

Table S1 Top 100 cited paper in malnutrition

Rank	Title	TC
1	Black RE, Allen LH, Bhutta ZA, <i>et al.</i> Maternal and child undernutrition: global and regional exposures and health consequences. <i>Lancet</i> 2008;371:243-60	2,890
2	Black RE, Victora CG, Walker SP, <i>et al.</i> Maternal and child undernutrition and overweight in low-income and middle-income countries. <i>Lancet</i> 2013;382:427-51	2,851
3	Victora CG, Adair L, Fall C, <i>et al.</i> Maternal and child undernutrition: consequences for adult health and human capital. <i>Lancet</i> 2008;371:340-57	1,706
4	Stenvinkel P, Heimbürger O, Paulre F, <i>et al.</i> Strong association between malnutrition, inflammation, and atherosclerosis in chronic renal failure. <i>Kidney Int</i> 1999;55:1899-911	1,274
5	Bhutta ZA, Ahmed T, Black RE, <i>et al.</i> What works? Interventions for maternal and child undernutrition and survival. <i>Lancet</i> 2008;371:417-40	1,181
6	Winick M, Noble A. Cellular response in rats during malnutrition at various ages. <i>J Nutr</i> 1966;89:300-6	966
7	Correia MI, Waitzberg DL. The impact of malnutrition on morbidity, mortality, length of hospital stay and costs evaluated through a multivariate model analysis. <i>Clin Nutr</i> 2003;22:235-9	937
8	Rubenstein LZ, Harker JO, Salvà A, <i>et al.</i> Screening for undernutrition in geriatric practice: developing the short-form mini-nutritional assessment (MNA-SF). <i>J Gerontol A Biol Sci Med Sci</i> 2001;56:M366-72	888
9	McWhirter JP, Pennington CR. Incidence and recognition of malnutrition in hospital. <i>BMJ</i> 1994;308:945-8	872
10	Bistrian BR, Blackburn GL, Vitale J, <i>et al.</i> Prevalence of malnutrition in general medical patients. <i>JAMA</i> 1976;235:1567-70	746
11	Norman K, Pichard C, Lochs H, <i>et al.</i> Prognostic impact of disease-related malnutrition. <i>Clin Nutr</i> 2008;27:5-15	703
12	Zimmermann MB, Hurrell RF. Nutritional iron deficiency. <i>Lancet</i> 2007;370:511-20	688
13	Waterlow JC. Classification and definition of protein-calorie malnutrition. <i>Br Med J</i> 1972;3:566-9	667
14	Kalantar-Zadeh K, Ikizler TA, Block G, <i>et al.</i> Malnutrition-inflammation complex syndrome in dialysis patients: causes and consequences. <i>Am J Kidney Dis</i> 2003;42:864-81	606
15	Smythe PM, Breerton-Stiles GG, Grace HJ, <i>et al.</i> Thymolymphatic deficiency and depression of cell-mediated immunity in protein-calorie malnutrition. <i>Lancet</i> 1971;2:939-43	588
16	Cederholm T, Bosaeus I, Barazzoni R, <i>et al.</i> Diagnostic criteria for malnutrition - An ESPEN Consensus Statement. <i>Clin Nutr</i> 2015;34:335-40	580
17	Kwong WY, Wild AE, Roberts P, <i>et al.</i> Maternal undernutrition during the preimplantation period of rat development causes blastocyst abnormalities and programming of postnatal hypertension. <i>Development</i> 2000;127:4195-202	557
18	Guigoz Y, Lauque S, Vellas BJ. Identifying the elderly at risk for malnutrition. The Mini Nutritional Assessment. <i>Clin Geriatr Med</i> 2002;18:737-57	532
19	Caulfield LE, de Onis M, Blössner M, <i>et al.</i> Undernutrition as an underlying cause of child deaths associated with diarrhea, pneumonia, malaria, and measles. <i>Am J Clin Nutr</i> 2004;80:193-8	504
20	HERBERT V. Experimental nutritional folate deficiency in man. <i>Trans Assoc Am Physicians</i> 1962;75:307-20	503
