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Trust in Medicine: A Scoping Review of the Instruments Designed to Measure Trust in Medical Care Studies

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Abstract

Introduction: This scoping review study was conducted with the aim of identifying dimensions of trust in medical care, common trust subjects, and medical trust correlates among available instruments.

Methods: We carried out a scoping review of literature through Medline, EMBASE, Scopus, Google Scholar engine, and various information sources of grey literature, to identify eligible studies up to 2023. We merely included psychometric studies in these areas. Non-psychometrics studies were excluded. Two assessors independently and carefully chose papers and abstracted records for qualitative exploration.

Results: Fifty-two studies (n = 37228 participants) were included in the review. The majority of the participants 67 % (24943) were adults (≥18). One-dimensionality trust was found in 36 % (19) of trust in medical care studies, while multidimensionality was identified in 64 % (33) of the studies. Ten categories of trust in medicine correlates or associates were identified. In terms of trust scales subjects, about 71 % (37) of the scales measured trust in healthcare professions, 14 % (7) health care systems, and the rest were about emergency department, trauma care emergency department, health care team, technology, authorities, telemedicine, insurer, COVID-19 prevention policies, performance, and general trust.

Conclusion: Various tools have been developed and validated in the field of trust in healthcare, and several domains have been identified. Trust in medicine is correlated by a variety of factors such as patient characteristics, healthcare provider factors, healthcare organization features, health conditions, and social influences. It is suggested that researchers pay more attention to the most commonly known dimensions in preparing tools.

Introduction

The concept of patient trust has been defined as the idealized acceptance of a vulnerable situation in which the patient entrusts the healthcare professions with the provision of care that aligns with their best interests.[1] Patients need to develop trust in their medical professionals when confronted with an illness, regardless of any prior relationship,[2] particularly when confronting a serious disease in an emergency, they ought to believe their physicians' care to save their lives.[3]

The subject of trust in the patient-physician relationship has been explored in various studies.[4,5] Trust serves as a determining factor in healthcare utilization,[6] hospital performance,[7] willingness to treatment adherence,[8] enhanced treatment experience, improved information exchange, diminished fear, and reduced instances of seeking second opinions[9] and quality of health care. There

is growing information that indicates that trust with an unrevealed mechanism (like a placebo) modifies the interaction between the body and mind and thus changes the effectiveness of almost all care procedures in clinical practice.[10]

The topic of trust within the healthcare practice has received significant attention in current policy discussions. This is largely due to assertions that various factors have contributed to a decline in public trust in healthcare institutions and professionals.[11] The development of trust is a gradual progression, characterized by its potential to either advance or diminish in potency as a function of time, demonstrating the properties of the concept.[7] It is not possible to demand trust from others,[12] as it must be acquired through meritorious actions and behavior.

A previous systematic review of the literature study by Ozawa and Sripad resulted in the development of a

specialized health systems trust content area framework.[13] It was observed that several dimensions, including honesty, communication, confidence, and competence were frequently reflected in the framework measures. On the other hand, concepts like fidelity, system trust, confidentiality, and fairness were found to be of lesser significance in the framework.[13]

The domains and determinants of trust in healthcare practice in developing countries are possible to be culturally exclusive. An investigation in India indicated that the concepts of "crowdedness" and capacity to meet financial obligations, as well as emotional dimension have elicited considerable attention in medical trust.[14]

Within the current literature, there is a shortage of international comparative investigations using psychometrically sound tools in these concepts. As the caring systems and cultures are diverse in countries, differences between countries regarding trust in healthcare practice are predictable. However, differences in health-service organizations may also provide reasons for differences between patients' perceptions of care elements[15] such as trust in healthcare professions. The measurement of trust with a valid and reliable instrument is essential,[16] but it is a difficult construct to measure.[17]

To the best of our knowledge, most scales developed to measure trust (in healthcare) have emerged from developed countries. Because of its vital importance to medical practice, we need to obtain a thorough understanding of the nature, knowledge gaps, scope of a body of literature, predictors, and consequences of trust between patients and their health providers.[18]

Effective assessments of medical trust will be vital resources for evaluating, guiding, and supporting efforts to understand and enhance trust. Also, there is no general agreement about how to best assess trust in medicine. Therefore, characterizing existing measures of medical trust, as well as identifying dimensions to guide future measure creation is needed. This scoping review study was conducted with the aim of identifying dimensions of trust in medicine, trust subjects and correlates among available instruments.

