |  | **Yes.**- 3, 4 or 5 geriatric syndromes at baseline (vs. 0)a- 3, 4 or 5 geriatric syndromes developed during follow-up (vs. 0)a - depressive symptoms at baselinea - dizziness at baselinea- history of falls at baselinea- osteoporosis at baselinea- polypharmacy at baselinea- visual impairment at baselinea**No**.- 1 or 2 (vs. 0) geriatric syndromes at baselinea- 1 or 2 (vs. 0) geriatric syndromes developed during follow-upa- sleep disturbance at baselinea- hearing impairment at baselinea- syncope at baselinea- urinary incontinence at baselinea |  |
| Russo et al 2007Italy  | 364 | - Born before January 1, 1924- Resident of Sirente area as of October 2003 | Community-dwelling | RAI-HC ADL scale, based on dependence in following tasks: - eating- dressing- personal hygiene - mobility in bed- dressing- transferring (from bed to chair, or stand position)Range 0 – 7 (7: highest level of disability)  | **No.** - presence of depressiona |  |  |
| Sjӧlund et al 2010 Sweden | 2,141 | - Age ≥75 years old- Live in either urban area of central Stockholm or rural community of Nordanstig  | Mix - Community-dwelling older adults and nursing home residents (<20% of sample) | Katz ADL Index – rated as: - independent: no need of assistance- partially dependent: need help with 1-2 activities- dependent: need help with 3+ activitiesbased on independence in:- bathing- dressing- going to the toilet- transferring- continence- feeding | **Yes.** - rural location of dwellinga- cognitive impairmentb- depressionb- hearing impairment (rural)b- blind or almost blind (rural)b- strokeb- Parkinson’s diseaseb- fractures in previous 5 years (rural)b- having one chronic conditionb- have 2 or more chronic conditionb**No**. - hearing impairment (urban)b- blind or almost blind (urban)b - cardiovascular diseaseb- diabetes mellitusb - fractures in previous 5 years (urban b |  |  |
| Smith et al 2013 USA | 8,232 | - Age ≥50 years old- Died while enrolled in the Health and Retirement Study between 1995 and 2010  | Community-dwelling | Disability during the last two years of life = need for help with at least 1 of the following activities: - dressing- bathing- eating- transferring- walking across the room - using the toilet  | **Yes.** - age ≥70c- female sexc- less than high school educationc- low (<$17,010) or medium ($17,010 to <78,000) household net worth at enrollmentc - Being married or partneredc- Hypertensionc- Heart diseasec- Diabetes mellitusc- Cancerc - Cognitive impairmentc - Strokec- Lung diseasec- Arthritisc - Recent hospitalizationc - Recent fallc **No.** - race (non-Hispanic black, Hispanic versus non-Hispanic white)c- high household net worth (78,000 to <192,600) at time of enrollmentc |  |  |
| Sousa et al 2009UK | 14,869 | - Age ≥65 years old- Living in geographically defined catchment areas from: urban sites in Cuba, Dominican Republic and Venezuela, urban & rural sites in Mexico, Peru, China and India  | Community-dwelling | Disability measured by WHODAS 2.0. Each domain rated from 0 (no difficulty) to 4 (extreme difficulty or cannot do) - understanding or communication- getting around - self-care- getting along with people (interpersonal interaction)- life activities- participation in society  | **Yes.** - Dementiaa- Paralysis or weakness of limbsa- Depressiona- Strokea- Arthritis or rheumatisma - Fainting or blackoutsa- Difficulty breathing or asthmaa- Skin disordersa- Stomach or intestine problemsa- Diabetesa- Eyesight problemsa- Hearing difficultiesa- Persistent cougha - Heart problemsa**No.** - myocardial infarction or anginaa- chronic obstructive pulmonary diseasea- hypertensiona |  |  |
| Spalter et al 2014Israel  | 982 | - Participants in the Survey of Health, Ageing and Retirement in Europe - Hebrew, Arabic and Russian speaking residents- born in 1955 or earlier **Excluded if:** - Live in residential facilities or prisons | Community-dwelling | Change over 4 years inADL score, based on the number of activities individuals reported difficulty with: - getting dressed- cross the room- bathe- eatget into and out of bed- use the toilet  |  | **Yes.** - higher functional status at baselinec - Being Arabic (vs. immigrant from the former Soviet Union or Jewish)c - having more chronic diseases at baselinec- development of new diseases after baselinec- cognitive impairment at baselinec- living with people other than spouse (vs. living alone)c- receipt of home assistancec- receipt of informal supportc**No.** - agec- sexc- years of educationc- incomec- mental health at baselinec- recreation and social activities measurec- living with spouse or with spouse and others (vs. alone)c- receipt of personal assistancec |  |
| Spiers et al 2005UK | 7,913 | - Nondisabled at baseline- Age ≥65 years old- Residents of 5 urban and rural centers in England and Wales, randomly selected from the National Health Service primary care lists | Mix - Community-dwelling older adults and nursing home residents | Onset of disability, measured as individuals being unable to perform at least one of the following ADLs without help at least several times a week: - transfer to and from a chair- put on shoes and socks- prepare a hot meal- get around outside- have a bath or all-over wash |  | **Yes.** - strokea- coronary heart disease (angina and heart attack)a- treated hypertensiona - arthritisa - treated diabetesa- chronic airways obstructiona- Parkinson’s diseasea- Eyesight problemsa- Cognitive impairmenta- Increasing ageb- Female genderb - current smokerb **No**- peripheral vascular diseasea- Hearing problemsa - Years of educationb - Living status (lives with spouse, others, alone)b - Social classb  |  |
| Stel et al 2004the Netherlands | 204 | - Age ≥65 years old- Participants in the Longitudinal Aging Study Amsterdam- Experienced a fall in the year prior to third wave of study follow-up in 1999/2000 | Community-dwelling | Functional decline following fall, based on self-report of “some more difficulty” or “much more difficulty” performing any of the following activities as a consequence of the fall: - climbing stairs- dressing oneself- rising from a chair- cutting toenails- walking outside- using public transport  |  | **Yes.**- female sexc- use of 2.5+ medicationsc- depressionc **No.****-** increasing age (+6.5 years)c- physical activityc - location of fallc- performance score for walking test, chair stands and tandem standc |  |
| Stineman et al 2013US | 9,447 | - Age ≥70 years old- Participants in the Second Longitudinal Study of Aging  | Mix Community-dwelling at baseline, but included institutionalized at follow-up | Improvement or worsening of ADL stage or death, where in ADL stage defined by: Activity of Daily Living Hierarchy: - Stages 0 (independent) to IV (completely dependent) based on degree of assistance required with following activities: - eating- toileting- dressing- transferring- bathing- walking |  | **Yes.** - increasing agec- black or other race (vs. white) c - marriedc- high school graduatec- diabetesc- arthritisc- strokec- use of a proxy due to cognitive impairmentc- chronic bronchitis or emphysemac - having no or severe disability at baselinec **No.** - male genderc- previous nursing home usec- unmet need for home accessibility servicesc- osteoporosisc- cancerc- coronary artery diseasec- other heart diseasec- having moderate disability at baselinec |  |
| Talley et al2015US | 7,735 | - Aged ≥65 years- Living in nursing home for at least 6 months**Excluded if:** - Bedfast- In a persistent vegetative state- Had six or fewer months to live- Had end stage disease- Residents receiving occupational, physical, or speech therapy  | Nursing home | Change in ADL long-form score (from RAI-MDS) measured over 18 months  |  |  | **Yes.** - higher degree of cognitive impairmentb- higher degree of frailtyb- increasing number of chronic conditionsb- poorer moodb- lower level of socialb engagement- severe pain (vs. mild pain, or no pain)b **-** increasing number of physical impairmentsb - ADL long-form score at baselineb- Nurse indicated resident had the ability to improve ADL independenceb **-** Nursing home: Medical director has no certificationb **No.**- age (years)b - length of stay (years)b - severe pain (vs. moderate pain)b- received any restorative care over time (e.g. skill practice with ADLs, active/passive range of motion)a- Nursing home: percentage of residents with Medicare reimbursementb- Nursing home: percentage of residents with Medicaid reimbursementb- Nursing home: Hours of patient contact with nursing staffb- Nursing home: Director of Nursing has no certificationb - Facility has no accredicationb |
| Talley et al2014US | 2,395 | - Had potential to improve incontinence using conservative treatment - Aged ≥65 years- Resident in one of 2,302 licensed residential care facilities that participated in the 2010 National Survey of Residential Care Facilities: had 4+ beds, provided room + board and ≥2 meals per day, provided, provision of personal care**Excluded if:** - Had dementia or Alzheimer’s diagnosis - Significant cognitive impairment - Had intellectual or developmental disability- Muscular dystrophy- partial or total paralysis- Schizophrenia- spinal cord injury - Traumatic brain injury or a stroke within the past year- Blind - Bed or chair bound - Presence of ostomy - Nursing home (unless met above criteria and individuals could be counted separately) - Facilities serving mentally ill or developmentally disabled populations exclusively  | Nursing home (“residential care facility”)  | Toileting disability = yes to question “Does the resident currently receive any assistance using the bathroom?” | **Yes.** - poor or fair self-rated health (vs. excellent)c- small facility size (4 – 10 beds) (vs. extra-large: >100 beds)c- for-profit facilityc - bowel incontinencec - bladder incontinencec - physical impairmentsc- absence of visual impairments (even when wearing glasses)c- no trouble hearing (vs. a severe hearing impairmentc - receives any assistance walkingc - needs assistance going outsidec - dependent in bathingc- dependent in dressingc- dependent in transferringc**No.**- marital statusc- good or very good self-rated health (vs. excellent)c- place admitted from (rehab facility, nursing home, none of the above)c- medium facility size (11-25) or large facility size (26-100) (vs. extra-large: >100 beds)c- has bathroom inside room/apartmentc- depressionc- strokec - a little trouble hearing (vs. no trouble hearing)c - use of a cane or walker c  |  |  |
