**Supplementary Table 5.** The association between sarcopenia and mortality in the included articles, stratified by population

| **Author, year (ref)** | **Sarcopenia definition** | **Model** | **EM** | **Effect size**  **(95% CI)** | **Adjustments** |
| --- | --- | --- | --- | --- | --- |
| **Community Dwelling** | |  |  |  |  |
| Yuki, 2017 [46] | AWGS | Model 2 | HR  HR | M: 1.86 (1.03, 3.37)  F: 1.03 (0.41, 2.60) | Age |
|  |  | Model 3 | HR  HR | M: 1.90 (1.04, 3.46)  F: 0.77 (0.29, 2.22) | M: age, BMI, leisure-time physical activity, caloric intake, alcohol intake status, current smoking and comorbidities  F: age, BMI, leisure-time physical activity, total caloric intake, number of comorbidities |
| Alexandre, 2014 [31] | EWGSOP | Model 1 | HR | 3.31 (2.36, 4.65) | Crude |
|  |  | Model 2 | HR | 1.72 (1.20, 2.47) | Age, sex, marital status, income, education, smoking, weekly alcohol intake, sedentary lifestyle, PAH, DM, lung disease, CVD, stroke, cancer, number of diseases, falls, hospitalization, MMSE, GDS, ADL, IADL |
| Arango-Lopera, 2013 [30] | EWGSOP | Model 2 | HR | 2.39 (1.05, 5.43) | Age, IHD, health self-perception, ADL |
| Bianchi, 2016 [35] | EWGSOP | Model 1 | HR | 4.28 (2.42, 7.59) | Crude |
|  |  | Model 2 | HR | 2.12 (1.05, 4.30) | Age, sex |
|  |  | Model 3 | HR | 1.88 (0.91, 3.91) | Age, sex, education, BMI, comorbidities, Hb |
| Brown, 2015 [36] | EWGSOP | Model 1 | HR | 2.03 (1.81, 2.28) | Crude |
|  |  | Model 2 | HR | 1.40 (1.25, 1.57) | Age, sex |
|  |  | Model 3 | HR | 1.29 (1.13, 1.47) | Age, sex, race, education, BMI, WC, smoking status, hypertension, DM, HLD, asthma, cancer, arthritis, heart attack, stroke, HF, hospitalization, self-rated health, HEI, albumin, CRP, glycated Hb, insulin (LT), glucose (LT), Cr, weekly bouts of walking |
| Kim, 2014 [32] | EWGSOP | Model 1 | HR  HR | M: 4.78 (1.99, 11.5) F: 1.13 (0.26, 4.90) | Crude |
|  |  | Model 2 | HR  HR | M: 4.63 (1.62, 13.3) F: 0.86 (0.18, 4.01) | Age, BMI |
|  |  | Model 3 | HR  HR | M: 3.89 (1.28, 11.7) F: 1.25 (0.26, 5.92) | Age, BMI, DM, hypertension, CVD, stroke, OA, physical activity score, MMSE |
|  | EWGSOP | Model 1 | HR  HR | M: 8.99 (4.09, 19.7) F: 0.90 (0.36, 2.23) | Crude |
|  |  | Model 2 | HR  HR | M: 6.21 (2.62, 14.7) F: 1.00 (0.35, 2.86) | Age, BMI |
|  |  | Model 3 | HR  HR | M: 6.89 (2.66, 17.8) F: 1.02 (0.34, 3.04) | Age, BMI, DM, Hypertension, CVD, stroke, OA, physical activity score, MMSE |
| Landi, 2016 [26] | EWGSOP | Model 1 | HR | 3.67 (1.94, 6.95) | Crude |
|  |  | Model 2 | HR | 2.91 (1.50, 5.67) | Age, sex |
|  |  | Model 3 | HR | 2.06 (1.01, 4.25) | Age, sex, ADL impairment, IADL impairment, cognitive impairment, BMI |
|  |  | Model 4 | HR | 2.15 (1.02, 4.54) | Age, sex, ADL, IADL impairment, cognitive impairment, BMI, CRP, IL-6 |
| Costanzo, 2020 [47] | EWGSOP2 | Model 1 | HR | 4.32 (1.93, 9.69) | Crude |
