**Supplemental Table 2. Nutrient validity results that were analyzed most frequently in the included studies, ordered chronologically.**

| **Reference** | **Correlation coefficients** | **Cholesterol** | | **SFA** | | **PUFA** | | **Fiber** | | **Vitamin C** | | **Calcium** | | **Iron** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **UA** | **Aa** | **UA** | **Aa** | **UA** | **Aa** | **UA** | **Aa** | **UA** | **Aa** | **UA** | **Aa** | **UA** | **Aa** |
| Willet et al. (1985)(42) | Pearsonb | 0.52 | 0.61 | 0.44 | 0.59 | 0.4 | 0.48 | 0.46 | 0.58 | 0.63 | 0.66 | ND | ND | ND | ND |
| Willet et al. (1987)(13) | Pearsonb | 0.67 | 0.38;  0.59c; 0.43d | 0.74 | 0.60; 0.58c;  0.62d | ND | ND | 0.44 | 0.61; 0.37c; 0.65d | 0.38 | 0.46; 0.34c; 0.49d | 0.63 | 0.55; 0.42c; 0.57d | 0.47 | 0.38;  0.28c; 0.40d |
| Tjønneland et al. (1991)(27) | Pearson | M: 0.41; W: 0.05 | M: 0.50;  W: 0.04 | M: 0.42; W: 0.26 | M: 0.46;  W: 0.39 | M: 0.53; W: 0.28 | M: 0.60; W: 0.31 | M: 0.29; W: 0.38 | M: 0.39;  W: 0.53 | M: 0.64; W: 0.45 | M: 0.64;  W: 0.51 | M: 0.56; W: 0.20 | M: 0.71;  W: 0.39 | M: 0.44;  W: 0.38 | M: 0.56; W: 0.48 |
| Rimm et al. (1992)(39) | Pearsonb | 0.62 | 0.67; D: 0.76 | 0.63 | 0.71; D: 0.75 | 0.33 | 0.29; D: 0.37 | 0.49 | 0.64; D: 0.68 | 0.64 | 0.68; D: 0.77 | 0.52 | 0.53; D: 0.60 | 0.28 | 0.28; D: 0.32 |
| Horwath (1993)(66) | Pearson | M: 0.55; W: 0.64 | ND | M: 0.74; W: 0.66 | ND | M: 0.52; W: 0.57 | ND | M: 0.67; W: 0.59 | ND | M: 0.58; W: 0.39 | ND | M: 0.75; W: 0.62 | ND | ND | ND |
| Longnecker et al. (1993)(51) | Pearsonb | 0.37; 0.41c | 0.42; 0.63c | 0.36; 0.40c | 0.38; 0.56c | 0.37; 0.29c | 0.28; 0.43c | 0.44; 0.37c | 0.44; 0.49c | 0.5; 0.43c | 0.5; 0.46c | 0.6; 0.57c | 0.57; 0.69c | 0.35; 0.43c | 0.42; 0.52c |
| Martín et al. (1993)(5) | Pearsonb | 0.55 | 0.53; D: 0.62 | 0.47 | 0.40; D: 0.53 | 0.45 | 0.37; D: 0.49 | 0.51 | 0.51; D: 0.54 | 0.63 | 0.56; D: 0.71 | ND | ND | ND | ND |
| Feskanich et al. (1994)(46) | Pearsonb | 0.34 | 0.39; D: 0.46 | 0.5 | 0.53; D: 0.60 | 0.16 | 0.18; D: 0.22 | 0.32 | 0.58; D: 0.65 | 0.53 | 0.65; D: 0.76 | 0.39 | 0.5; D: 0.60 | 0.08 | 0.1; D: 0.12 |
| Lee et al. (1994)(50) | Pearson | 0.51 | ND | 0.37 | ND | ND | ND | 0.28 | ND | 0.5 | ND | 0.66 | ND | ND | ND |
| Porrini et al. (1994)(21) | Spearman | 0.71 | ND | ND | ND | ND | ND | 0.45 | ND | 0.44; eB: 0.12 | ND | ND | ND | 0.74 | ND |