Materials and Methods
Registration and Protocol
This scoping review was prepared in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)[19] and recorded at the Pazhoohan Investigation Information System (registration code: IR.TBZMED.REC.1399.1098).

Data Sources
We searched Medline (via PubMed), Scopus, Embase, Google Scholar, and other information sources of grey literature using the following topic headings and keywords: "Trust" "Medicine," "Medical," "Physician," "Nurses," "Health Personnel," "Health Care Professional," "Healthcare Provider," "Surveys and Questionnaires," "Questionnaire," "Tool," and their synonyms and related terms. We developed a search strategy in a Supplementary file. In addition, we manually explored the Journal of Trust Research, as well as the bibliographies of all retrieved reports. Also, the International Prospective Register of Systematic Reviews (PROSPERO) was searched to identify ongoing systematic reviews on the same topic. The references of eligible papers were manually explored for additional studies that had not been identified through the electronic search. We ran our initial search strategy in March 2023 and updated it in April 2023 by two researchers, namely ES and HS.

Inclusion and Exclusion Criteria, and Types of Studies
Only psychometric studies with the primary objective of developing or adapting a measurement tool for trust in medical care were considered. Publications were included without time limitations with available titles, abstracts, and full-texts. We considered only English and Persian languages.

Selection Process and Data Extraction
Two assessors screened all titles and abstracts of retrieved papers separately. Additionally, full-texts of related papers were screened for eligibility by two reviewers and the reasons for exclusion were recorded for the excluded full-texts and disagreements were discussed and resolved. The following data was extracted from the papers: the first author, publishing year, country, study design, sample size (SS), language, administration, sampling method, response rate, pilot study SS, target population, subject in medical trust, initial/conceptual dimension, number and name of final dimension, number of items, variance of factors, eigenvalue for factors, reliability, validity including (content, face, structural, constructive, predictive, convergent), scoring range, and correlates or associates of trust in medicine. In order to synthesize the included studies the qualitative data approach of content analysis for variables of interest was used. The risk of bias was not evaluated in the included studies. This is usually how scoping studies are typically done.[20,21]

Results
Study Characteristics
Eligible Studies
A total of 3641 publications were identified. Out of 3641 studies, 741 of them were duplicates. 400 were selected for further scrutiny on the basis of screening the titles. Following a review of the abstracts, the full text of 140 publications was retrieved, and assessed on their fulfillment of the selection criteria. Finally, 52 publications were synthesized in the current evaluation (Figure 1), of existing evidence between 1990 to 2023 (Table 1).

Distribution in Countries and Languages
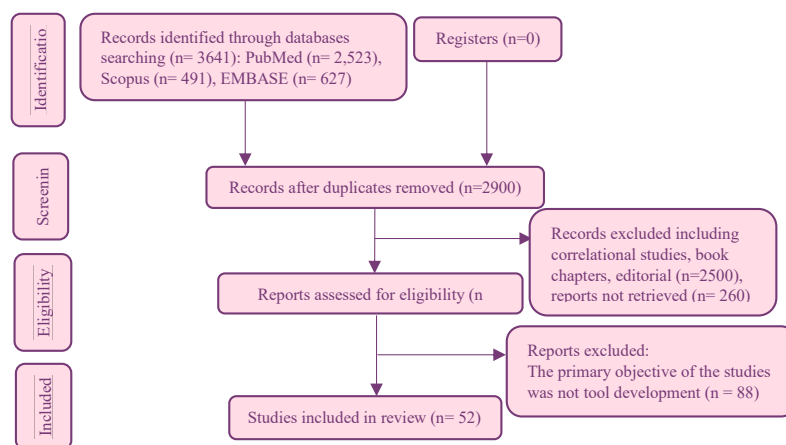Trust in medical care was the subject of studies in a wide