21	Stratton RJ, Hackston A, Longmore D, <i>et al.</i> Malnutrition in hospital outpatients and inpatients: prevalence, concurrent validity and ease of use of the 'malnutrition universal screening tool' ('MUST') for adults. <i>Br J Nutr</i> 2004;92:799-808	499
22	Liu Y, Coresh J, Eustace JA, <i>et al.</i> Association between cholesterol level and mortality in dialysis patients: role of inflammation and malnutrition. <i>JAMA</i> 2004;291:451-9	485
23	WILSON PN, OSBOURN DF. Compensatory growth after undernutrition in mammals and birds. <i>Biol Rev Camb Philos Soc</i> 1960;35:324-63	478
24	Kaiser MJ, Bauer JM, Rämisch C, <i>et al.</i> Frequency of malnutrition in older adults: a multinational perspective using the mini nutritional assessment. <i>J Am Geriatr Soc</i> 2010;58:1734-8	478
25	Morgane PJ, Austin-LaFrance R, Bronzino J, <i>et al.</i> Prenatal malnutrition and development of the brain. <i>Neurosci Biobehav Rev</i> 1993;17:91-128	473
26	Alderman H, Hoddinott J, Kinsey B. Longtermconsequences of early childhood malnutrition. <i>Oxford Economic Papers</i> 2006;58:450-74	464
27	White JV, Guenter P, Jensen G, <i>et al.</i> Consensus statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). <i>JPEN J Parenter Enteral Nutr</i> 2012;36:275-83	447
28	Embleton NE, Pang N, Cooke RJ. Postnatal malnutrition and growth retardation: an inevitable consequence of current recommendations in preterm infants? <i>Pediatrics</i> 2001;107:270-3	444
29	Mullen JL, Gertner MH, Buzby GP, <i>et al.</i> Implications of malnutrition in the surgical patient. <i>Arch Surg</i> 1979;114:121-5	438
30	Hill GL, Blackett RL, Pickford I, <i>et al.</i> Malnutrition in surgical patients. An unrecognised problem. <i>Lancet</i> 1977;1:689-92	437
31	Qureshi AR, Alvestrand A, Danielsson A, <i>et al.</i> Factors predicting malnutrition in hemodialysis patients: a cross-sectional study. <i>Kidney Int</i> 1998;53:773-82	437
32	Wagstaff A, van Doorslaer E, Watanabe N. On decomposing the causes of healthsectorinequalities with an application to malnutritioninequalities in Vietnam. <i>Journal of Econometrics</i> 2003;112: 207-23	435
33	Hashimoto T, Perlot T, Rehman A, <i>et al.</i> ACE2 links amino acid malnutrition to microbial ecology and intestinal inflammation. <i>Nature</i> 2012;487:477-81	431
34	Müller O, Kravinkel M. Malnutrition and health in developing countries. <i>CMAJ</i> 2005;173:279-86.	425
35	Lim SL, Ong KC, Chan YH, <i>et al.</i> Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality. <i>Clin Nutr</i> 2012;31:345-50	410
36	Pelletier DL, Frongillo EA Jr, Schroeder DG, <i>et al.</i> The effects of malnutrition on child mortality in developing countries. <i>Bull World Health Organ</i> 1995;73:443-8	408
37	Pirlich M, Schütz T, Norman K, <i>et al.</i> The German hospital malnutrition study. <i>Clin Nutr</i> 2006;25:563-72	407
38	Schaible UE, Kaufmann SH. Malnutrition and infection: complex mechanisms and global impacts. <i>PLoS Med</i> 2007;4:e115	407
39	Ferguson M, Capra S, Bauer J, <i>et al.</i> Development of a valid and reliable malnutrition screening tool for adult acute hospital patients. <i>Nutrition</i> 1999;15:458-64	399
40	Milne AC, Potter J, Vivanti A, <i>et al.</i> Protein and energy supplementation in elderly people at risk from malnutrition. <i>Cochrane Database Syst Rev</i> 2009;(2):CD003288	399