| Taylor 2010US | 3,955 | - Age ≥65 years old- Participants in the Established Populations for Epidemiologic Studies of the Elderly (EPESE) in North Carolina- Community-dwelling | Community-dwelling | Disability = summed index of following ADLs and IADLs require assistance with:- walking- bathing- grooming- dressing- eating- transferring- toileting- using the telephone- driving/ travelling- shopping- preparing meals- housework- taking medication- handling financesRange 0 – 14 (14 = total dependence) Outcomes: disability onset and rate of decline following onset. |  | **(**Disability Onset) **Yes.**- female sexb- increasing ageb- lower education (if age 65-84)a - lower income (if age 65 – 84) a **No.**- white race a - lower education (if age 85 – 105)a - lower income (if age 85 – 105) a  | **Yes.**- female sex (if age 75-84)b- white race (if age 65-74)a- increasing age (if age 65 – 84)b- lower income (if age 65-74)a **No.****-** female sex (if age 65-74, 85-105)b- white race (if age 75- 105)a- lower income (if age 75- 105)a- increasing age (if age 85 – 105)b - lower educationa  |
| Tinetti et al 2011 US | 5,654 | - Participants in (CHS)- ≥65 years old - Medicare eligible individuals - Community-dwelling- Expected to remain in the area for 3 years - Able to provide informed consent **Excluded**: - Need wheelchair, hospice care, radiation treatment or chemotherapy | Community-dwelling | Number of ADLs and IADLs performed with difficulty Range 0 – 12 in CHS data | **Yes.**- heart failurea - heart failure + symptoms of heart failurea- COPD + dyspneaa - osteoarthritis + paina - cognitive impairmenta **No.** - ejection fractiona- forced ejection fractiona |  |  |
| 2,706 | - Participants in (Health ABC) - Medicare-eligible - Community-dwelling- Age 70-79- No life-threatening cancer - No difficulties with ADLs or IADLs, walking 400 m, climbing 10 steps at baseline  | Range 0 – 9 in Health ABC data |
| Tooth et al 2008 Australia | 5,217 | - Female- Aged 73 – 83 years - Participant in the Australian Longitudinal Study of Women’s Health in 1999 | Community-dwelling | Physical function subscale of the SF-36 | Yes. - heart diseasec- chest painc- strokec- hypertensionc- fall resulting in fracturec- fall resulting in serious injuryc - urinary incontinencec- low ironc- arthritisc - osteoporosisc- bronchitis/emphysemac- asthmac- diabetesc- cancers (other than skin) c- depressionc- anxietyc- Alzheimer’s diseasec**No.**- fall resulting in medical attentionc- skin cancerc |  |  |
| ADL dependence: “Do you regularly NEED help with daily tasks because of long-term illness, disability or frailty? (Yes/No)? | **Yes.**- heart diseasec- chest painc- strokec- fall resulting in fracturec- urinary incontinencec- Arthritisc - osteoporosisc - bronchitis/emphysemac- diabetesc- cancers (other than skin)c- depressionc- anxietyc- Alzheimer’s diseasec**No.**- hypertensionc- fall resulting in serious injuryc - fall resulting in medical attentionc- asthmac - skin cancerc |  |  |
| Wang et al2009 US | 4,942 | - Age ≥65 years old at admission- Admitted to one of 3777 Minnesota nursing homes in 2004- Administered a MDS admission assessment and a follow-up assessment in the same facility approximately 6 months after the admission assessment- Not comatose, bedridden, quadriplegic or on a feeding tube at baseline  | Nursing home  | Odds of early-loss ADLs defined as dependence in personal hygiene a |  | **Yes.** **-** baseline personal hygiene dependencea- bowel incontinencea - bladder incontinencea- balance dysfunctiona- fall within 31-190 daysa**-** cognitive impairmentb **-** admission from a hospitalb- more days between assessment and follow-upb- nursing home of residencea**No.** - depressiona- frequency and severity of paina- fall within 30 daysa - ageb- genderb- raceb- educational levelb- LTC characteristics (ownership type, hospital affiliation, urban/rural location, total bed size, number of participants per facility, hours staffing per resident day, percentage of Medicare days, total ADL change score, community discharge rates)a |  |
| Odds of mid-loss ADLs, defined as dependence in toileting  |  | **Yes.** **-** baseline toileting dependencea- bowel incontinencea - bladder incontinencea- balance dysfunctiona- cognitive impairmentb**-** admission from a hospitalb- more days between assessment and follow-upb- nursing home of residencea**No.**- depressiona- frequency and severity of paina- fall within 30 daysa- fall within 31-190 daysa- ageb- genderb- raceb- educational levelb- LTC characteristics (ownership type, hospital affiliation, urban/rural location, total bed size, number of participants per facility, hours staffing per resident day, percentage of Medicare days, total ADL change score, community discharge rates)a |  |
| Odds of late-loss ADLs, defined as dependence in eating |  | **Yes.** **-** baseline eatingdependencea- bladder incontinencea- cognitive impairmentb**-** admission from a hospitalb- more days between assessment and follow-upb- nursing home of residencea**No.** - depressiona- frequency and severity of paina- bowel incontinencea - balance dysfunctiona- fall within 30 daysa- fall within 31-190 daysa- ageb- genderb- raceb- educational levelb- LTC characteristics (ownership type, hospital affiliation, urban/rural location, total bed size, number of participants per facility, hours staffing per resident day, percentage of Medicare days, total ADL change score, community discharge rates)a |  |
| Wolff et al 2005US | 4,968 | - Participants in the Medicare Current Beneficiary Survey in 1997 or 1998 and completed all subsequent interviews through 2000 or 2001 - Community-dwelling- Age ≥ 65 years old- Free of disability at baseline | Community-dwelling | Composite measure (at 24, 36 months) of: - functional disability = receiving health or not performing because of a health or physical problem any of the following ADLs: - bathing- dressing - eating- transferring- walking - using the toilet OR - residence in a long-term care facility at 24- or 26- month follow-up  |  | **Yes.** - increasing ageb- ≤high school educationb - higher number of chronic conditions at baselineb- increasing number of newly diagnosed chronic conditions at 12 monthsa - Specific diagnoses newly reported at 12 months: - dementiaa- strokea- psychiatric disordera - Parkinson’s diseasea- low body mass indexa- obesitya **No.**- female sexb- Newly diagnosed chronic conditions at 12 months: - coronary artery diseasea- cancera - hypertensiona - diabetes mellitusa- emphysema, asthma or chronic obstructive pulmonary diseasea - osteoarthritisa - other heart conditiona- osteoporosisa - rheumatoid arthritisa - hip fracturea |  |
| Wolinsky et al 2011US | 5,656 | - Medicare beneficiaries - Participants in the AHEAD study | Community-dwelling | Decline in ADLs, defined as development of two or more new difficulties in simple count of difficulties in performing 5 activities:- getting across room- dressing- bathing - showering- eating - getting in or out of bed |  | **Yes.** - higher ADL dependence at baseline (floor effect)c - centered number of years between interviewsc- use of a proxy respondent at baseline or follow-upc - increasing number of hospitalization episodes post-baselinec- died within a year of baseline measuresc**No.**- baseline ADL dependence \* use of proxy at baselinec- obese or underweight (vs. normal weight)c- current or former smoker (vs. never smoked cigarettes)c- ≤1 alcoholic drink dailyc- continuity of primary care after baselinec- ever in Managed Carec |  |
| Yeh et al2014Taiwan | 1125 | - Male - Residents of Banciao and Taipei Veterans Homes in northern Taiwan from January 2006 to December 2010 - Participants in the Longitudinal Older Veteran’s study- Age ≥ 65 years old- Under regular assessment for 18 consecutive monthsExcluded if: - In a completely dependent state  | Nursing home | Functional decline = increase in RUG-III ADL score from MDS by at least 1 point over 6 months. Range of 4 – 18 (where 4 = completely independent)  |  | **Yes.** - Parkinsonismc - cognitive lossc- declining moodc- sum of indicators of overall declinec**No.**- increasing agec- body mass indexc |  |
| Yu et al 2015Taiwan | 3,186 | - Participants in the Taiwan Longitudinal Study on Aging - Age ≥50 years of age- Alive at baseline in 1996 and follow-up in 2007 - Completed at least three of four surveys  | Mix - Community- and institution-dwelling older adults | Predictors of being on a progressive disability trajectory (versus a consistent disability or maintained function) trajectory over 10 year follow-up. Disability = sum of following ADL and IADL items in which respondent was dependent - bathing- eating- dressing- standing up from a chair and bed- indoor walking- toiletingmanaging money- shopping - taking public transportation- doing light housework- doing heavy housework - telephoningRange 0 – 12 (where 12 = completely dependent)  |  |  | **Yes.**- increasing agec- fewer years of educationc - high number of comorbiditiesc - absence of use of assistive devicesc**No.****-** female sexc- burden of depression symptomsc - regular exercisec - no smokingc- no drinkingc- recreational leisure time activitiesc - physical leisure time activitiesc - living alonec - social networkc - social supportc  |
| Legend: **\*** indicates interaction term between two covariatesFor variables significantly independently related with disability outcomes, the following code was used to indicate the role of variables in each study: **a**: exposure variable **b**: adjustment variable**c**: variable entered as part of predictive model or role unspecified  |