Figure 1. Flow diagram of this study

range of countries. Of 52 studies, 19 were done in the United States,[8,23,25,40,44,45,48-50,55,56,58,60,61,63-67] seven in Iran,[10,22,24,28,29,37,38] six in the Netherlands,[18,36,41,47,52,62] two in Italy,[26,27] two in Poland,[30,31] two in India.[17,32] Also, other studies were two in China,[35,39] two in the UK,[54,57] and the rest (one) in Australia,[33] Greece,[34] Finland,[16] Nigeria,[4] Liberia,[42] Turkey,[43] Germany,[46] Singapore,[51] Thailand,[53] Georgia.[59]

From 52 studies, 27 of the tools developed on the subject of trust in medicine were in English language, seven in Persian, five in Dutch, three in Greek, two in Italian, two in Polish, two in Tamil, two in Chinese, two in German, and the rest (one) in Finnish, Swedish, Kpelle, Mano, Turkish, Thai.

Study Design, Administration of Tools, Sampling Methods, Response Rate, and Target Population in İnstruments Designed for Trust in Medicine Studies up to 2023

Cross-sectional studies were the most frequent 80 % (n = 42) type of study. Regarding administration of tools, 61 % (n = 32) were self-reported. As to the types of sampling methods, twenty were nonprobability, seventeen were random, three were in a cluster, three in multistage, two were in stratified, and five did not report the sampling methods. In sum, 37228 cases were included in these studies with a minimum sample size of 36 and a maximum of 3442 cases. The mean response rate was 64 (±22.8). Sixty-seven percent (n = 35) of the studies have used pilot study. The majority of the participants 67 % (n = 24 943) were adults (≥18). Also, 47 % (n = 24) included diverse patients like cancer, internal medicine, general surgery, obstetrics gynecology, diabetes, chronic health conditions, rehabilitation, rheumatoid arthritis, osteoarthritis, fibromyalgia, psychiatric disorders, HIV, emergency patients, family practice, traumatic patient (see Table 2).

Trust in Medical Scales' Research Subjects in Studies up to 2023

In terms of trust scales subjects (52 studies), about 71 %

(n = 37) of the scales were measuring trust in the medical profession (among them physician (n = 17), nurses (n = 6), care providers (n = 4), oncologist (n = 4), midwifery or maternal healthcare workers (n = 3), pharmacists (n = 2), dentists (n = 1)). Also, health care systems 14 % (n = 7), emergency department (n = 1), trauma care department (n = 1), and health care team (n = 1) were trust in medicine scales subjects. The rest involved public health authorities, health insurers, COVID-19 control and prevention policies, telemedicine care or telehealth, medical technology, physician trust in the patient, performance, and general trust.

The current study found that different dimensions for measuring trust have been expressed in different studies which may be classified into one,[16,18,23,26,33,35,37,40,41,44,45,47,50,52,58,60,61,64,67] two,[4,2,25,28,34,39,42,48,59,63] three,[17,29,43,49,51,53-56] four,[32,46] five,[17,36,57] six,[10,38,62] seven,[24] and nine[66] dimensions.

Initial Dimensions of Trust in Medical Care Questioners Designed for Trust Studies

About 57 % (n = 30) of trust in medical care questioners designed for trust studies have reported initial or conceptual dimensions, although all the references used in the studies are mentioned in the item generation sources section (Table 2).

Final Dimensions of Trust in Medicine in Scales Designed for Trust Studies (up to 2023).

Figure 2 provides the final dimensions of trust in medical care in instruments developed for trust studies up to 2023.