| Ramón et al. (1994)(22) | Pearsonb | 0.32; D: 0.44 | 0.35 | 0.41; D: 0.57 | 0.53 | 0.39; D: 0.49 | 0.41 | 0.23; D: 0.39 | 0.27 | 0.43; D: 0.38 | 0.48 | ND | ND | ND | ND |
| Rothenberg (1994)(25) | Pearson | ND | ND | ND | ND | ND | ND | 0.48 | ND | 0.53 | ND | 0.5 | ND | 0.5 | ND |
| Fidanza et al. (1995)(33) | Spearman | 0.59 | ND | ND | ND | ND | ND | 0.34 | ND | 0.33 | ND | 0.47 | ND | 0.59 | ND |
| Gnardellis et al. (1995)(12) | Personb,f,g | M: 0.63; W: 0.37 | D: M: 0.60; W: 0.28 | M: 0.52; W: 0.34 | D: M: 0.39; W: 0.64 | M: 0.39; W: 0.24 | D: M: 0.26; W: 0.37 | M: 0.18; W: 0.25 | D: M: 0.20; W: 0.19 | M: 0.30; W: 0.21 | D: M: 0.46; W: 0.17 | ND | ND | M: 0.31; W: 0.31; | D: M: 0.32 W: 0.29 |
| Grootenhuis et al. (1995)(36) | Pearson | M: 0.63; W: 0.37 | D: M: 0.60; W: 0.28 | M: 0.52; W: 0.34 | D: M: 0.39; W: 0.64 | M: 0.39 W: 0.24 | D: M: 0.26; W: 0.37 | M: 0.18 W: 0.25 | D: M: 0.20; W: 0.19 | M: 0.30 W: 0.21 | D: M: 0.46; W: 0.17 | ND | ND | M: 0.31; W: 0.31 | D: M: 0.32; W: 0.29 |
| Bonifacj et al. (1997)(30) | Pearsonb | 0.45 | 0.63; D: 0.52 | 0.27 | 0.42; D: 0.30 | 0.66 | 0.51; D: 0.70 | 0.36 | 0.54; D: 0.38 | 0.24 | 0.35; D: 0.28 | 0.29 | 0.58; D: 0.32 | 0.52 | 0.80; D: 0.59 |
| Friis et al. (1997)(35) | Pearsonb,f | 0.38 | 0.45; D: 0.64 | ND | ND | ND | ND | 0.59 | 0.65; D: 0.73 | 0.53 | 0.55; D: 0.68 | 0.54 | 0.56; D: 0.64 | 0.27 | 0.40; D: 0.59 |
| Kumanyika et al. (1997)(49) | Pearson | ND | D: 0.73c | ND | D: 0.72c | ND | ND | ND | D: 0.58 | ND | D: 0.24c | ND | D: 0.24c | ND | D: 0.24c |
| Ocké et al. (1997)(20) | Pearsonb | ND | ND | ND | ND | ND | ND | M: 0.51; D: 0.56. W: 0.67; D: 0.75 | M: 0.55; D: 0.61. W: 0.65; D: 0.74 | M: 0.39; D: 0.45. W: 0.58; D: 0.69 | M: 0.37; D: 0.43. W: 0.61; D: 0.71 | ND | ND | ND | ND |
| Hérnandez et al. (1998)(47) | Pearsonb,f | 0.5; D: 0.56 | 0.48 | 0.5; D: 0.71 | 0.67 | 0.43; D: 0.21 | 0.18 | 0.56; D: 0.40 | 0.60 | 0.41; D: 0.49 | 0.44 | 0.61; D: 0.60 | 0.55 | 0.39; D: 0.36 | 0.26 |
| Klipstein et al. (1998)(14) | ICC | 0.77 | ND | 0.64 | ND | 0.67 | ND | 0.67 | ND | 0.75 | ND | 0.79 | ND | 0.65 | ND |
| Pearson | 0.53 | 0.48d;  D: 0.59 | 0.49 | 0.39d;D: 0.52 | 0.57 | 0.52d; D: 0.62 | 0.64 | 0.59d; D: 0.62 | 0.68 | 0.64d; D: 0.70 | 0.73 | 0.70d; D: 0.72 | 0.67 | 0.42d; D: 0.44 |
| Smith et al. (1998)(67) | Pearson | 0.51 | 0.56 | 0.47 | 0.66 | 0.48 | 0.54 | 0.38 | 0.53 | 0.68 | 0.70 | 0.55 | 0.61 | 0.25 | 0.41 |