Supplementary Table 2

*Pathologies Associated with Disability and Disablement in Older Adults*

| **Pathology** | **Associated with disability** | **Associated with disablement (pre-post?)** | **Associated with disablement** **(3+ time points)** | **Number of studies** | **Proportion of cited studies by setting** |
| --- | --- | --- | --- | --- | --- |
| **Sub-Acute Pathologies**  |  |  |  |  |  |
| Anemia | **Yes.** ([Tooth, Hockey, Byles, & Dobson, 2008](#_ENREF_83)) | . | . | 1 | Community: 1 |
| Low glomerular filtration rate (<44) | . | **Yes**. ([Chin et al., 2014](#_ENREF_24)) | . | 1 | Community: 1 |
| High concentration of pro-inflammatory molecules (e.g. IL-6, CRP, fibrinogen) in blood | **Yes**. ([Friedman, Christ, & Mroczek, 2015](#_ENREF_35)) | . | . | 1 | Community: 1 |
| Low serum albumin (<3.5g/dL) | . | **Yes**. ([Boyd et al., 2008](#_ENREF_11); [Kurella Tamura et al., 2009](#_ENREF_45)) | . | 2 | Nursing Home: 1Hospital: 1 |
| **Acute pathologies** |  |  |  |  |  |
| Incident acute health episode or chronic pathology exacerbation | . | **Yes**. ([Rosso et al., 2013](#_ENREF_70); [Spalter, Brodsky, & Shnoor, 2014](#_ENREF_75); [Wolff, Boult, Boyd, & Anderson, 2005](#_ENREF_85)) | **Yes**. ([L. W. Li & Conwell, 2009](#_ENREF_52)) | 4 | Community: 4 |
| Delirium  | . | **Yes**. ([Marcantonio et al., 2003](#_ENREF_55))**No**.([Boockvar, Signor, Ramaswamy, & Hung, 2013](#_ENREF_8); [Landi et al., 2006](#_ENREF_47); [McCusker, Cole, Dendukuri, Belzile, & Primeau, 2001](#_ENREF_58)) | . | 4 | Community: 1Nursing Home: 1Hospitalized: 1Mix: 1 |
| Fall | **Yes.** ([Smith, Walter, Miao, Boscardin, & Covinsky, 2013](#_ENREF_73); [Tooth et al., 2008](#_ENREF_83)) | **Yes.**([Chu, Chiu, & Chi, 2006](#_ENREF_25))(Lee et al, 2008)([Rosso et al., 2013](#_ENREF_70); [Wang, Kane, Eberly, Virnig, & Chang, 2009](#_ENREF_84))**No**. ([Clark, Stump, Tu, & Miller, 2012](#_ENREF_28)) | **Yes**. ([L. W. Li & Conwell, 2009](#_ENREF_52)) | 8 | Community: 6Nursing Home: 2 |
| Fracture, hip  | . | **No**. ([Gill, Allore, Holford, & Guo, 2004](#_ENREF_38); [Wolff et al., 2005](#_ENREF_85)) | **Yes**. ([Banaszak-Holl et al., 2011](#_ENREF_2))**No**. ([Banaszak-Holl et al., 2011](#_ENREF_2)) | 3 | Community: 2Nursing Home: 1 |
| Fractures, past 5 years. | **Yes.** ([Sjölund, Nordberg, Wimo, & Von Strauss, 2010](#_ENREF_72); [Tooth et al., 2008](#_ENREF_83))**No.** ([Sjölund et al., 2010](#_ENREF_72)) | . | . | 2 | Community: 1Mix: 1 |
| Infection, any (respiratory, urinary, miscellaneous) | . | **Yes**. ([Bula, Ghilardi, Wietlisbach, Petignat, & Francioli, 2004](#_ENREF_14); [Caljouw et al., 2013](#_ENREF_18)) | **Yes**. ([Caljouw et al., 2013](#_ENREF_18)) | 2 | Community: 1Nursing Home: 1 |
| Infection, higher number during follow-up  | . | **Yes**. ([Bula et al., 2004](#_ENREF_14)) | . | 1 | Nursing Home: 1 |
| Infection, respiratory | . | **Yes**. ([Barker, Borisute, & Cox, 1998](#_ENREF_3); [Bula et al., 2004](#_ENREF_14)) | . | 2 | Nursing Home: 2 |
| **Chronic Pathologies** |  |  |  |  |  |
| Higher number of chronic conditions  | **Yes**. ([Bayliss, Ellis, & Steiner, 2007](#_ENREF_5); [Cigolle, Langa, Kabeto, Tian, & Blaum, 2007](#_ENREF_26); [Friedman et al., 2015](#_ENREF_35); [Kelley-Moore & Ferraro, 2005](#_ENREF_42); [Kruse, Petroski, Mehr, Banaszak-Holl, & Intrator, 2013](#_ENREF_44); [Park et al., 2008](#_ENREF_61); [Rosso et al., 2011](#_ENREF_69); [Sjölund et al., 2010](#_ENREF_72))**No**. ([Peng et al., 2014](#_ENREF_62)) | **Yes**. ([Fultz, Ofstedal, Herzog, & Wallace, 2003](#_ENREF_36); [Marengoni, Von Strauss, Rizzuto, Winblad, & Fratiglioni, 2009](#_ENREF_56); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Spalter et al., 2014](#_ENREF_75); [Wolff et al., 2005](#_ENREF_85))**No**. ([Abizanda et al., 2014](#_ENREF_1); [Barnes et al., 2013](#_ENREF_4); [Boeckxstaens et al., 2014](#_ENREF_6); [Landi et al., 2006](#_ENREF_47)) | **Yes**. ([Drewes et al., 2011](#_ENREF_30); [Helvik, Engedal, Benth, & Selbæk, 2014](#_ENREF_41); [K. M. Talley et al., 2015](#_ENREF_79); [Yu, Chen, Chiang, Tu, & Chen, 2015](#_ENREF_88))**No**. ([Drewes et al., 2011](#_ENREF_30); [Kelley-Moore & Ferraro, 2005](#_ENREF_42); [Rajan et al., 2012](#_ENREF_66)) | 23 | Community: 13Nursing Home: 3Hospital: 2Mix: 5 |
| Lower number of chronic conditions. | **Yes**. ([Piernik-Yoder & Ketchum, 2013](#_ENREF_64)) | **Yes**. ([Finlayson et al., 2012](#_ENREF_33)) | **Yes**. ([Mendes De Leon & Rajan, 2014](#_ENREF_59); [Park et al., 2008](#_ENREF_61)) | 4 | Community: 2Nursing Home: 1Mix: 1 |
| Alzheimer’s disease | **Yes**. ([Tooth et al., 2008](#_ENREF_83)) | . | . | 1 | Community: 1 |
| Angina  | **Yes**. ([Groll, To, Bombardier, & Wright, 2005](#_ENREF_40))**No**. ([Sousa et al., 2009](#_ENREF_74)) | **.** | . | 2 | Community: 2 |
| Anxiety  | **Yes.** ([Groll et al., 2005](#_ENREF_40); [Tooth et al., 2008](#_ENREF_83)) | **No**. ([Buttar, Blaum, & Fries, 2001](#_ENREF_16)) | . | 3 | Community: 2Nursing Home: 1 |
| Arthritis (type unspecified) or joint impairment | **Yes**. ([Fried, Bandeen-Roche, Kasper, & Guralnik, 1999](#_ENREF_34); [Groll et al., 2005](#_ENREF_40); [Laan et al., 2013](#_ENREF_46); [Smith et al., 2013](#_ENREF_73); [Sousa et al., 2009](#_ENREF_74); [Tooth et al., 2008](#_ENREF_83))**No.**([Laan et al., 2013](#_ENREF_46)) | **Yes.** ([Latham, 2012](#_ENREF_48); [Spiers et al., 2005](#_ENREF_76); [Stineman et al., 2013](#_ENREF_78))**No**. ([Clark et al., 2012](#_ENREF_28); [Gill et al., 2004](#_ENREF_38); [Wolff et al., 2005](#_ENREF_85)) | **No**. ([Drewes et al., 2011](#_ENREF_30)) | 13 | Community: 11Mix: 2 |
| Asthma | **Yes**. ([Groll et al., 2005](#_ENREF_40); [Laan et al., 2013](#_ENREF_46); [Sousa et al., 2009](#_ENREF_74); [Tooth et al., 2008](#_ENREF_83)) | **Yes**. ([Spiers et al., 2005](#_ENREF_76)) | . | 5 | Community: 4Mix: 1 |
| Bone disease  | **Yes.** ([Marventano et al., 2014](#_ENREF_57)) | . | . | 1 | Community: 1 |
| Cancer, unspecified type | **Yes**. ([Fried et al., 1999](#_ENREF_34); [Marventano et al., 2014](#_ENREF_57); [Smith et al., 2013](#_ENREF_73); [Tooth et al., 2008](#_ENREF_83))**No**. ([Cigolle et al., 2007](#_ENREF_26)) | **Yes**. ([Boyd et al., 2008](#_ENREF_11); [Caljouw, Cools, & Gussekloo, 2014](#_ENREF_17); [Latham, 2012](#_ENREF_48))**No.** ([Barnes et al., 2013](#_ENREF_4); [Gill et al., 2004](#_ENREF_38); [Lee & Rantz, 2008](#_ENREF_49); [Stineman et al., 2013](#_ENREF_78); [Wolff et al., 2005](#_ENREF_85)) | **No**. ([Banaszak-Holl et al., 2011](#_ENREF_2)) | 14 | Community: 7Nursing Home: 3Hospital: 2Mix: 2 |
| Cancer, neoplasia | . | **Yes**. ([Burge, von Gunten, & Berchtold, 2013](#_ENREF_15)) | . | 1 | Nursing Home: 1 |
| Cardiovascular disease (type unspecified)  | **Yes**. ([Cigolle et al., 2007](#_ENREF_26); [Fried et al., 1999](#_ENREF_34); [Groll et al., 2005](#_ENREF_40); [Marventano et al., 2014](#_ENREF_57); [Smith et al., 2013](#_ENREF_73); [Sousa et al., 2009](#_ENREF_74); [Tooth et al., 2008](#_ENREF_83))**No.** ([C. L. Li et al., 2013](#_ENREF_50); [Sjölund et al., 2010](#_ENREF_72)) | **Yes.** ([Boyd et al., 2008](#_ENREF_11); [Burge et al., 2013](#_ENREF_15))**No**. ([Latham, 2012](#_ENREF_48); [Stineman et al., 2013](#_ENREF_78); [Wolff et al., 2005](#_ENREF_85)) | **Yes**. ([Banaszak-Holl et al., 2011](#_ENREF_2)) | 15 | Community: 9 Nursing Home: 2Hospital: 1Mix: 3 |
| Cough, persistent | **Yes.** ([Sousa et al., 2009](#_ENREF_74)) | **.** | . | 1 | Community: 1 |
| Chronic heart failure | **Yes.** ([Groll et al., 2005](#_ENREF_40); [Quinones et al., 2014](#_ENREF_65); [Rosso et al., 2011](#_ENREF_69); [Tinetti et al., 2011](#_ENREF_82)) | **Yes.** ([Clark et al., 2012](#_ENREF_28); [Gill et al., 2004](#_ENREF_38)) | **Yes**. ([Drewes et al., 2011](#_ENREF_30)) | 7 | Community: 7  |