41	Waitzberg DL, Caiaffa WT, Correia MI. Hospital malnutrition: the Brazilian national survey (IBRANUTRI): a study of 4000 patients. <i>Nutrition</i> 2001;17:573-80	393
42	Deitch EA, Winterton J, Li M, <i>et al.</i> The gut as a portal of entry for bacteremia. Role of protein malnutrition. <i>Ann Surg</i> 1987;205:681-92	380
43	Agrawal Y, Carey JP, Della Santina CC, <i>et al.</i> Disorders of balance and vestibular function in US adults: data from the National Health and Nutrition Examination Survey, 2001-2004. <i>Arch Intern Med</i> 2009;169:938-44	378
44	Castellano JM, Navarro VM, Fernández-Fernández R, <i>et al.</i> Changes in hypothalamic KISS-1 system and restoration of pubertal activation of the reproductive axis by kisspeptin in undernutrition. <i>Endocrinology</i> 2005;146:3917-25	371
45	Chen LC, Chowdhury A, Huffman SL. Anthropometric assessment of energy-protein malnutrition and subsequent risk of mortality among preschool aged children. <i>Am J Clin Nutr</i> 1980;33:1836-45	363
46	Honda H, Qureshi AR, Heimbürger O, <i>et al.</i> Serum albumin, C-reactive protein, interleukin 6, and fetuin A as predictors of malnutrition, cardiovascular disease, and mortality in patients with ESRD. <i>Am J Kidney Dis</i> 2006;47:139-48	363
47	Swinburn BA, Kraak VI, Allender S, <i>et al.</i> The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. <i>Lancet</i> 2019;393:791-846	358
48	Faggioni R, Feingold KR, Grunfeld C. Leptin regulation of the immune response and the immunodeficiency of malnutrition. <i>FASEB J</i> 2001;15:2565-71	356
49	Barker LA, Gout BS, Crowe TC. Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system. <i>Int J Environ Res Public Health</i> 2011;8:514-27	355
50	Weinsier RL, Hunker EM, Krumdieck CL, <i>et al.</i> Hospital malnutrition. A prospective evaluation of general medical patients during the course of hospitalization. <i>Am J Clin Nutr</i> 1979;32:418-26	345
51	Chandra RK. Immunocompetence in undernutrition. <i>J Pediatr</i> 1972;81:1194-200	340
52	Bouis HE, Hotz C, McClafferty B, <i>et al.</i> Biofortification: a new tool to reduce micronutrient malnutrition. <i>Food Nutr Bull</i> 2011;32:S31-40	338
53	Qureshi AR, Alvestrand A, Divino-Filho JC, <i>et al.</i> Inflammation, malnutrition, and cardiac disease as predictors of mortality in hemodialysis patients. <i>J Am Soc Nephrol</i> 2002;13 Suppl 1:S28-36	335
54	Ingenbleek Y, Van Den Schrieck HG, De Nayer P, <i>et al.</i> Albumin, transferrin and the thyroxine-binding prealbumin/retinol-binding protein (TBPA-RBP) complex in assessment of malnutrition. <i>Clin Chim Acta</i> 1975;63:61-7	332
55	Cegielski JP, McMurray DN. The relationship between malnutrition and tuberculosis: evidence from studies in humans and experimental animals. <i>Int J Tuberc Lung Dis</i> 2004;8:286-98	330
56	SMITH CA. Effects of maternal under nutrition upon the newborn infant in Holland (1944-1945). <i>J Pediatr</i> 1947;30:229-43	329
57	Sullivan DH, Sun S, Walls RC. Protein-energy undernutrition among elderly hospitalized patients: a prospective study. <i>JAMA</i> 1999;281:2013-9	325
58	Morgane PJ, Miller M, Kemper T, <i>et al.</i> The effects of protein malnutrition on the developing central nervous system in the rat. <i>Neuroscience & Biobehavioral Reviews</i> 1978;2:137-230	324
59	Stephenson LS, Latham MC, Ottesen EA. Malnutrition and parasitic helminth infections. <i>Parasitology</i> 2000;121 Suppl:S23-38	321