Out of 100 % (113) reported domains, trust in professions was reported in 21 % (n = 24) of these studies. Communication (respectful interpersonal connection) was described in 11 % (n = 12) of these studies, participation (coordination) was disclosed in 8 % (n = 9) of studies, and competency and providers' expertise (professional skill) were noted in 5 % (n = 6) of these studies. System (institutions) trust was announced in five studies, and effective treatment, care policies at the macro level, and patient-centered (focus) have been expressed 4

Table 1. Characteristics of the studies included in the trust in medicine scoping review

First author/ year	Country, Language	Design	Final dimension(s), Items number in dimension (I), Variance (V), Eigenvalue (λ)	Subjects of trust in medicine	Medical trust correlates/Trust in medicine associates
Sarbazi-2023[22]	Iran, Persian	Cross-sectional	Individual trust: I=13, v=43 %, λ=9.47 system trust: I=9, v=5.64 %, λ=1.24	Trust in trauma care in an emergency department	Not reported
Richmond-2022[23]	USA, English	Cognitive interviews, online survey, Qualtrics Panel	T-MD*: I=6, T-DiG and T-HCT: I=7, communication, competency, fidelity, systems trust, confidentiality, fairness, global trust, stigma-based discrimination	My doctor, doctors in general, health care team	Existing trust or mistrust measures, perceived racism in health care, delayed health care seeking, receipt of a routine health exam, and federal government
Alaei ʃKalajahi-2022[24]	Iran, Persian	Online cross-sectional (Telegram, WhatsApp)	Policy: I=7, effectiveness: I=3, equipment: I=4, prevention: I=4, participation: I=2, public education: I=6, behavior: I=2	Public trust in Covid-19 control and prevention policies	Not reported
Holroyd-2021[25]	USA, English	web-based survey	Beneficence: I=8, V=64 %, λ=5.41 competence: I=6, V=36 %, λ=3.30	Public health authorities	Trust in the information provided by doctors regarding vaccines, vaccine recommendations, vaccine acceptance, and vaccine
Bani-2021[26]	Italia, Italian	Cross-sectional	Trust in oncologist	Oncologist	Satisfaction, trust in the health care system, recommendation, number of consultations, patients' HRQOL, socio-demographics including age, education, and clinical features
Comparcini-2020[27]	Italia, Italian	Cross-sectional	Trust in nurses	Nurses	Not reported
Ebrahimipour 2020[10]	Iran, Persian	Cross-sectional	Patient-centered care: I=6, care policies at the macro level: I=6, expertise of providers: I=4, quality of care: I=9, communication and information presentation: I=6 quality and cooperation between providers: I=2	Public trust of health care providers	Not reported
Sadeghi-Bazargani-2019[28]	Iran, Persian	Cross-sectional	Main factor: I=25, V=74.1 %, λ=22.47 specific or optimal task: I=5, V=19.2 %, λ=1.6	Public trust in primary health care	Not reported
Abdolahian-2019[29]	Iran, Persian	Cross-sectional	Professional skill: I=5 λ=>1.5, coordination skill: I=2, λ>1.5, financial skill: I=3, λ>1.5, (V scale=73.24 %)	Patient trust in midwifery care	Not reported
Krajewska-Kułak-2019[30]	Poland, Polish	Cross-sectional	Trust in nurse	Nurse	Not reported
Krajewska-Kułak-2018[31]	Poland, Polish	Cross-sectional	Trust in Physician	Physician	+*: age, education, income, marital status, and number of physician visits - *: sex and place of residence
Kalsingh-2017[32]	India, Tamil	Cross-sectional survey	Factor 1 (I=7), factor 2 (I=2), factor 3 (I=1), factor 4 (I=1), (V scale=59.7 %)	Physician (tertiary care hospital), general trust	+: General trust
Armfield-2017[33]	Australia, English	Telephone survey	Trust in dentists, V scale=58.6 %, λ=6.44	Dentists	Trust in the dentist (last visit, switching), pain, visiting frequency, avoidance, discomfort, gagging, fainting, embarrassment, and personal problems with the dentist.
Chatzea-2017[34]	Greece, Greek	Validation study	Interpersonal trust in teams: I=6, V=66.4 % team performance: I=4, V=30.1 %	Trust and performance	Not reported

Table 1. Continued.