|  |  | Model 2 | HR | 2.30 (0.85, 6.18) | Age, sex |
|  |  | Model 3 | HR | 1.96 (0.63, 6.15) | Age, sex, BMI, marital status, education, comorbidities |
|  | EWGSOP2a | Model 1 | HR | 2.29 (1.28, 4.11) | Crude |
|  |  | Model 2 | HR | 1.74 (0.92, 3.30) | Age, sex |
|  |  | Model 3 | HR | 2.42 (1.21, 4.84) | Age, sex, BMI, marital status, education, comorbidities |
| Cawthon, 2015 [33] | FNIH | Model 2 | HR | 2.03 (1.51, 2.73) | Age |
|  | FNIH | Model 2 | HR | 3.49 (2.01, 6.05) | Age |
| de Buyser, 2016 [43] | FNIH | Model 2 | HR | 1.09 (0.61, 1.94) | Age |
|  | FNIH | Model 2 | HR | 1.72 (0.75, 3.97) | Age |
|  | FNIH | Model 2 | HR | 2.50 (1.30, 4.79) | Age |
|  | FNIH | Model 2 | HR | 1.87 (1.07, 3.26) | Age |
| Hirani, 2015 [42] | FNIH | Model 1 | HR | 3.26 (2.45, 4.33) | Crude |
|  |  | Model 2 | HR | 1.54 (1.17, 2.03) | Age |
|  |  | Model 3 | HR | 1.50 (1.08, 2.08) | Age, income, living status, BMI, comorbidities, dementia, ADL disability, low Hb, polypharmacy, low ALB |
|  | FNIH | Model 1 | HR | 4.15 (2.99, 5.75) |  |
|  |  | Model 2 | HR | 2.02 (1.43, 2.89) | Age |
|  |  | Model 3 | HR | 1.69 (1.17, 2.44) | Age, income, living status, BMI, comorbidities, dementia, ADL disability, low Hb, polypharmacy, low ALB |
| McLean, 2014 [41] | FNIH | Model 2 | HR  HR  HR  HR  HR  HR | M: 0.74 (0.24, 2.32)b  M: 2.88 (1.33, 6.22)c F: 1.32 (0.60, 2.93)c F: 2.04 (1.21, 3.45)d F: 1.12 (0.27, 4.68)e F: 1.99 (0.56, 7.08)f | Age |
|  | FNIH | Model 2 | HR  HR  HR  HR  HR  HR | M: 1.27 (0.65, 2.46)b M: 1.51 (0.61, 3.71)c F: 1.15 (0.28, 4.70)c F: 1.65 (0.52, 5.25)d F: 3.62 (0.49, 26.6)e F: 0.60 (0.08, 4.56)f | Age |
|  | FNIH | Model 2 | HR  HR  HR  HR  HR  HR | M: 1.07 (0.34, 3.33)b M: 2.27 (0.99, 5.22)c F: 0.84 (0.26, 2.71)c F: 2.04 (0.87, 4.75)d F: 1.19 (0.16, 8.87)e F: 1.36 (0.27, 6.76)f | Age |
|  | FNIH | Model 2 | HR  HR  HR  HR  HR | M: 1.80 (1.21, 2.68)b M: 0.93 (0.43, 2.01)c F: 1.15 (0.42, 3.15)c F: 1.74 (0.64, 4.75)d  F: 0.73 (0.17, 3.15)f | Age |
| Tang, 2018 [45] | FNIH | Model 1 | HR | 4.40 (1.55, 12.5) | Crude |
|  |  | Model 2 | HR | 3.44 (1.17, 10.1) | Age, sex |
|  |  | Model 3 | HR | 3.80 (1.26, 11.5) | Age, sex, CCI, MMSE, MNASF |
|  | FNIH | Model 1 | HR | 4.24 (1.49, 12.0) | Crude |
|  |  | Model 2 | HR | 3.18 (1.08, 9.39) | Age, sex |
|  |  | Model 3 | HR | 3.85 (1.25, 11.9) | Age, sex, CCI, MMSE, MNASF |
| Kim, 2016 [44] | AWGS | Model 1 | HR  HR | M: 2.83 (1.52, 5.27)  F: 0.87 (0.26, 2.94) | Crude |
|  |  | Model 2 | HR  HR | M: 1.83 (0.89, 3.79)  F: 0.98 (0.27, 3.50) | Age, BMI, SBP, fasting glucose, TC, Cr, alanine transaminase, free T4, CIRS |
|  |  | Model 3 | HR  HR | M: 1.45 (0.69, 3.07) F: 0.97 (0.22, 2.85) | Age, BMI, SBP, fasting glucose, TC, Cr, alanine transaminase, free T4, CIRS, smoking, alcohol, exercise |
|  | FNIH | Model 1 | HR  HR | M: 3.56 (1.90, 6.66) F: 1.21 (0.44, 3.31) | Crude |