60	Curtis CR, Erb HN, Sniffen CJ, <i>et al.</i> Path analysis of dry period nutrition, postpartum metabolic and reproductive disorders, and mastitis in Holstein cows. <i>J Dairy Sci</i> 1985;68:2347-60	315
61	Yura S, Itoh H, Sagawa N, <i>et al.</i> Role of premature leptin surge in obesity resulting from intrauterine undernutrition. <i>Cell Metab</i> 2005;1:371-8	311
62	Mendenhall CL, Anderson S, Weesner RE, <i>et al.</i> Protein-calorie malnutrition associated with alcoholic hepatitis. Veterans Administration Cooperative Study Group on Alcoholic Hepatitis. <i>Am J Med</i> 1984;76:211-22	305
63	Graham RD, Welch RM, Bouis H, <i>et al.</i> Addressingmicronutrientmalnutrition through enhancing the nutritionalquality of staplefoods: Principles, perspectives and knowledgegaps. <i>Advances in Agronomy</i> 2001;70:77-142	303
64	Stanner SA, Bulmer K, Andrés C, <i>et al.</i> Does malnutrition in utero determine diabetes and coronary heart disease in adulthood? Results from the Leningrad genes study, a cross sectional study. <i>BMJ</i> 1997;315:1342-8	300
65	White JV, Guenter P, Jensen G, <i>et al.</i> Consensus statement of the Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition: characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). <i>J Acad Nutr Diet</i> 2012;112:730-8	298
66	Widdowson EM, Mccance RA. The effect of finite periods of undernutrition at different ages on the composition and subsequent development of the rat. <i>Proc R Soc Lond B Biol Sci</i> 1963;158:329-42	297
67	Winick M. Malnutrition and brain development. <i>J Pediatr</i> 1969;74:667-79	293
68	Holzel A, Schwarz V, Sutcliffe KW. Defective lactose absorption causing malnutrition in infancy. <i>Lancet</i> 1959;1:1126-8	292
69	Lesage J, Blondeau B, Grino M, <i>et al.</i> Maternal undernutrition during late gestation induces fetal overexposure to glucocorticoids and intrauterine growth retardation, and disturbs the hypothalamo-pituitary adrenal axis in the newborn rat. <i>Endocrinology</i> 2001;142:1692-702	291
70	Shetty PS, Watrasiewicz KE, Jung RT, <i>et al.</i> Rapid-turnover transport proteins: an index of subclinical protein-energy malnutrition. <i>Lancet</i> 1979;2:230-2	283
71	Dávalos A, Ricart W, Gonzalez-Huix F, <i>et al.</i> Effect of malnutrition after acute stroke on clinical outcome. <i>Stroke</i> 1996;27:1028-32	280
72	Giner M, Laviano A, Meguid MM, <i>et al.</i> In 1995 a correlation between malnutrition and poor outcome in critically ill patients still exists. <i>Nutrition</i> 1996;12:23-9	276
73	Guerrant RL, Oriá RB, Moore SR, <i>et al.</i> Malnutrition as an enteric infectious disease with long-term effects on child development. <i>Nutr Rev</i> 2008;66:487-505	275
74	Woodall SM, Johnston BM, Breier BH, <i>et al.</i> Chronic maternal undernutrition in the rat leads to delayed postnatal growth and elevated blood pressure of offspring. <i>Pediatr Res</i> 1996;40:438-43	274
75	Rice AL, Sacco L, Hyder A, <i>et al.</i> Malnutrition as an underlying cause of childhood deaths associated with infectious diseases in developing countries. <i>Bull World Health Organ</i> 2000;78:1207-21	274
76	Pelletier DL, Frongillo EA Jr, Habicht JP. Epidemiologic evidence for a potentiating effect of malnutrition on child mortality. <i>Am J Public Health</i> 1993;83:1130-3	272