First author/ year	Country, Language	Design	Final dimension(s), Items number in dimension (I), Variance (V), Eigenvalue (λ)	Subjects of trust in medicine	Medical trust correlates/Trust in medicine associates
Zhao-2017[35]	China, Chinese	Validation study	Trust in nurses: λ=2.356	Nurses	Not reported
van Velsen-2016[36]	Netherlands, Dutch	Online survey, survey monkey	Trust in care (organization: I=5, treatment: I=5, professional: I=4, technology: I=5, telemedicine service: I=5)	Telemedicine	Not reported
Hillen-2016[18]	Netherlands, Dutch	Online e-mail cross-sectional	Trust in oncologist V scale=82 %, λ=4.09	Oncologist	Satisfaction
Nooripour-2016[37]	Iran, Persian	Cross-sectional	Trust in nurses: V scale=61.395 %, λ=3.070	Nurses	Government nurses are seen as more trustworthy than nurses in other sectors
Stolt-2016[16]	Finland, Finnish, Swedish, and Greek	Cross-sectional, cross-cultural, multi-site survey	Trust in nurses, V scale=0.67-0.86 %	Nurses	Country and previous hospital experiences
Tabrizi-2016[38]	Iran, Persian	Cross-sectional	Patient centeredness, macro-level policies concerning health care, professional expertise of health providers, quality of care, information provision and communication, quality of cooperation between health care providers	Public trust in health services	The highest level of trust is typically placed in specialists, pharmacists, and nurses, while the lowest level of trust is observed in macro-level policy. Also, Lower-income individuals tend to have more trust in health services. +: older age, education status including doctorate, illiterate, and elementary
Gopichandran-2015[17]	India, English, Tamil	Cross-sectional survey	Competence, assurance of treatment, respect and loyalty	Physician (PHC) *	Not reported
Aloba-2014[4]	Nigeria, English	Cross-sectional	Factor 1: V=28.82 %, λ=3, factor 2: V=19.23 %, λ=2	Physician	Number of admissions, schizophrenic relapses, and adherence
Dong-2014[39]	China, Chinese (Mandarin)	Cross-sectional	Factor 1: V=39.54 %, λ=4.35, factor 2: V=15.65 %, λ=1.72	Physician	Satisfaction, recommendation, disputation, seeking a second opinion, adherence, and switching physicians +: age and physician visits
Peters-2014[40]	USA, English	Cross-sectional	Trust in physician, V scale=25 %	Physician	-: Previous experience of racism, specifically in healthcare +: sense of ethnic identity
Hillen-2013[41]	Netherlands, English	Cross-sectional	Trust in oncologist	Oncologist	Satisfaction, recommendation, number of visits, trust in health care
Lori-2013[42]	Liberia, English, Kpelle, and Mano	Cross-sectional	Trust: I=7, λ=2.736, teamwork: I=4, λ=1.706	Trust and teamwork among maternal healthcare workers	Not reported
Dinc-2012[43]	Turkey, Turkish	Cross sectional	Trust in health care (providers: λ=7.30, payers: λ=2.61, institutions: λ=1.21), V scale=65 %,	Health care systems	Low education level and low perceived income.
Bova-2012[44]	USA, English	Prospective instrument design	Health care relationship trust: V scale=67 %, λ=9.05	Patient–provider trust in a primary care population	Race, ethnicity, type of provider e.g. attending physicians are trustful than medical residents, age, length of time with the primary care provider, and mental health

Table 1. Continued.