| Chronic obstructive pulmonary disease  | **Yes.** ([Groll et al., 2005](#_ENREF_40); [Laan et al., 2013](#_ENREF_46); [Tooth et al., 2008](#_ENREF_83))**No.** ([Sousa et al., 2009](#_ENREF_74)) | **Yes.** ([Stineman et al., 2013](#_ENREF_78))**No**. ([Wolff et al., 2005](#_ENREF_85)) | **No**. ([Drewes et al., 2011](#_ENREF_30)) | 7 | Community: 6Mix: 1 |
| Coronary artery disease | **Yes**. ([Rosso et al., 2011](#_ENREF_69)) | **Yes**. ([Chu et al., 2006](#_ENREF_25); [Spiers et al., 2005](#_ENREF_76))**No**. ([Stineman et al., 2013](#_ENREF_78); [Wolff et al., 2005](#_ENREF_85)) | . | 5 | Community: 3Mix: 2 |
| Dementia | **Yes**. ([Marventano et al., 2014](#_ENREF_57); [Sousa et al., 2009](#_ENREF_74)) | **Yes**. ([Boyd et al., 2008](#_ENREF_11); [Caljouw et al., 2014](#_ENREF_17); [L. Y. Chen et al., 2013](#_ENREF_23); [Kurella Tamura et al., 2009](#_ENREF_45); [Wolff et al., 2005](#_ENREF_85))**No**. ([Barnes et al., 2013](#_ENREF_4)) | . | 8 | Community: 3Nursing Home: 3Hospital: 2  |
| Depression | **Yes**. ([Bayliss et al., 2007](#_ENREF_5); [Boström et al., 2014](#_ENREF_9); [Groll et al., 2005](#_ENREF_40); [Sjölund et al., 2010](#_ENREF_72); [Sousa et al., 2009](#_ENREF_74); [Tooth et al., 2008](#_ENREF_83))**No**. ([Kelley-Moore & Ferraro, 2005](#_ENREF_42); [Russo et al., 2007](#_ENREF_71); [K. M. C. Talley et al., 2014](#_ENREF_80)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Fultz et al., 2003](#_ENREF_36); [Gill et al., 2004](#_ENREF_38); [Rist, Capistrant, Wu, Marden, & Glymour, 2014](#_ENREF_67); [Rosso et al., 2013](#_ENREF_70); [Stel, Smit, Pluijm, & Lips, 2004](#_ENREF_77))**No**. ([Boyd et al., 2009](#_ENREF_12); [Chaudhry et al., 2011](#_ENREF_20); [Landi et al., 2006](#_ENREF_47); [Phillips, Shen, Chen, & Sherman, 2007](#_ENREF_63)) ([Wang et al., 2009](#_ENREF_84)) | **Yes**. ([Carrière et al., 2011](#_ENREF_19); [C. M. Chen et al., 2012](#_ENREF_22); [Drewes et al., 2011](#_ENREF_30))**No**. ([Carrière et al., 2011](#_ENREF_19); [Kelley-Moore & Ferraro, 2005](#_ENREF_42); [L. W. Li & Conwell, 2009](#_ENREF_52); [Yu et al., 2015](#_ENREF_88)) | 25 | Community: 18Nursing Home: 4Mix: 3 |
| Diabetes, unspecified type | **Yes**. ([Cigolle et al., 2007](#_ENREF_26); [Groll et al., 2005](#_ENREF_40); [Piernik-Yoder & Ketchum, 2013](#_ENREF_64); [Rosso et al., 2011](#_ENREF_69); [Sousa et al., 2009](#_ENREF_74); [Tooth et al., 2008](#_ENREF_83))**No**. ([Fried et al., 1999](#_ENREF_34); [C. L. Li et al., 2013](#_ENREF_50)) | **Yes**. ([Clark et al., 2012](#_ENREF_28); [Fultz et al., 2003](#_ENREF_36); [Latham, 2012](#_ENREF_48); [Spiers et al., 2005](#_ENREF_76); [Stineman et al., 2013](#_ENREF_78)) | **No**. ([Banaszak-Holl et al., 2011](#_ENREF_2)) | 14 | Community: 9 Nursing Home: 1Mix: 4 |
| Diabetes mellitus | **Yes**. ([Marventano et al., 2014](#_ENREF_57); [Quinones et al., 2014](#_ENREF_65); [Smith et al., 2013](#_ENREF_73))**No.** ([Sjölund et al., 2010](#_ENREF_72)) | **Yes.** ([Gill et al., 2004](#_ENREF_38))**No**. ([Lee & Rantz, 2008](#_ENREF_49); [Wolff et al., 2005](#_ENREF_85)) | **No**. ([Drewes et al., 2011](#_ENREF_30)) | 8 | Community: 6Nursing Home: 1Mix: 1 |
| Endocrinopathy | . | **Yes.(**[Burge et al., 2013](#_ENREF_15)) | . | 1 | Nursing Home: 1 |
| Hypertension | **Yes.** ([Smith et al., 2013](#_ENREF_73); [Tooth et al., 2008](#_ENREF_83))**No.** ([Fried et al., 1999](#_ENREF_34); [Marventano et al., 2014](#_ENREF_57); [Sousa et al., 2009](#_ENREF_74)) | **Yes.** ([Spiers et al., 2005](#_ENREF_76))**No**. ([Gill et al., 2004](#_ENREF_38); [Latham, 2012](#_ENREF_48); [Wolff et al., 2005](#_ENREF_85)) | . | 9 | Community: 8Mix: 1 |
| Kidney disease | **Yes.**([Laan et al., 2013](#_ENREF_46))**No.**([Laan et al., 2013](#_ENREF_46)) | **Yes**. ([Bowling, Sawyer, Campbell, Ahmed, & Allman, 2011](#_ENREF_10); [Lee & Rantz, 2008](#_ENREF_49)) | . | 3 | Community: 2Nursing Home: 1 |
| Limb paralysis or amputation | **Yes**.([Sousa et al., 2009](#_ENREF_74)) | . | . | 1 | Community: 1 |
| Lung disease, unspecified type | **Yes**. ([Cigolle et al., 2007](#_ENREF_26); [Fried et al., 1999](#_ENREF_34); [Groll et al., 2005](#_ENREF_40); [Smith et al., 2013](#_ENREF_73))**No**. ([Marventano et al., 2014](#_ENREF_57)) | **Yes**. ([Clark et al., 2012](#_ENREF_28); [Latham, 2012](#_ENREF_48))**No**. ([Burge et al., 2013](#_ENREF_15); [Gill et al., 2004](#_ENREF_38)) | . | 9 | Community: 7Nursing Home: 1Mix: 1 |
| Musculoskeletal disease, unspecified type | **Yes**. ([Cigolle et al., 2007](#_ENREF_26)) | **No**. ([Burge et al., 2013](#_ENREF_15)) | . | 2 | Nursing Home: 1Mix: 1 |
| Myocardial infarction | **Yes**. ([Groll et al., 2005](#_ENREF_40))**No**. ([Sousa et al., 2009](#_ENREF_74)) | **Yes**. ([Gill et al., 2004](#_ENREF_38)) | **Yes.** ([Drewes et al., 2011](#_ENREF_30)) | 4 | Community: 4 |
| Neuropathy, unspecified type | **Yes**. ([Groll et al., 2005](#_ENREF_40)) | **Yes**. ([Lee & Rantz, 2008](#_ENREF_49)) | . | 2 | Community: 1Nursing Home: 1 |
| Osteoporosis | **Yes.** ([Groll et al., 2005](#_ENREF_40); [Tooth et al., 2008](#_ENREF_83)) | **Yes**. ([Rosso et al., 2013](#_ENREF_70))**No**. ([Stineman et al., 2013](#_ENREF_78); [Wolff et al., 2005](#_ENREF_85)) | . | 5 | Community: 4Mix: 1 |
| Parkinson’s disease | **Yes**. ([Groll et al., 2005](#_ENREF_40); [L. W. Li, 2005](#_ENREF_51); [Marventano et al., 2014](#_ENREF_57); [Sjölund et al., 2010](#_ENREF_72)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Chu et al., 2006](#_ENREF_25); [Spiers et al., 2005](#_ENREF_76); [Wolff et al., 2005](#_ENREF_85); [Yeh et al., 2014](#_ENREF_87)) | **No**. ([Drewes et al., 2011](#_ENREF_30)) | 10 | Community: 6Nursing Home: 2 Mix: 2 |
| Peripheral vascular disease | **Yes**. ([Groll et al., 2005](#_ENREF_40)) | **Yes**. ([Buttar et al., 2001](#_ENREF_16))**No**. ([Spiers et al., 2005](#_ENREF_76)) | . | 3 | Community: 1Nursing Home: 1Mix: 1 |
| Psychiatric conditions, unspecified type | **Yes**. ([Cigolle et al., 2007](#_ENREF_26); [Laan et al., 2013](#_ENREF_46))**No.**([Laan et al., 2013](#_ENREF_46)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Latham, 2012](#_ENREF_48); [Wolff et al., 2005](#_ENREF_85))**No.** ([Spalter et al., 2014](#_ENREF_75)) | . | 6 | Community: 4Nursing Home: 1Mix: 1 |
| Seizure disorders | **Yes**. ([Buttar et al., 2001](#_ENREF_16)) | . | . | 1 | Nursing Home:1  |
| Skin disorders, unspecified type | **Yes**. ([Sousa et al., 2009](#_ENREF_74)) | . | . | 1 | Community: 1 |
| Stroke | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Cigolle et al., 2007](#_ENREF_26); [Fried et al., 1999](#_ENREF_34); [Groll et al., 2005](#_ENREF_40); [L. W. Li, 2005](#_ENREF_51); [Sjölund et al., 2010](#_ENREF_72); [Smith et al., 2013](#_ENREF_73); [Sousa et al., 2009](#_ENREF_74); [Tooth et al., 2008](#_ENREF_83))**No**. ([Laan et al., 2013](#_ENREF_46); [K. M. C. Talley et al., 2014](#_ENREF_80)) | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [L. Y. Chen et al., 2013](#_ENREF_23); [Clark et al., 2012](#_ENREF_28); [Fultz et al., 2003](#_ENREF_36); [Gill et al., 2004](#_ENREF_38); [Kurella Tamura et al., 2009](#_ENREF_45); [Latham, 2012](#_ENREF_48); [Lee & Rantz, 2008](#_ENREF_49); [Spiers et al., 2005](#_ENREF_76); [Stineman et al., 2013](#_ENREF_78); [Wolff et al., 2005](#_ENREF_85))**No**. ([Burge et al., 2013](#_ENREF_15)) | **Yes.** ([Drewes et al., 2011](#_ENREF_30))**No.** ([Banaszak-Holl et al., 2011](#_ENREF_2)) | 24 | Community: 13Nursing Home: 7Mix: 4 |