77	de Onis M, Frongillo EA, Blössner M. Is malnutrition declining? An analysis of changes in levels of child malnutrition since 1980. <i>Bull World Health Organ</i> 2000;78:1222-33	270
78	Naber TH, Schermer T, de Bree A, <i>et al.</i> Prevalence of malnutrition in nonsurgical hospitalized patients and its association with disease complications. <i>Am J Clin Nutr</i> 1997;66:1232-9	268
79	Edington J, Boorman J, Durrant ER, <i>et al.</i> Prevalence of malnutrition on admission to four hospitals in England. The Malnutrition Prevalence Group. <i>Clin Nutr</i> 2000;19:191-5	266
80	Charbonneau MR, O'Donnell D, Blanton LV, <i>et al.</i> Sialylated Milk Oligosaccharides Promote Microbiota-Dependent Growth in Models of Infant Undernutrition. <i>Cell</i> 2016;164:859-71	266
81	de Onis M, Monteiro C, Akre J, <i>et al.</i> The worldwide magnitude of protein-energy malnutrition: an overview from the WHO Global Database on Child Growth. <i>Bull World Health Organ</i> 1993;71:703-12	261
82	Winick M, Russo P. The effect of early malnutrition on cellular growth of human brain. <i>Pediatr Res</i> 1969;3:181-4	259
83	Hintz RL, Suskind R, Amatayakul K, <i>et al.</i> Plasma somatomedin and growth hormone values in children with protein-calorie malnutrition. <i>J Pediatr</i> 1978;92:153-6	259
84	Mulinos MG, Pomerantz L. Pseudo-Hypophysectomy: A Condition Resembling Hypophysectomy Produced by Malnutrition, Two Figures. <i>Journal of Nutrition</i> 1940;19:493-504	258
85	Kim SH, Choi YM, Lee MG. Pharmacokinetics and pharmacodynamics of furosemide in protein-calorie malnutrition. <i>J Pharmacokinetic Biopharm</i> 1993;21:1-17	255
86	Clasen T, Boisson S, Routray P, <i>et al.</i> Effectiveness of a rural sanitation programme on diarrhoea, soil-transmitted helminth infection, and child malnutrition in Odisha, India: a cluster-randomised trial. <i>Lancet Glob Health</i> 2014;2:e645-53	255
87	Lopes J, Russell DM, Whitwell J, <i>et al.</i> Skeletal muscle function in malnutrition. <i>Am J Clin Nutr</i> 1982;36:602-10	254
88	Kruizenga HM, Seidell JC, de Vet HC, <i>et al.</i> Development and validation of a hospital screening tool for malnutrition: the short nutritional assessment questionnaire (SNAQ). <i>Clin Nutr</i> 2005;24:75-82	254
89	Stoch MB, Smythe PM. Does Undernutrition During Infancy Inhibit Brain Growth and Subsequent Intellectual Development? <i>Arch Dis Child</i> 1963;38:546-52	253
90	Morgane PJ, Mokler DJ, Galler JR. Effects of prenatal protein malnutrition on the hippocampal formation. <i>Neurosci Biobehav Rev</i> 2002;26:471-83	250
91	Cederholm T, Jensen GL, Correia MITD, <i>et al.</i> GLIM criteria for the diagnosis of malnutrition - A consensus report from the global clinical nutrition community. <i>Clin Nutr</i> 2019;38:1-9	250
92	Ingenbleek Y, De Visscher M, De Nayer P. Measurement of prealbumin as index of protein-calorie malnutrition. <i>Lancet</i> 1972;2:106-9	249
93	de Onis M, Blössner M. The World Health Organization Global Database on Child Growth and Malnutrition: methodology and applications. <i>Int J Epidemiol</i> 2003;32:518-26	246
94	Jensen GL, Mirtallo J, Compher C, <i>et al.</i> Adult starvation and disease-related malnutrition: a proposal for etiology-based diagnosis in the clinical practice setting from the International Consensus Guideline Committee. <i>JPEN J Parenter Enteral Nutr</i> 2010;34:156-9	245