| Spearman | ND | 0.60 | ND | 0.66 | ND | 0.51 | ND | 0.57 | ND | 0.69 | ND | 0.61 | ND | 0.37 |
| Fregapane et al. (2000)(34) | Spearman | 0.55 | ND | 0.693 | ND | 0.305 | ND | 0.453 | ND | 0.312 | ND | 0.651 | ND | 0.475 | ND |
| ICC | 0.496 | ND | 0.584 | ND | 0.541 | ND | 0.575 | ND | 0.374 | ND | 0.68 | ND | 0.341 | ND |
| Jackson et al. (2001)(48) | Pearsonb | ND | ND | 0.35 | 0.33 | 0.27 | 0.28 | ND | ND | 0.3 | 0.31 | 0.43 | 0.4 | 0.46 | 0.39 |
| Schröder et al. (2001)(26) | Pearson | ND | ND | ND | ND | ND | ND | 0.33 | ND | 0.6 | ND | ND | ND | ND | ND |
| Spearman | ND | ND | ND | ND | ND | ND | 0.33 | ND | 0.48 | ND | ND | ND | ND | ND |
| Tokudome et al. (2001)(60) | Pearson | 0.55 | ND | 0.62 | ND | 0.43 | ND | 0.62 | ND | 0.42 | ND | 0.52 | ND | 0.44 | ND |
| Pearsonb | 0.60 | 0.55; D: 0.59 | 0.62 | 0.58; D: 0.62 | 0.42 | 0.26; D: 0.28 | 0.61 | 0.64; D: 0.65 | 0.40 | 0.40; D: 0.42 | 0.53 | 0.62; D: 0.64 | 0.48 | 0.53; D: 0.55 |
| Spearman | 0.54 | 0.44 | 0.63 | 0.59 | 0.36 | 0.26 | 0.57 | 0.63 | 0.36 | 0.31 | 0.55 | 0.64 | 0.50 | 0.52 |
| Rodriguez et al. (2002)(40) | Pearson | ND | ND | ND | ND | ND | ND | ND | ND | 0.12b; D: 0.22b | 0.11b; D: 0.29b | 0.52b; D: 0.67b | 0.43b; D: 0.84b | 0.38b; D: 0.45b | 0.21b; D: 0.38b |
| Masson et al. (2003)(16) | Pearsonb | ND | M: 0.53; W: 0.51 | ND | M: 0.55; W: 0.81 | ND | M: 0.08; W: 0.68 | ND | ND | ND | M: 0.64; W: 0.68 | ND | M: 0.52; W: 0.78 | ND | M: 0.63; W: 0.64 |
| Spearman | ND | M: 0.55; W: 0.39 | ND | M: 0.59; W: 0.71 | ND | M: -0.07; W: 0.58 | ND | ND | ND | M: 0.48; W: 0.59 | ND | M: 0.49; W: 0.75 | ND | M: 0.60;  W: 0.54 |
| Moreira et al. (1998)(17) | Pearson | M: 0.36; W: 0.21 | M: 0.32; W: 0.25b | M: 0.39; W: 0.51 | M: 0.61; W: 0.53b | M: 0.24; W: 0.47 | M: 0.25; W: 0.52b | M: 0.52; W: 0.69 | M: 0.46; W: 0.71b | M: 0.61; W: 0.45 | M: 0.52; W: 0.51b | M: 0.61; W: 0.60 | M: 0.53; W: 0.61b | M: 0.49; W: 0.33 | M: 0.43; W: 0.45b |
| Chen et al. (2004)(54) | Pearsonb | A: 0.14 | A: 0.14; D: 0.32 | 0.32 | A: 0.38; D: 0.76 | 0.16 | A: 0.26; D: 0.49 | A: 0.13; I: 0.19 | A: 0.17; D: 0.24. I: 0.18; D: 0.40 | A: 0.08; I: 0.06 | A: 0.05; D: 0.12 I: 0.02 | A: 0.19; I: 0.12 | A: 0.14; D: 0.23. I: 0.10; D: 0.17 | A: 0.14; I: 0.13 | A: 0.15; D: 0.28 I: 0.18; D: 0.34 |