|  |  | Model 2 | HR  HR | M: 3.03 (1.45, 6.34) F: 0.90 (0.28, 2.89) | Age, BMI, SBP, fasting glucose, TC, Cr, alanine transaminase, free T4, CIRS |
|  |  | Model 3 | HR  HR | M: 2.48 (1.16, 5.29) F: 0.89 (0.27, 2.85) | Age, BMI, SBP, fasting glucose, TC, Cr, alanine transaminase, free T4, CIRS, smoking, alcohol, exercise |
|  | FNIH | Model 1 | HR  HR | M: 5.12 (2.72, 9.66) F: 1.51 (0.55, 4.13) | Crude |
|  |  | Model 2 | HR  HR | M: 4.45 (2.12, 9.34) F: 1.0 (0.31, 3.25) | Age, BMI, SBP, fasting glucose, TC, Cr, alanine transaminase, free T4, CIRS |
|  |  | Model 3 | HR  HR | M: 3.83 (1.79, 8.22) F: 0.98 (0.30, 3.18) | Age, BMI, SBP, fasting glucose, TC, Cr, alanine transaminase, free T4, CIRS, smoking, alcohol, exercise |
| Bachettini, 2019 [40] | EWGSOP | Model 1 | HR | 2.52 (1.39, 4.58) | Crude |
|  |  | Model 2 | HR | 1.18 (0.53, 2.65) | Age, sex, marital status, working, smoking, physical activity at leisure, BMI, comorbidities, depressive symptoms |
|  | EWGSOP2 | Model 1 | HR | 3.76 (1.79, 7.92) | Crude |
|  |  | Model 2 | HR | 1.36 (0.52, 3.57) | Age, sex, marital status, working, smoking, physical activity at leisure, BMI, comorbidities, depressive symptoms |
|  | EWGSOP2a | Model 1 | HR | 1.77 (0.92, 3.39) | Crude |
|  |  | Model 2 | HR | 0.92 (0.42, 2.04) | Age, sex, marital status, working, smoking, physical activity at leisure, BMI, comorbidities, depressive symptoms |
| Sim, 2019 [38] | EWGSOP | Model 2 | HR  HR | 1.88 (1.24, 2.85)g 1.39 (1.06, 1.81)h | Age |
|  | EWGSOP | Model 2 | HR  HR | 2.52 (1.55, 4.09)g 1.94 (1.40, 2.69)h | Age |
|  | FNIH | Model 2 | HR  HR | 1.08 (0.56, 2.08)g 1.35 (0.93, 1.95)h | Age |
|  | FNIH | Model 2 | HR  HR | 1.03 (0.56, 1.89)g 1.09 (0.77, 1.56)h | Age |
| Sobestiansky, 2019 [39] | EWGSOP | Model 1 | HR | 1.97 (1.14, 3.39) | NA |
|  |  | Model 2 | HR | 1.90 (1.10, 3.28) | Age, CCI |
|  |  | Model 3 | HR | 1.95 (1.12, 3.40) | Age, CCI, education, smoking, MMSE |
|  | EWGSOP2 | Model 1 | HR | 1.50 (0.84, 2.65) | NA |
|  |  | Model 2 | HR | 1.55 (0.87, 2.75) | Age, CCI |
|  |  | Model 3 | HR | 1.70 (0.94, 3.05) | Age, CCI, education, smoking, MMSE |
|  | EWGSOP2a | Model 1 | HR | 3.82 (1.64, 8.87) | NA |
|  |  | Model 2 | HR | 3.17 (1.34, 7.49) | Age, CCI |
|  |  | Model 3 | HR | 3.26 (1.38, 7.70) | Age, CCI, education, smoking, MMSE |
|  | FNIH | Model 1 | HR | 1.96 (0.93, 4.13) | NA |
|  |  | Model 2 | HR | 1.62 (0.75, 3.50) | Age, CCI |
|  |  | Model 3 | HR | 1.65 (0.73, 3.72) | Age, CCI, education, smoking, MMSE |
| Locquet, 2019 [37] | AWGS | Model 1 | HR | 6.49 (2.63, 16.0) | NA |
|  |  | Model 2 | HR | 5.85 (2.47, 13.8) | Age, sex |
|  |  | Model 3 | HR | 4.43 (1.64, 12.0) | Age, sex, BMI, number of comorbidities, number of drugs, cognitive status, nutritional status |
|  | EWGSOP | Model 1 | HR | 4.20 (1.90, 2.29) | Crude |
|  |  | Model 2 | HR | 4.20 (1.74, 10.1) | Age, sex |