Supplementary Table 3

*Impairments Associated with Disability and Disablement in Older Adults*

| **Impairment** | **Associated with disability** | **Associated with disablement (pre-post?)** | **Associated with disablement** **(3+ time points)** | **Number of studies** | **Proportion of cited studies by setting** |
| --- | --- | --- | --- | --- | --- |
| Higher number of geriatric syndromes | **Yes**. ([Cigolle et al., 2007](#_ENREF_26); [C. L. Li et al., 2013](#_ENREF_50); [Rosso et al., 2011](#_ENREF_69)) | **Yes**. ([L. Y. Chen et al., 2013](#_ENREF_23); [Rosso et al., 2013](#_ENREF_70)) | **Yes**. ([K. M. Talley et al., 2015](#_ENREF_79)) | 6 | Community: 3Nursing Home: 2Mix: 1 |
| BMI, overweight (BMI >25) or obese (BMI >30) | **Yes**. ([Groll et al., 2005](#_ENREF_40); [Ritchie et al., 2008](#_ENREF_68)) | **Yes.** ([Latham, 2012](#_ENREF_48); [Wolff et al., 2005](#_ENREF_85))**No**. ([Burge et al., 2013](#_ENREF_15); [L. Y. Chen et al., 2013](#_ENREF_23); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Wolinsky et al., 2011](#_ENREF_86); [Yeh et al., 2014](#_ENREF_87)) | **No**. ([Ritchie et al., 2008](#_ENREF_68)) | 9 | Community: 6Nursing Home: 3 |
| BMI, underweight (<19) | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Peng et al., 2014](#_ENREF_62))**No**. ([Ritchie et al., 2008](#_ENREF_68)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Clark et al., 2012](#_ENREF_28); [Wolff et al., 2005](#_ENREF_85))**No**. ([Latham, 2012](#_ENREF_48); [Wolinsky et al., 2011](#_ENREF_86)) | **Yes**. ([Mendes De Leon & Rajan, 2014](#_ENREF_59); [Rajan et al., 2012](#_ENREF_66))**No**. ([Ritchie et al., 2008](#_ENREF_68)) | 10 | Community: 7Nursing Home: 2Hospitalized: 1 |
| Balance impairment | **Yes**. ([Buttar et al., 2001](#_ENREF_16)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Wang et al., 2009](#_ENREF_84)) | . | 3 | Nursing Home: 3 |
| Bladder incontinence | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [L. W. Li, 2005](#_ENREF_51); [K. M. C. Talley et al., 2014](#_ENREF_80); [Tooth et al., 2008](#_ENREF_83)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Buttar et al., 2001](#_ENREF_16); [Caljouw et al., 2014](#_ENREF_17); [Landi et al., 2006](#_ENREF_47); [Lee & Rantz, 2008](#_ENREF_49))**No**. ([Rosso et al., 2013](#_ENREF_70)) | . | 9 | Community: 4Nursing Home: 5 |
| Bowel incontinence | **Yes.** ([L. W. Li, 2005](#_ENREF_51); [K. M. C. Talley et al., 2014](#_ENREF_80)) | **Yes**. ([Burge et al., 2013](#_ENREF_15)) | . | 3 | Community: 1Nursing Home: 2 |
| Cognitive impairment | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Kruse et al., 2013](#_ENREF_44); [L. W. Li, 2005](#_ENREF_51); [Sjölund et al., 2010](#_ENREF_72); [Smith et al., 2013](#_ENREF_73); [Tinetti et al., 2011](#_ENREF_82))**No**. ([Park et al., 2008](#_ENREF_61)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Buttar et al., 2001](#_ENREF_16); [Chaudhry et al., 2011](#_ENREF_20); [Clark et al., 2012](#_ENREF_28); [Fultz et al., 2003](#_ENREF_36); [Lee & Rantz, 2008](#_ENREF_49); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Phillips et al., 2007](#_ENREF_63)) ([Landi et al., 2006](#_ENREF_47); [Rist et al., 2014](#_ENREF_67); [Spalter et al., 2014](#_ENREF_75); [Spiers et al., 2005](#_ENREF_76); [Stineman et al., 2013](#_ENREF_78); [Wang et al., 2009](#_ENREF_84); [Yeh et al., 2014](#_ENREF_87))**No**. ([Boyd et al., 2009](#_ENREF_12)) | **Yes**. ([Banaszak-Holl et al., 2011](#_ENREF_2); [Drewes et al., 2011](#_ENREF_30); [Kruse et al., 2013](#_ENREF_44); [L. W. Li & Conwell, 2009](#_ENREF_52); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Park et al., 2008](#_ENREF_61); [Rajan et al., 2012](#_ENREF_66); [K. M. Talley et al., 2015](#_ENREF_79))**No**. ([Banaszak-Holl et al., 2011](#_ENREF_2)) | 27 | Community: 15 Nursing Home: 9 Mix: 3 |
| Decreased alertness | . | **Yes**.([Buttar et al., 2001](#_ENREF_16)) | . | 1 | Nursing Home: 1 |
| Dizziness | . | **Yes**. ([Rosso et al., 2013](#_ENREF_70)) | . | 1 | Community: 1 |
| Fainting or blackouts. | **Yes**. ([Sousa et al., 2009](#_ENREF_74)) | . | . | 1 | Community: 1  |
| Frailty  | . | **Yes**. ([Abizanda et al., 2014](#_ENREF_1); [Boyd et al., 2009](#_ENREF_12); [Gill, Allore, Gahbauer, & Murphy, 2010](#_ENREF_37); [Gill et al., 2004](#_ENREF_38)) | **Yes**. ([K. M. Talley et al., 2015](#_ENREF_79)) | 5 | Community: 3Nursing Home: 1Mix: 1 |
| Gastrointestinal impairment, unspecified type | **Yes**. ([Groll et al., 2005](#_ENREF_40); [Sousa et al., 2009](#_ENREF_74))**No**. ([Marventano et al., 2014](#_ENREF_57)) | . | . | 3 | Community: 3 |
| Hearing impairment | **Yes**. ([Fried et al., 1999](#_ENREF_34); [Groll et al., 2005](#_ENREF_40); [Marventano et al., 2014](#_ENREF_57); [Quinones et al., 2014](#_ENREF_65); [Sousa et al., 2009](#_ENREF_74); [K. M. C. Talley et al., 2014](#_ENREF_80)) ([Laan et al., 2013](#_ENREF_46); [Sjölund et al., 2010](#_ENREF_72))**No.**([Laan et al., 2013](#_ENREF_46); [Sjölund et al., 2010](#_ENREF_72)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Landi et al., 2006](#_ENREF_47))**No**. ([Rosso et al., 2013](#_ENREF_70); [Spiers et al., 2005](#_ENREF_76)) | **No**. ([Helvik et al., 2014](#_ENREF_41)) | 13 | Community: 8Nursing Home: 3Mix: 2 |
| Pain in chest | **Yes**. ([Tooth et al., 2008](#_ENREF_83)) | **.** | . | 1 | Community: 1 |
| Pain, chronic or severe | **Yes.** ([Groll et al., 2005](#_ENREF_40); [Mänty, Thinggaard, Christensen, & Avlund, 2014](#_ENREF_54)) | **Yes.** ([Lee & Rantz, 2008](#_ENREF_49); [Mänty et al., 2014](#_ENREF_54))**No**. ([Landi et al., 2006](#_ENREF_47); [Mänty et al., 2014](#_ENREF_54); [Wang et al., 2009](#_ENREF_84)) | **Yes**. ([K. M. Talley et al., 2015](#_ENREF_79)) | 6 | Community: 2Nursing Home: 3Mix: 1 |
| Pressure ulcers  | **Yes**. ([Buttar et al., 2001](#_ENREF_16)) | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Landi et al., 2006](#_ENREF_47); [Lee & Rantz, 2008](#_ENREF_49)) | . | 3 | Community: 1Nursing Home: 2 |
| Shortness of breath | . | **Yes**. ([Buttar et al., 2001](#_ENREF_16)) | . | 1 | Nursing Home: 1 |
| Visual impairment  | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Groll et al., 2005](#_ENREF_40); [Marventano et al., 2014](#_ENREF_57); [Sousa et al., 2009](#_ENREF_74)) ([Laan et al., 2013](#_ENREF_46); [L. W. Li, 2005](#_ENREF_51); [Sjölund et al., 2010](#_ENREF_72); [K. M. C. Talley et al., 2014](#_ENREF_80))**No**. ([Fried et al., 1999](#_ENREF_34); [Laan et al., 2013](#_ENREF_46); [Sjölund et al., 2010](#_ENREF_72)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Rosso et al., 2013](#_ENREF_70); [Spiers et al., 2005](#_ENREF_76))**No**. ([Landi et al., 2006](#_ENREF_47)) | **Yes**. ([Helvik et al., 2014](#_ENREF_41)) | 14 | Community: 8Nursing Home: 4Mix: 2 |
| Weight loss/malnutrition | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Peng et al., 2014](#_ENREF_62); [Quinones et al., 2014](#_ENREF_65); [Ritchie et al., 2008](#_ENREF_68))**No.** ([Ritchie et al., 2008](#_ENREF_68)) | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Lee & Rantz, 2008](#_ENREF_49))**No. (**[Gopinath, Russell, Flood, Burlutsky, & Mitchell, 2014](#_ENREF_39)) | **Yes.** ([Ritchie et al., 2008](#_ENREF_68))**No.** ([Ritchie et al., 2008](#_ENREF_68)) | 6 | Community: 3Nursing Home: 2Hospitalized: 1 |

Supplementary Table 4

*Functional Limitations Associated with Disability and Disablement in Older Adults*

| **Functional Limitation** | **Associated with disability** | **Associated with disablement (pre-post?)** | **Associated with disablement** **(3+ time points)** | **Number of studies** | **Proportion of cited studies by setting** |
| --- | --- | --- | --- | --- | --- |
| Lower physical functioning (combined measure of timed walk, chair stand and tandem stand) | **Yes**. ([K. M. C. Talley et al., 2014](#_ENREF_80)) | **Yes**. ([Mendes De Leon & Rajan, 2014](#_ENREF_59))**No**. ([Stel et al., 2004](#_ENREF_77)) | **Yes**. ([Mendes De Leon & Rajan, 2014](#_ENREF_59); [Rajan et al., 2012](#_ENREF_66)) | 4 | Community: 3Nursing Home: 1 |
| Difficulty lifting 10 pounds | . | **Yes**. ([Clark et al., 2012](#_ENREF_28)) | . | 1 | Community: 1 |
| Difficulty walking several blocks  | . | **Yes**. ([Clark et al., 2012](#_ENREF_28)) | . | 1 | Community: 1 |
| Slowed gait speed | . | **Yes.** ([Chaudhry et al., 2011](#_ENREF_20); [Chu et al., 2006](#_ENREF_25)) | . | 2 | Community: 2 |