| Ke et al. (2005)(57) | Pearson | 0.41 | 0.51 | 0.51 | 0.52 | 0.38 | 0.44 | 0.19 | 0.18 | 0.23 | 0.37 | 0.34 | 0.49 | 0.29 | 0.36 |
| Pearsonb | 0.49 | 0.56 | 0.63 | 0.61 | 0.48 | 0.58 | 0.17 | 0.20 | 0.57 | 0.60 | 0.52 | 0.63 | 0.31 | 0.33 |
| Spearman | 0.46 | 0.56 | 0.68 | 0.65 | 0.39 | 0.59 | 0.17 | 0.19 | 0.33 | 0.44 | 0.36 | 0.57 | 0.29 | 0.30 |
| Nath & Huffman (2005)(38) | Pearson | 0.2 | 0.12 | 0.67 | 0.35 | 0.71 | 0.48 | 0.18 | 0.14 | ND | ND | ND | ND | ND | ND |
| Roddam et al. (2005)(82) | Pearson | 0.59 | 0.34 | 0.5 | 0.56 | 0.18 | 0.27 | 0.56 | 0.62 | 0.61 | 0.61 | ND | ND | ND | ND |
| Shatenstein et al. (2005)(41) | Spearman | 0.52; M: 0.39; W: 0.57 | ND | 0.57; M: 0.43: W: 0.58 | ND | 0.45; M: 0.47; W: 0.42 | ND | 0.44; M: 0.56; W: 0.36 | ND | 0.37; M: 0.39; W: 0.37 | ND | 0.46; M: 0.39; W: 0.49 | ND | 0.47; M: 0.32; W: 0.40 | ND |
| Dumartheray et al. (2006)(31) | Pearson | ND | ND | ND | ND | ND | ND | 0.469; 0.512b | 0.589; 0.552b | 0.552; 0.555b | 0.504 0.441b | 0.377; 0.354b | 0.442; 0.423b | 0.492; 0.479b | 0.512; 0.496b |
| Sudha et al. (2006)(59) | Pearsonb | 0.23 | 0.53; D: 0.65 | 0.28 | 0.51; D: 057 | 0.24 | 0.51; D: 0.59 | 0.64 | 0.51; D: 0.57 | 0.54 | 0.29; D: 0.35 | 0.22 | 0.24; D: 0.27 | 0.62 | 0.35; D: 0.42 |
| Nöthlings et al. (2007)(19) | Pearson | 0.24h,i; 0.24h,j | 0.62h,i; 0.75h,j | 0.35h,i; 0.34h,j | 0.75h,i; 0.72h,j | 0.16h,i; 0.24h,j | 0.30h,i; 0.38h,j | 0.37h,i; 0.41h,j | 0.65h,i; 0.65h,j | 0.30h,i; 0.27h,j | 0.52h,i; 0.41h,j | 0.42h,i; 0.43h,j | 0.81h,i; 0.71h,j | 0.23h,i; 0.25h,j | 0.50h,i; 0.46h,j |
| Mullie et al. (2009)(18) | Pearsonb | ND | 0.24 | ND | 0.14 | ND | 0.33 | ND | 0.33 | ND | 0.35 | ND | 0.43 | ND | 0.02 |
| Barret & Gibson (2010)(64) | Spearman | ND | ND | ND | 0.44 | ND | 0.328 | ND | 0.585 | ND | 0.628 | ND | 0.562 | ND | 0.665 |
| Fernández et al. (2010)(32) | Pearson | 0.37 | 0.23 | 0.52 | 0.61 | 0.43 | 0.42 | 0.49 | 0.60 | 0.65 | 0.68 | ND | ND | ND | ND |
| ICC | 0.54 | 0.37 | 0.68 | 0.75 | 0.60 | 0.60 | 0.66 | 0.75 | 0.78 | 0.80 | ND | ND | ND | ND |
| Yang et al. (2010)(61) | Pearsonk | ND | 0.33-0.37l; D: 0.43-0.45l. 0.29-0.41ª,l | ND | ND | ND | ND | ND | 0.24-0.27l; D: 0.27-0.32l; 0.23-0.28ª,l | ND | 0.28-0.32l; D: 0.34-0.38l 0.18-0.23ª,l | ND | 0.23-0.26l; D: 0.28-0.32l;0.27-0.37ª,l | ND | 0.29-0.33l; D: 0.34-0.38l; 0.21-0.29a,l |