|  |  | Model 3 | HR | 2.93 (1.17, 7.35) | Age, sex, BMI, number of comorbidities, number of drugs, cognitive status, nutritional status |
|  | FNIH | Model 1 | HR | 2.86 (0.93, 8.87) | Crude |
|  |  | Model 2 | HR | 2.47 (0.68, 8.93) | Age, sex |
|  |  | Model 3 | HR | 2.35 (0.63, 8.78) | Age, sex, BMI, number of comorbidities, number of drugs, cognitive status, nutritional status |
|  | IWGS | Model 1 | HR | 3.26 (1.51, 7.03) | Crude |
|  |  | Model 2 | HR | 3.64 (1.66, 7.94) | Age, sex |
|  |  | Model 3 | HR | 2.94 (1.19, 7.25) | Age, sex, BMI, number of comorbidities, number of drugs, cognitive status, nutritional status |
| Woo, 2015 [34] | AWGS | Model 2 | OR  OR | M: 2.04 (1.45, 2.88) F: 1.91 (1.18, 3.09) | Age, education, COPD, DM, hypertension, CVD, current smoker, MMSE, depression |
|  | EWGSOP | Model 2 | OR  OR | M: 2.74 (1.95, 3.85) F: 1.55 (1.03, 2.32) | Age, education, COPD, DM, CVD, hypertension, current smoker, MMSE, depression |
|  | FNIH | Model 2 | OR  OR | M: 1.78 (1.23, 2.59) F: 1.63 (0.89, 2.99) | Age, education, COPD, DM, CVD, hypertension, current smoker, MMSE, depression |
|  | FNIH | Model 2 | OR  OR | M: 2.32 (1.23, 4.37)  F: 2.67 (1.16, 6.15) | Age, education, COPD, DM, CVD, hypertension, current smoker, MMSE, depression |
|  | IWGS | Model 2 | OR  OR | M: 1.26 (0.97, 1.63) F: 1.11 (0.81, 1.54) | Age, education, COPD, DM, CVD, hypertension, current smoker, MMSE, depression |
| **Outpatients** |  |  |  |  |  |
| Mori, 2019 [53] | AWGS | Model 2 | HR | 1.31 (0.81, 2.10) | Age, sex, duration of haemodialysis(y), BMI, DM, serum albumin, Kt/V, nPCR |
| Giglio, 2018 [48] | EWGSOP | Model 1 | HR | 2.02 (1.14, 3.57) | Crude |
|  |  | Model 2 | HR | 2.09 (1.05, 4.20) | Age, sex, dialysis vintage, DM |
| Olesen, 2019 [50] | EWGSOP | Model 1 | OR  HR | 7.07i 6.69 (1.79, 24.9) | Crude |
| Ren, 2016 [60] | EWGSOP | Model 1 | OR | 14.0i | Crude |
| Santos, 2019 [51] | EWGSOP | Model 1 | OR | 3.06i | Crude |
| Aliberti, 2019 [54] | FNIH | Model 1 | HR | 2.46 (1.63, 3.72) | Crude |
|  |  | Model 2 | HR | 1.94 (1.23, 3.05) | Age, sex, race, income |
|  |  | Model 3 | HR | 1.69 (1.05, 2.73) | Age, sex, race, income, CCI, depressive symptoms, cognitive impairment, unintentional weight loss |
| Kittiskulnam, 2017 [55] | FNIH | Model 1 | HR | 4.23 (2.11, 8.49) | Crude |
|  |  | Model 2 | HR | 2.61 (1.18, 5.73) | Age, sex, race |
|  |  | Model 3 | HR | 2.83 (1.27, 6.33) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure) |
|  |  | Model 4 | HR | 2.23 (0.99, 5.00) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure), serum albumin |
|  | FNIH | Model 1 | HR | 2.51 (1.46, 4.31) | Crude |
|  |  | Model 2 | HR | 1.60 (0.82, 3.10) | Age, sex, race |
|  |  | Model 3 | HR | 1.59 (0.82, 3.07) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure) |
|  |  | Model 4 | HR | 1.24 (0.63, 2.43) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure), serum albumin |
|  | FNIH | Model 1 | HR | 2.58 (1.58, 4.20) | Crude |