Supplementary Table 5

*Intra-Individual Factors Associated with Disability and Disablement in Older Adults*

| **Intra-Individual Factor** | **Associated with disability** | **Associated with disablement (pre-post?)** | **Associated with disablement** **(3+ time points)** | **Number of studies** | **Proportion of cited studies by setting** |
| --- | --- | --- | --- | --- | --- |
| **Demographic Characteristics** |  |  |  |  |  |
| Age, older | **Yes**. ([Laan et al., 2013](#_ENREF_46); [L. W. Li, 2005](#_ENREF_51); [Marventano et al., 2014](#_ENREF_57); [Park et al., 2008](#_ENREF_61); [Quinones et al., 2014](#_ENREF_65); [Smith et al., 2013](#_ENREF_73))**No**. ([Friedman et al., 2015](#_ENREF_35); [Kruse et al., 2013](#_ENREF_44)) | **Yes.** ([Boyd, Xue, Guralnik, & Fried, 2005](#_ENREF_13); [Burge et al., 2013](#_ENREF_15); [Buttar et al., 2001](#_ENREF_16); [Caljouw et al., 2014](#_ENREF_17); [L. Y. Chen et al., 2013](#_ENREF_23); [Chu et al., 2006](#_ENREF_25); [Clark et al., 2012](#_ENREF_28))([Boyd et al., 2008](#_ENREF_11); [Ferrucci et al., 1996](#_ENREF_32); [Finlayson et al., 2012](#_ENREF_33); [Fultz et al., 2003](#_ENREF_36); [Gill et al., 2004](#_ENREF_38); [Kurella Tamura et al., 2009](#_ENREF_45); [Latham, 2012](#_ENREF_48); [Marengoni et al., 2009](#_ENREF_56); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Phillips et al., 2007](#_ENREF_63); [Spiers et al., 2005](#_ENREF_76); [Stineman et al., 2013](#_ENREF_78); [Taylor, 2010](#_ENREF_81); [Wolff et al., 2005](#_ENREF_85))**No**. ([Barnes et al., 2013](#_ENREF_4); [Boyd et al., 2009](#_ENREF_12); [Chaudhry et al., 2011](#_ENREF_20)) ([Landi et al., 2006](#_ENREF_47); [Spalter et al., 2014](#_ENREF_75); [Stel et al., 2004](#_ENREF_77); [Wang et al., 2009](#_ENREF_84); [Yeh et al., 2014](#_ENREF_87)) | **Yes**. ([Banaszak-Holl et al., 2011](#_ENREF_2); [Covinsky et al., 2003](#_ENREF_29); [L. W. Li, 2005](#_ENREF_51); [Liang, Xu, Bennett, Ye, & Quinones, 2010](#_ENREF_53); [Park et al., 2008](#_ENREF_61); [Taylor, 2010](#_ENREF_81); [Yu et al., 2015](#_ENREF_88))**No**.([Banaszak-Holl et al., 2011](#_ENREF_2); [K. M. Talley et al., 2015](#_ENREF_79); [Taylor, 2010](#_ENREF_81)) | 42 | Community: 23 Nursing Home: 12Hospitalized: 3Mix: 4 |
| Age, younger | **Yes.** ([Peng et al., 2014](#_ENREF_62); [Piernik-Yoder & Ketchum, 2013](#_ENREF_64)) | **Yes**. ([Ciol et al., 2008](#_ENREF_27)) | **Yes.** ([Helvik et al., 2014](#_ENREF_41); [Mendes De Leon & Rajan, 2014](#_ENREF_59)) | 5 | Community: 2Nursing Home: 1Hospitalized: 1Mix: 1 |
| Education, fewer years | **Yes.** ([Friedman et al., 2015](#_ENREF_35); [Marventano et al., 2014](#_ENREF_57)) ([Koster et al., 2006](#_ENREF_43); [Smith et al., 2013](#_ENREF_73))**No**. ([Koster et al., 2006](#_ENREF_43); [Park et al., 2008](#_ENREF_61); [Peng et al., 2014](#_ENREF_62)) | **Yes**. ([Boyd et al., 2009](#_ENREF_12); [Latham, 2012](#_ENREF_48)) ([Taylor, 2010](#_ENREF_81); [Wolff et al., 2005](#_ENREF_85))**No**. ([Boyd et al., 2009](#_ENREF_12); [Fultz et al., 2003](#_ENREF_36); [Gill et al., 2004](#_ENREF_38); [Marengoni et al., 2009](#_ENREF_56); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Spalter et al., 2014](#_ENREF_75); [Spiers et al., 2005](#_ENREF_76); [Wang et al., 2009](#_ENREF_84)) | **Yes** ([Koster et al., 2006](#_ENREF_43); [Liang et al., 2010](#_ENREF_53); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Yu et al., 2015](#_ENREF_88))**No**. ([Banaszak-Holl et al., 2011](#_ENREF_2); [Helvik et al., 2014](#_ENREF_41); [Koster et al., 2006](#_ENREF_43); [Park et al., 2008](#_ENREF_61); [Rajan et al., 2012](#_ENREF_66); [Taylor, 2010](#_ENREF_81)) | 22 | Community: 15Nursing Home: 4Hospitalized: 1Mix: 2 |
| Education, more years | **.** | **Yes.** ([Stineman et al., 2013](#_ENREF_78)) | **.** | 1 | Mix: 1 |
| Ethnicity/race, minority | **Yes.** ([L. W. Li, 2005](#_ENREF_51))**No**. ([Friedman et al., 2015](#_ENREF_35); [Park et al., 2008](#_ENREF_61); [Smith et al., 2013](#_ENREF_73)) | **Yes**. ([Ciol et al., 2008](#_ENREF_27); [Fultz et al., 2003](#_ENREF_36); [Latham, 2012](#_ENREF_48); [Phillips et al., 2007](#_ENREF_63); [Spalter et al., 2014](#_ENREF_75); [Stineman et al., 2013](#_ENREF_78))**No**. ([Boyd et al., 2009](#_ENREF_12); [Chaudhry et al., 2011](#_ENREF_20); [Finlayson et al., 2012](#_ENREF_33); [Gill et al., 2004](#_ENREF_38); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Wang et al., 2009](#_ENREF_84))([Phillips et al., 2007](#_ENREF_63)) | **Yes**. ([L. W. Li, 2005](#_ENREF_51); [Liang et al., 2010](#_ENREF_53); [Park et al., 2008](#_ENREF_61))**No**. ([Mendes De Leon & Rajan, 2014](#_ENREF_59); [Rajan et al., 2012](#_ENREF_66)) | 18 | Community:14Nursing Home: 3Mix: 1 |
| Ethnicity/race, white | **Yes.** ([Piernik-Yoder & Ketchum, 2013](#_ENREF_64)) | **Yes**. ([Kurella Tamura et al., 2009](#_ENREF_45))**No.** ([Taylor, 2010](#_ENREF_81)) | **Yes**.([Taylor, 2010](#_ENREF_81)) | 3 | Community: 1Nursing Home: 1Mix: 1 |
| Married. | **Yes.** ([Smith et al., 2013](#_ENREF_73))**No**. ([Park et al., 2008](#_ENREF_61); [K. M. C. Talley et al., 2014](#_ENREF_80)) | **Yes**. ([Stineman et al., 2013](#_ENREF_78))**No**. ([Latham, 2012](#_ENREF_48)) | **Yes**. ([Banaszak-Holl et al., 2011](#_ENREF_2); [Helvik et al., 2014](#_ENREF_41))**No**. ([Banaszak-Holl et al., 2011](#_ENREF_2); [Park et al., 2008](#_ENREF_61)) | 7 | Community: 3Nursing Home: 3Mix: 1 |