First author/ year	Country, Language	Design	Final dimension(s), Items number in dimension (I), Variance (V), Eigenvalue (λ)	Subjects of trust in medicine	Medical trust correlates/Trust in medicine associates
Eisenman-2012[45]	USA, English	Survey	Public health disaster trust: $\lambda=2.45$	Public health disaster–related trust	Racial or ethnic minority, following public health recommendations, public health behavior, and household disaster preparedness
Jeschke-2012[46]	Germany, German	Cross-sectional	Confidence in labor, partner's support, trust in medical competency, being informed, V scale=69.6 %	Delivery	Pain manageability and partner's support
Hillen-2012[47]	Netherlands, Dutch	Cross sectional	Trust in oncologist: V scale=61.51 %	Oncologist	Age, mental health, and nationality
Thom-2011[48]	USA, English	Prospective	Patient role: $I=8$, $\lambda=11.5$ Respect for boundaries, $I=4$, $\lambda=2.2$	Physician trust in the patient	Clinician-reported behaviors
Montague-2010[49]	USA, English	Survey (e-mail data base)	Trust in technology: $\lambda=31.17$, $I=31$, trust in provider: $\lambda=12.27$, $I=26$, how the provider uses the technology: ($\lambda=5.55$), $I=22$, V scale=39 %	Medical technology	Not reported
Radwin-2010[50]	USA, English	Cross-sectional	Trust in nurses: V scale=59 %, V=66 %	Nurses	Not reported
Zhang-2009[51]	Singapore, English	FGD*, cross-sectional	Benevolence: $I=6$, technical competence: $I=2$, global trust: $I=4$, V scale=55 %,	Pharmacists	Satisfaction with service, return for care, and preference for medical decision-making pattern
Bachinger-2009[52]	Netherlands, Dutch	Cross-sectional	Trust in physician: V scale=63.45 %	Physician	Age, satisfaction, length of relationship, recommendation, and unwillingness to switch
Ngorsuraches-2008[53]	Thailand, Thai	Scale development, testing, and improvement.	Benevolence, technical, competence, communication, V scale=55.96 %	Community pharmacists	Agreement with a pharmacist, turning for assistance when needed, preferred pharmacist, asking for a pharmacist's service, and following recommendation
Rotenberg-2008[54]	UK, English	Cross-sectional (two part)	Honesty: V=30 %, $\lambda=2.67$, emotional: V=15 %, $\lambda=1.36$, reliability: V=12 %, $\lambda=1.16$, V scale=58 %,	General physicians	+: With adherence to medical regimes both child-reported and parent-reported.
Egede-2008[55]	USA, English	web-based survey, cross-sectional (two phase)	Trust in health care (providers: $I=10$, $\lambda=6.29$, payers: $I=4$, $\lambda=2.40$, institutions: $I=3$) $\lambda=1.30$)	Health care systems	Patient-centered care, locus of control-chance, medication no adherence, social support, and satisfaction
Bova-2006[56]	USA, English	Instrument development study	Interpersonal connection: $I=5$, V=51 %, $\lambda=7.6$, respectful communication: $I=4$, V=10 %, $\lambda=1.5$, professional partnering: $I=6$, V=8 %, $\lambda=1.2$, V scale=69 %	Health care providers	Possible relationship with depression
Kelly-2005[57]	UK, English	development and prospective phases	We did not get access to the domains name. V scale=52 %	Emergency department	Not reported
Dugan-2005[58]	USA, English	Telephone survey (two phase)	Trust in a physician, trust in a health insurer, trust in the medical profession	Physician, health insurer, medical profession	Satisfaction, care, recommend, no desire to switch, length of care, visits number, choice in the selection, not having a dispute, sought a second opinion, being in managed care. Poorer physical health, mental health is linked to lower trust in a physician.

Table 1. Continued.