|  |  | Model 2 | HR | 1.77 (0.97, 3.32) | Age, sex, race |
|  |  | Model 3 | HR | 1.83 (1.00, 3.33) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure) |
|  |  | Model 4 | HR | 1.53 (0.84, 2.78) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure), serum albumin |
|  | FNIH | Model 1 | HR | 2.46 (1.48, 4.09) | Crude |
|  |  | Model 2 | HR | 1.69 (0.91, 3.14) | Age, sex, race |
|  |  | Model 3 | HR | 1.72 (0.92, 3.20) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure) |
|  |  | Model 4 | HR | 1.65 (0.88, 3.08) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure), serum albumin |
|  | FNIH | Model 1 | HR | 4.86 (2.42, 9.76) | Crude |
|  |  | Model 2 | HR | 3.23 (1.52, 6.85) | Age, sex, race |
|  |  | Model 3 | HR | 3.31 (1.54, 7.12) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure) |
|  |  | Model 4 | HR | 2.92 (1.33, 6.41) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure), serum albumin |
|  | FNIH | Model 1 | HR | 2.67 (1.61, 4.40) | Crude |
|  |  | Model 2 | HR | 1.94 (1.09, 3.45) | Age, sex, race |
|  |  | Model 3 | HR | 1.85 (1.03, 3.31) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure) |
|  |  | Model 4 | HR | 1.56 (0.85, 2.83) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure), serum albumin |
|  | FNIH | Model 1 | HR | 2.63 (1.59, 4.33) | Crude |
|  |  | Model 2 | HR | 1.84 (1.04, 3.27) | Age, sex, race |
|  |  | Model 3 | HR | 1.79 (1.01, 3.17) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure) |
|  |  | Model 4 | HR | 1.46 (0.83, 2.58) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure), serum albumin |
|  | FNIH | Model 1 | HR | 3.35 (2.05, 5.45) | Crude |
|  |  | Model 2 | HR | 2.62 (1.48, 4.66) | Age, sex, race |
|  |  | Model 3 | HR | 2.55 (1.43, 4.54) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure) |
|  |  | Model 4 | HR | 2.51 (1.41, 4.66) | Age, sex, race, comorbidities (DM, CAD, congestive heart failure), serum albumin |
| Lin, 2019 [49] | AWGS | Model 2 | HR | 1.94 (0.70, 5.42) | Age, sex |
|  | EWGSOP | Model 2 | HR | 1.82 (0.75, 4.46) | Age, sex |
| **Inpatients** |  |  |  |  |  |
| Harimoto, 2017 [71] | AWGS | Model 1 | OR | 4.00i | Crude |
|  |  | Model 2 | OR | 4.02 (1.19, 13.5) | Recipient age, donor age, recipient sex, recipient status (hospitalized/home), BMI, diabetes mellitus, MELD score, HCC/non-HCC, major vessel sunt, GV/SLV, portal vein pressure at laparotomy, low skeletal muscle area |
| Hu, 2017 [72] | AWGS | Model 1 | HR  HR | 4.25 (2.22, 8.12)j  1.66 (0.48, 5.72)k  4.78 (2.09, 11.0)l | Crude |
| Kaido, 2017 [73] | AWGS | Model 1 | OR | 13.1a | Crude |
| Yang, 2017 [74] | AWGS | Model 1 | HR | 2.67 (1.55, 4.60) | Crude |
|  |  | Model 2 | HR | 2.26 (1.29, 3.95) | Age, sex |
|  |  | Model 3 | HR | 2.33 (1.32, 4.12) | Age, sex, hypertension |
|  |  | Model 4 | HR | 2.49 (1.25, 4.95) | Age, sex, hypertension, nutrition status, BMI, CC |