| Sex, female  | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Friedman et al., 2015](#_ENREF_35); [Kruse et al., 2013](#_ENREF_44); [Park et al., 2008](#_ENREF_61); [Quinones et al., 2014](#_ENREF_65); [Smith et al., 2013](#_ENREF_73))**No**. ([Marventano et al., 2014](#_ENREF_57)) ([Peng et al., 2014](#_ENREF_62); [Piernik-Yoder & Ketchum, 2013](#_ENREF_64)) | **Yes**. ([Caljouw et al., 2014](#_ENREF_17); [Fultz et al., 2003](#_ENREF_36); [Phillips et al., 2007](#_ENREF_63); [Spiers et al., 2005](#_ENREF_76); [Stel et al., 2004](#_ENREF_77); [Taylor, 2010](#_ENREF_81))**No**. ([Abizanda et al., 2014](#_ENREF_1); [Barnes et al., 2013](#_ENREF_4); [Chaudhry et al., 2011](#_ENREF_20); [Ferrucci et al., 1996](#_ENREF_32); [Gill et al., 2004](#_ENREF_38); [Landi et al., 2006](#_ENREF_47); [Latham, 2012](#_ENREF_48); [Marengoni et al., 2009](#_ENREF_56); [Spalter et al., 2014](#_ENREF_75); [Wang et al., 2009](#_ENREF_84); [Wolff et al., 2005](#_ENREF_85)) | **Yes**. ([Liang et al., 2010](#_ENREF_53); [Taylor, 2010](#_ENREF_81))**No**. ([Helvik et al., 2014](#_ENREF_41); [Park et al., 2008](#_ENREF_61); [Taylor, 2010](#_ENREF_81); [Yu et al., 2015](#_ENREF_88)) | 29 | Community: 16Nursing Home: 6Hospitalized: 1Mix: 5 |
| Sex, male | . | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Ciol et al., 2008](#_ENREF_27))**No**. ([Finlayson et al., 2012](#_ENREF_33); [Mendes De Leon & Rajan, 2014](#_ENREF_59); [Stineman et al., 2013](#_ENREF_78)) | **Yes**. ([Mendes De Leon & Rajan, 2014](#_ENREF_59); [Rajan et al., 2012](#_ENREF_66))**No. (**[Banaszak-Holl et al., 2011](#_ENREF_2)) | 7 | Community: 3Nursing Home: 3Mix: 1 |
| **Lifestyle and Behavioral Factors** |  |  |  |  |  |
| Alcohol consumption, habitual  | **No**. ([Peng et al., 2014](#_ENREF_62)) | **No.** ([Rist et al., 2014](#_ENREF_67); [Wolinsky et al., 2011](#_ENREF_86)) | . | 3 | Community: 2Hospitalized: 1 |
| Alcohol consumption, low | . | **No**. ([Burge et al., 2013](#_ENREF_15)) | **No**. ([Yu et al., 2015](#_ENREF_88)) | 2 | Nursing Home: 1Mix: 1 |
| Period of restricted activity (bedrest) | . | **Yes**. ([Gill et al., 2010](#_ENREF_37); [Gill et al., 2004](#_ENREF_38)) | . | 2 | Community: 2 |
| Physical activity level, low | **Yes.** ([Friedman et al., 2015](#_ENREF_35)) | **Yes**. ([Burge et al., 2013](#_ENREF_15); [Latham, 2012](#_ENREF_48); [Rist et al., 2014](#_ENREF_67))**No.** ([Stel et al., 2004](#_ENREF_77)) | **No**. ([Yu et al., 2015](#_ENREF_88)) | 6 | Community: 4Nursing Home: 1Mix: 1 |
| Smoker, current or former | **Yes.** ([L. W. Li, 2005](#_ENREF_51))**No**. ([Friedman et al., 2015](#_ENREF_35); [Peng et al., 2014](#_ENREF_62)) | **Yes**. ([Latham, 2012](#_ENREF_48); [Spiers et al., 2005](#_ENREF_76))**No**. ([Rist et al., 2014](#_ENREF_67); [Wolinsky et al., 2011](#_ENREF_86)) | **No**. ([L. W. Li, 2005](#_ENREF_51); [Yu et al., 2015](#_ENREF_88)) | 8 | Community: 5Hospitalized: 1Mix: 2 |
| **Psychosocial Attributes** |  |  |  |  |  |
| Apathy | . | . | **Yes**. ([Helvik et al., 2014](#_ENREF_41)) | 1 | Nursing Home: 1 |
| Fear of falling | . | **Yes**. ([Chu et al., 2006](#_ENREF_25)) | . | 1 | Community: 1 |
| Home ownership | **Yes**. ([L. W. Li, 2005](#_ENREF_51)) | **.** | **No**. ([L. W. Li, 2005](#_ENREF_51)) | 1 | Community:1 |
| Income, low  | **Yes.** ([Bayliss et al., 2007](#_ENREF_5); [Park et al., 2008](#_ENREF_61); [Smith et al., 2013](#_ENREF_73))**No**. ([Koster et al., 2006](#_ENREF_43)) | **Yes**. ([Latham, 2012](#_ENREF_48); [Taylor, 2010](#_ENREF_81))**No**. ([Rist et al., 2014](#_ENREF_67); [Spalter et al., 2014](#_ENREF_75); [Taylor, 2010](#_ENREF_81)) | **Yes**.([Koster et al., 2006](#_ENREF_43); [Taylor, 2010](#_ENREF_81))**No.** ([Taylor, 2010](#_ENREF_81)) | 8 | Community: 8  |
| Income, adequate or high | **No**. ([Smith et al., 2013](#_ENREF_73)) | **.** | **Yes**. ([Park et al., 2008](#_ENREF_61)) | 2 | Community: 2 |
| Intrinsic religiousness, high  | **No**. ([Park et al., 2008](#_ENREF_61)) | . | **No**. ([Park et al., 2008](#_ENREF_61)) | 1 | Community: 1 |
| Optimism or mood, low | . | **Yes**.([Yeh et al., 2014](#_ENREF_87)) | **Yes**. ([K. M. Talley et al., 2015](#_ENREF_79)) |  | Nursing Home: 2 |
| Prayer, higher frequency | **No**. ([Park et al., 2008](#_ENREF_61)) | . | **No**. ([Park et al., 2008](#_ENREF_61)) | 1 | Community: 1 |
| Irregular or non-attendance at religious services. | **Yes**.([Park et al., 2008](#_ENREF_61)) | . | **No.** ([Park et al., 2008](#_ENREF_61)) | 1 | Community: 1 |
| Self-efficacy about functional improvement, low | **No**. ([L. W. Li, 2005](#_ENREF_51)) | . | **Yes**. ([L. W. Li, 2005](#_ENREF_51)) | 1 | Community: 1 |
| Self-rated health, low | **Yes**. ([K. M. C. Talley et al., 2014](#_ENREF_80)) | **Yes**. ([Bond, Dickinson, Matthews, Jagger, & Brayne, 2006](#_ENREF_7)) | . | 2 | Community: 1Nursing Home: 1 |
| Subjective social status, low | . | **Yes**. ([B. Chen, Covinsky, Cenzer, Adler, & Williams, 2012](#_ENREF_21)) | . | 1 | Community: 1 |
| DNR order on file | **Yes**. ([Buttar et al., 2001](#_ENREF_16)) | . | . | 1 | Nursing Home: 1 |
| **Nursing Home Resident Characteristics**  |  |  |  |  |  |
| Higher case-mix score at admission | . | **Yes.** ([Mor et al., 2011](#_ENREF_60)) | . | 1 | Nursing Home: 1 |
| Longer period of time since admission to nursing home | . | **Yes**. ([Burge et al., 2013](#_ENREF_15); [L. Y. Chen et al., 2013](#_ENREF_23)) | **Yes.** ([Dutcher et al., 2014](#_ENREF_31); [Helvik et al., 2014](#_ENREF_41))**No.** ([K. M. Talley et al., 2015](#_ENREF_79)) | 5 | Nursing Home: 1 |
| Lived with others prior to nursing home admission | **Yes**.([Buttar et al., 2001](#_ENREF_16)) | **Yes**. ([Buttar et al., 2001](#_ENREF_16); [Phillips et al., 2007](#_ENREF_63)) | . | 2 | Nursing Home: 1 |
| Resident pays privately for nursing home services | . | **Yes**.([Buttar et al., 2001](#_ENREF_16)) | . | 1 | Nursing Home: 1 |