95	Mayer JE, Pfeiffer WH, Beyer P. Biofortified crops to alleviate micronutrient malnutrition. <i>Curr Opin Plant Biol</i> 2008;11:166-70	242
96	Hakim RM, Levin N. Malnutrition in hemodialysis patients. <i>Am J Kidney Dis</i> 1993;21:125-37	240
97	Recker JR, Henders S, Davies KM, <i>et al.</i> Correcting calcium nutritional deficiency prevents spine fractures in elderly women. <i>J Bone Miner Res</i> 1996;11:1961-6	238
98	Alvares-da-Silva MR, Reverbel da Silveira T. Comparison between handgrip strength, subjective global assessment, and prognostic nutritional index in assessing malnutrition and predicting clinical outcome in cirrhotic outpatients. <i>Nutrition</i> 2005;21:113-7	238
99	Wang AY, Woo J, Lam CW, <i>et al.</i> Associations of serum fetuin-A with malnutrition, inflammation, atherosclerosis and valvular calcification syndrome and outcome in peritoneal dialysis patients. <i>Nephrol Dial Transplant</i> 2005;20:1676-85	236
100	Bryce J, Coitinho D, Darnton-Hill I, <i>et al.</i> Maternal and child undernutrition: effective action at national level. <i>Lancet</i> 2008;371:510-26	235

TC, total citations.

Table S2 Authors who contributed to at least 3 or more articles with h-index of the 100 most-cited malnutrition papers

SCR	Author (n=548)	Author's affiliations ^a	h-index	g-index	Authorship position			NP	TC
					1 st	2 nd	3 rd or last		
1	Black RE	Johns Hopkins University, School of Public Health, Baltimore, USA.	5	5	2	2	1	5	7,700
2	De Onis M	Department of Nutrition for Health and Development, WHO, Geneva, Switzerland	5	5	2	1	2	5	6,761
9	Bhutta ZA	Aga Khan University, Karachi, Pakistan	3	3	1	0	2	3	6,922
10	Blossner M	Department of Nutrition for Health and Development, World Health Organization, Geneva, Switzerland.	3	3	1	0	2	3	1,020
11	Cederholm T	Departments of Geriatric Medicine, Uppsala University, Sweden	3	3	2	0	1	3	1,308
12	Correia MITD	Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.	3	3	1	0	2	3	1,580
13	Ezzati M	John Hopkins Bloomberg School of Public Health, Baltimore, MD, USA.	3	3	0	0	3	3	6,099
14	Frongillo EA	Division of Nutritional Sciences, Cornell University, Ithaca,	3	3	0	2	1	3	950
15	Guigoz Y	Nestlé Product and Technology Centre, Switzerland.	3	3	1	0	2	3	1,898
16	Heimburger O	Department of Medicine, Columbia University, New York, New York, USA	3	3	0	1	2	3	1,972
17	Lindholm B	Department of Clinical Science, Karolinska Institute, Huddinge University Hospital, Stockholm, Sweden	3	3	0	0	3	3	1,135
3	Malone A	Mt. Carmel West Hospital, Columbus, Ohio	3	3	0	0	3	3	995
4	Morgane PJ	Worcester Foundation for Experimental Biology, Shrewsbury, MA.	3	3	3	0	0	3	1,047
5	Nyulasi I	Department of Nutrition and Dietetics and Department of Medicine, Monash University Central Clinical School, Prahran, Australia	3	3	0	0	3	3	1,075
6	Pirlich M	Medizinische Klinik mit Schwerpunkt Gastroenterologie, Hepatologie und Endokrinologie, Charité-Universitätsmedizin Berlin, Berlin	3	3	1	0	2	3	1,360
7	Qureshi AR	Department of Clinical Science, Karolinska Institute, Huddinge University Hospital, Stockholm, Sweden	3	3	2	1	0	3	1,135
8	Winick M	Department of Pediatrics, Cornell University Medical College, New York	3	3	3	0	0	3	1,518

^a, the frequency distribution of affiliations (of all co-authors for each paper). SCR, standard competition ranking; NP, number of articles; TC, total number of citations reported per documents.