| Yoo, 2018 [75] | AWGS | Model 2 | HR | 1.84 (0.69, 4.92)m | Age, sex, BMI, Koval (≥ 4) |
| Zhang, 2019 [76] | AWGS | Model 1 | OR | 2.15i | Crude |
|  |  | Model 2 | HR | 0.41 (0.13, 1.33) | Age, sex, CCI |
| Atmis, 2019 [63] | EWGSOP | Model 1 | HR | 6.72 (3.36, 13.4) | Crude |
|  |  | Model 2 | HR | 6.41 (2.93, 14.4) | Age, sex, BMI, ADL |
|  |  | Model 3 | HR | 9.26 (3.69, 23.2) | Age, sex, BMI, ADL, comorbidities |
| Bayraktar, 2020 [69] | EWGSOP | Model 1 | OR | 3.22i | Crude |
| Beretta, 2020 [70] | EWGSOP | Model 1 | HR | 0.89 (0.54, 1.48) | Crude |
|  |  | Model 2 | HR | 1.34 (0.52, 3.49) | Age, sex |
|  |  | Model 3 | HR | 1.22 (0.45, 3.32) | Age, sex, BMI, IADL, presence of neoplasia, CCI >2 |
| Bernabeu-Wittel, 2019n [64] | EWGSOP | Model 2 | HR | 1.34 (0.94, 1.91) | Age, sex |
| Cerri, 2015 [59] | EWGSOP | Model 1 | OR | 8.56i | Crude |
| Gariballa, 2013 [56] | EWGSOP | Model 1 | OR | 3.46i | Crude |
| Isoyama, 2014 [57] | EWGSOP | Model 2 | HR | 2.94 (1.64, 5.27) | Age, sex |
|  |  | Model 3 | HR | 1.93 (1.01, 3.71) | Age, sex, DM, CVD, cholesterol, Hb, GFR, hsCRP |
| Perez-Zepeda, 2017 [61] | EWGSOP | Model 2 | HR | 2.23 (1.15, 4.34) | Age, sex, CCI |
| Pourhassan, 2018 [62] | EWGSOP | Model 1 | OR | 1.67i | Crude |
| Rustani, 2019 [65] | EWGSOP | Model 1 | OR | 4.58i | Crude |
| Sanchez-Rodriguez, 2019 [66] | EWGSOP | Model 1 | OR | 1.03 (0.63, 1.69) | Crude |
|  |  | Model 2 | OR | 0.85 (0.44, 1.63) | Age, sex, CCI > 2, unintentional, weight loss, malnutrition, overweight-obesity, nutrient deficiency, CC |
| Sanchez-Rodriguez, 2014 [24] | EWGSOP | Model 1 | OR | 2.20i | Crude |
| Teng, 2019 [67] | EWGSOP | Model 1 | OR | 0.87i | Crude |
| Vetrano, 2014 [58] | EWGSOP | Model 1 | HR | 2.12 (1.45, 3.10) | Crude |
|  |  | Model 2 | HR | 1.56 (1.10, 2.30) | Age, sex |
|  |  | Model 3 | HR | 1.59 (1.10, 2.41) | Age, sex, smoking habit, living alone, compromised ADL, BMI, infectious COPD, HF, dementia, cancer, CCI |
| Zengarini, 2019 [68] | EWGSOP | Model 1 | HR | 2.46 (1.20, 5.25) | Crude |
|  |  | Model 2 | HR | 2.02 (0.98, 4.14) | Age, sex |
|  |  | Model 3 | HR | 1.79 (0.87, 3.51) | Age, sex, dependency in > 1 BADL, depression, BMI < 20 kg/m2, history of falls, UI, delirium, length of stay number of: diagnoses and medications |
| Malafarina, 2019 [78] | EWGSOP2 | Model 2 | HR | 1.67 (1.11, 2.51) | Age, sex, dialysis centre |
| Bianchi, 2019 [77] | EWGSOP2 | Model 1 | HR | 2.24 (1.64, 3.07) | Crude |
|  |  | Model 2 | HR | 1.87 (1.35, 2.59) | Age, sex |
|  |  | Model 3 | HR | 1.84 (1.33, 2.57) | Age, sex, SPMSQ, severe ADL disability, CCI |
|  | FNIH | Model 1 | HR | 1.66 (1.20, 2.30) | Crude |
|  |  | Model 2 | HR | 1.54 (1.11, 2.15) | Age, sex |
|  |  | Model 3 | HR | 1.26 (0.89, 1.79) | Age, sex, SPMSQ, severe ADL disability, CCI |
| Sipers, 2019 [79] | EWGSOP | Model 1 | HR | 4.31 (2.09, 8.85) | Crude |