| van Dongen et al. (2011)(28) | Pearson | M: 0.29; W: 0.59 | ND | M: 0.21; W: 0.34 | ND | M: 0.41; W: 0.04 | ND | M: 0.76; W: 0.67 | ND | ND | ND | ND | ND | ND | ND |
| Bowen et al. (2012)(53) | Spearmanb | ND | ND | 0.57 | 0.52; D: 0.75 | ND | ND | 0.57 | 0.43; D: 0.72 | ND | ND | ND | ND | ND | ND |
| Dehghan et al. (2012)(37) | Pearsonb | U: 0.30; R: 0.30 | Dg: U: 0.50; R; 0.57 | U: 0.40; R: 0.40 | Dg: U: 0.52; R: ND | U: 0.25; R: 0.11 | Dg: U: 0.48; R: ND | U: 0.28; R: 0.46 | Dg: U: 0.33; R: 0.65 | U: 0.31; R: 0.26 | Dg: U: 0.41; R: 0.35 | U: 0.35; R: 0.46 | Dg: U: 0.49; R: 0.68 | U: 0.36; R: 0.37 | Dg: U: 0.62; R: 0.63 |
| Park et al. (2012)(58) | Spearman | ND | ND | ND | ND | ND | ND | ND | ND | 0.30;  M: 0.32; W: 0.29 | ND | 0.42;  M: 0.41; W: 0.45 | ND | 0.20;  M: 0.18; W: 0.20 | ND |
| Macedo et al. (2013)(52) | Pearsonb | 0.47 | 0.32 | 0.55 | 0.32 | 0.36 | 0.12 | 0.29 | 0.4 | 0.32 | 0.42 | 0.56 | 0.62 | 0.41 | 0.38 |
| ICCb | D: 0.64 | D: 0.49 | D: 0.71 | D: 0.49 | D: 0.52 | D: 0.21 | D: 0.44 | D: 0.58 | D: 0.49 | D: 0.6 | D: 0.7 | D: 0.77 | D: 0.57 | D: 0.61 |
| Babić et al. (2014)(24) | Pearsonb | 0.48 | 0.44i | 0.41 | 0.39i | 0.29 | 0.17i | 0.25 | 0.24i | 0.32 | 0.25i | 0.1 | 0.11i | 0.1 | 0.10i |
| Gunes et al. (2015)(70) | Pearsonb | 0.325; D: 340 | 0.249 j | ND | ND | 0.329; D: 0.368 | 0.192j | 0.365; D: 0.311 | 0.441j | 0.081; D: 0.138 | 0.017j | 0.283; D: 0.462 | 0.221j | 0.314  D: 0.460 | 0.305j |
| Denova et al. (2016)(45) | Pearsonb | 0.4 | 0.32; D: 0.50 | 0.49 | 0.52; D: 0.61 | 0.27 | 0.21; D: 0.36 | 0.35 | 0.35; D: 0.40 | 0.33 | 0.38; D: 0.43 | 0.42 | 0.40; D: 0.47 | 0.25 | 0.28;  D: 0.35 |
| Jayawardena et al. (2016)(56) | Pearson | 0.23 | ND | ND | ND | 0.37 | ND | 0.32 | ND | 0.21 | ND | 0.33 | ND | 0.25 | ND |
| Knudsen et al. (2016)(15) | Pearson | ND | ND | ND | 0.51; D: 0.61 | ND | 0.41; D: 0.49 | ND | 0.63; D: 0.70 | ND | 0.36; D: 0.44 | ND | 0.41; D: 0.45 | ND | 0.48; D: 0.58 |
| Gazan et al. (2017)(29) | Spearman | ND | ND | 0.86 | 0.86 | 0.88 | 0.88 | 0.87 | 0.77 | 0.86 | 0.85 | 0.84 | 0.77 | 0.78 | 0.59 |
| Sanjeevi et al. (2017)(44) | Pearsonm | 0.43, D: 0.48 | ND | 0.58, D: 0.63 | ND | 0.52, D: 0.57 | ND | 0.56, D: 0.62 | ND | 0.50, D: 0.55 | ND | 0.64, D: 0.68 | ND | 0.47, D: 0.50 | ND |
| Whitton et al. (2017)(62) | Pearsonb | ND | ND | 0.27n | 0.26n, D: 0.38 n | 0.16n | 0.15n, D: 0.31n | 0.51o | 0.47o, D: 0.56o | 0.31p | 0.32p, D: 0.43p | 0.34p | 0.32p, D: 0.57p | 0.43p | 0.41p, D: 0.64p |