Supplementary Table 6

*Frequency of Different Measures of Self-Care Disability across Study Populations*

|  |  |  |
| --- | --- | --- |
| **Self-Care Disability Measure Used** | **Study Population** |  |
| **Community-Dwelling** | **Nursing Home** | **Mix** | **Total** |
| RAI ADL-Long Form Scorea | 2 | 9 | 1 | 12 |
| RAI ADL-Hierarchya | 2 | 2 | 1 | 5 |
| Barthel | 6 | 0 | 2 | 8 |
| Care Dependence Score | 0 | 1 | 0 | 1 |
| Count of activities person dependent in | 34 | 4 | 4 | 42 |
| Functional Independence Measure | 0 | 0 | 1 | 1 |
| Groningen Activity Restriction Scale | 2 | 0 | 0 | 2 |
| Katz  | 4 | 1 | 3 | 8 |
| Physical self-maintenance scale | 0 | 1 | 0 | 1 |
| RAND HRS ADLS | 1 | 0 | 0 | 1 |
| RUG-III ADL Score | 0 | 2 | 0 | 2 |
| SF 36 Physical Subscale | 3 | 0 | 0 | 3 |
| Stanford Health Assessment Questionnaire Disability Index  | 1 | 0 | 0 | 1 |
| WHODAS 2.0 | 1 | 0 | 0 | 1 |
| **Total** | 56 | 20 | 12 | 88 |
| aThe components of these measures vary across populations. For example in community-dwelling older adults, they might be derived from the RAI-HC or the RAI-AC, whereas in nursing home residents they are derived from the RAI-MDS.  |

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