|  | FNIH | Model 1 | HR | 3.57 (1.90, 6.71) | Crude |
|  | IWGS | Model 1 | HR | 1.75 (0.81, 3.82) | Crude |
| **Nursing home residents** | |  |  |  |  |
| Buckinx, 2018 [84] | EWGSOP | Model 1 | OR | 2.36i | Crude |
|  |  | Model 2 | OR | 1.70 (1.10, 2.92) | Age, sex, arm circumference, general health perception, emotional role function, TI, SFI, living in nursing homes, TT, SPPB |
| Henwood, 2017 [82] | EWGSOP | Model 1 | OR | 1.32i | Crude |
| Landi, 2012 [80] | EWGSOP | Model 1 | HR | 3.87 (1.57, 9.54) | Crude |
|  |  | Model 2 | HR | 3.19 (1.17, 8.66) | Age, sex |
|  |  | Model 3 | HR | 2.44 (1.01, 5.99) | Age, sex, CBVD, OA, COPD |
|  |  | Model 4 | HR | 2.34 (1.04, 5.24) | Age, sex, CBVD, OA, COPD, ADL impairment, BMI |
| Saka, 2016 [81] | EWGSOP | Model 1 | OR | 2.97i | Crude |
| Yalcin, 2017 [83] | EWGSOP | Model 1 | HR | 3.69 (1.85, 7.33) | Crude |
|  |  | Model 2 | HR | 2.63 (1.22, 5.65) | Age, sex |
|  |  | Model 3 | HR | 2.96 (1.35, 6.50) | Age, sex, DM, COPD, dementia, CBVD, OA, ADL, MMSE, BMI |
|  |  | Model 4 | HR | 2.04 (0.85, 4.90) | Age, sex, DM COPD, dementia, CBVD, OA, ADL, MMSE, BMI, MNA score |

ADL: activities of daily living, AWGS: Asian Working Group for Sarcopenia, BMI: body mass index, CBVD: cerebrovascular disease, CC: cancer cachexia, Cr: creatinine, CRP: c-reactive protein, CVD: cardiovascular disease, DM: diabetes mellitus, EWGSOP: European Working Group on Sarcopenia in Older People 2010, EWGSOP2: European Working Group on Sarcopenia in Older People 2018, F: female, FNIH: Foundation for the National Institutes of Health, GDS: geriatric depression scale, Hb: hemoglobin, HEI: healthy eating index, HF: heart failure, HR: hazard ratio, IADL: instrumental activities of daily living, IHD: ischaemic heart disease, IWGS: International Working group for Sarcopenia, Kt/V: fractional urea clearance, LT: log transformed, M: male, MNASF: mini nutritional assessment short-form, MrOs: Men Study Sleep Study Ancillary Study, NA: not applicable, nPCR: normalized protein catabolic rate, NR: not reported, OA: osteoarthritis, OR: odds ratio, PAH: pulmonary arterial hypertension, SBP: systolic blood pressure, SFI: share frailty instrument, SPMSQ: short portable mental status questionnaire, TC: total cholesterol, TI: tilburg indicator, TT: tinetti test, UI: urinary incontinence, WC: waist circumference, y: year, aprobable sarcopenia, bMen Study Sleep Study Ancillary Study (MrOs), cHealth Aging and Body Composition Study (Health ABC), dStudy of Osteoporotic Fractures Original (SOF Whites), eStudy of Osteoporotic Fractures African American cohorts (SOF African American), fFramingham Study Offspring cohort (Framingham), g5 year follow up, h9.5 year follow up, icalculated by 2-by-2 table, jsarcopenia with a risk of malnutrition, ksarcopenia with normal nutrition, lmalnutrition-sarcopenia syndrome, mosteosarcopenia, narticle included outpatients and inpatients