| Yuan et al. (2017)(43) | Spearman (WR) | 0.50 | 0.42; 0.42q; D: 0.65 | 0.44 | 0.61; 0.62q; D: 0.69 | 0.28 | 0.47; 0.45q; D: 0.57 | 0.46 | 0.62; 0.64q; D: 0.66 | 0.49 | 0.52; 0.53q; D: 0.61 | 0.56 | 0.63; 0.61q; D: 0.68 | 0.35 | 0.48; 0.48q; D: 0.56 |
| Spearman (24HR) | 0.39 | 0.42; 0.42q; D: 0.68 | 0.44 | 0.54; 0.57q; D: 0.71 | 0.24 | 0.41; 0.40q; D: 0.70 | 0.41 | 0.51; 0.52q; D: 0.65 | 0.47 | 0.46; 0.46q; D: 0.62 | 0.48 | 0.55; 0.54q; D: 0.68 | 0.3 | 0.37; 0.39q; D: 0.55 |
| Bijani et al. (2018)(55) | Pearson | M: 0.25; W: 0.13 | ND | M: 0.44; W: 0.46 | ND | M: -0.10; W: -0.01 | ND | M: 0.25; W: 0.19 | ND | M: 0.26; W: 0.26 | ND | M: 0.25; W: 0.41 | ND | M: 0.15; W: 0.10 | ND |
| Zack et al. (2018)(69) | Rosner | 0.26 | 0.17, D: 0.26 | 0.18 | 0.04, D: 0.06 | 0.15 | 0.17, D: 0.26 | ND | ND | 0.11 | 0.12, D: 0.19 | 0.10 | 0.15, D: 0.26 | 0.04 | 0.18, D: 0.27 |
| Aoun et al. (2019)(63) | Spearman or Pearsone | ND | ND | 0.969 | 0.934 | 0.969 | 0.958 | 0.970 | 0.950 | 0.987 | 0.982 | ND | ND | 0.967 | 0.967 |
| Beck et al. (2019)(68) | Spearman | 0.48 | 0.48 | 0.59 | 0.61 | 0.43 | 0.53 | 0.24 | 0.43 | 0.49 | 0.56 | 0.49 | 0.65 | 0.11 | 0.33 |

SFA: saturated fatty acids; PFA: polyunsaturated fatty acids; UA: unadjusted; A: adjusted; ND: Not described; M: men; W: women; D: deattenuated; B: biochemical analyses; ICC: intraclass correlation coefficient; U: urban; R: rural; DR, diet record; 24HR, 24 hour-recall.

aAdjusted by energy; bWith logarithmic scale transformation; cAdjusted by sex and age; dAdjusted by energy-age-sex; ePearson’s correlation was used for variables with normal distributions and Spearman’s for non-parametrically distributed variables; fCoefficients from the second SFFQ are reported; gIt is not clear whether the deattenuated coefficient was for raw or energy-adjusted values; hMale and female subjects averaged; iFitted portion size; jPredefined portion size; kDisplayed as a range because CC is shown for each season of the year; lAdjusted by sex; mWith logarithmic scale transformation for some nutrients; nas percentage of energy; ograms per 1000 kcal; pmiligrams per 1000 kcal. qEnergy density method (divides the nutrient portion by total energy intake).

NOTE: Fayet et al. (2011) is not described in this table because they did not analyze any of these nutrients.