First author/ year	Country, Language	Design	Final dimension(s), Items number in dimension (I), Variance (V), Eigenvalue (λ)	Subjects of trust in medicine	Medical trust correlates/Trust in medicine associates
Freburger-2003[59]	Georgia, Georgian	Longitudinal project part of an ongoing,	Trust: I = 11, V = 18 %, skepticism: I = 4	Physician	-: Skepticism, independent decision making, older age, minority status, higher education, diagnosis of fibromyalgia or osteoarthritis, and poorer health
Hall-2002[60]	USA, English	Cross-sectional	Trust in primary care providers	Primary care providers	Satisfaction, desire to remain with a physician, willingness to recommend to friends, do not seeking second opinions, membership in managed care, choice of physician, no disputes, length of relationship, and number of visits
Hall-2002[61]	USA, English	Telephone survey	Trust in the medical profession: V scale = 78 %, λ = 8.2	Medical profession	Satisfaction with care, general trust, interpersonal trust, following recommendations, no prior disputation, no sought second opinions, and no switching
Straten-2002[62]	Netherlands, Dutch	Phased design (qualitative, quantitative)	Patient focus: V = 32.5, λ = 11.7, policies at macro level: V = 7.6, λ = 2.7, providers' expertise: V = 5.6, λ = 2, quality of care: V = 4.5, λ = 1.6, Information supply and communication: V = 3.7, λ = 1.3, quality of cooperation: V = 3.3, λ = 1.2,	Public trust in health care	Elderly people, lower level of education, experience via media, the experience of parents, the experience of friends, and personal experience are associated to higher public trust in health care systems.
Leisen-2001[63]	USA, English	Cross-sectional	Benevolence, technical competence	Physician	Friend referral, compliance with recommendations, return for care, quality of care, satisfaction, time (number of previous service encounters), incentives for opportunistic behavior, believed breadth of choice in primary care physician, awareness of utilization reviews by insurers, awareness of financial incentives
Thom-1999[8]	USA, English	Prospective study (two steps)	Trust in physician	Physician	Satisfaction with care, perceived humaneness of physician behavior, interpersonal trust, continuity, adherence, age, gender, and education
Safran-1998[64]	USA, English	Mail survey with limited telephone follow-up	Trust	Primary care physician	Accessibility (organizational, financial), continuity (longitudinal, visit-based), comprehensiveness (contextual knowledge of patient, preventive counseling), integration, clinical interaction (clinician-patient communication, thoroughness of physical examinations), and interpersonal treatment
Kao-1998[65]	USA, English	Cross-sectional survey	-	Primary care physician	Method of payment, overall trust, health plan, health status, graduated place of physician, lower number of physicians in practice, choice, longer relationship, physician behavior
Thom and Campbell-1997[66]	USA, English	FGD	Thoroughly evaluating problems, understanding patient's individual experience, expressing caring, providing appropriate and effective treatment, communicating clearly and completely, building partnership / sharing power, demonstrating honesty / respect for patient, predisposing factors, structural/staffing	Physician	Not reported
Anderson-1990[67]	USA, English	Cross-sectional (two study)	Trust in physician V scale = 38.4 %	Physician	Health locus of control, powerful-others, internal locus of control, chance locus of control, and social desirability

Table 2. Characteristics of the studies included in scoping review

First author/ year	Translation	Administration	Sampling method, Sample size, (Response rate), [Sample size in Pilot study]	Target population	Initial or conceptual dimension	Initial (final) item	Reliability (α)	Validity (Content (C) & Face (F), language)	Validity ([structural], constructive, predictive, convergent)	Scoring (Score range)	Item generation sources
Sarbazi- 2023[22]	✘	Self-report	Convenience, 498, [20]	Traumatic patients	-	65 (22)	0.95	C:relevancy, necessity, clarity, redundant, appropriates	[EFA, Oblimin rotation, scree plot]	Likert (5) SDA*; SA* [22-110]	PubMed, Science Direct, Scopus, Web of Knowledge, Magiran, Google scholar, expert, patients
Richmond- 2022 [23]	✘ Adapt	Interview, Self-report	Convenience (flyers posted public libraries and Facebook), 801, [21]	≥18, U.S. adults	Competence, fidelity, honesty, confidentiality, confidence, communication, systems trust, fairness, global trust	45,60, MD (2), DiG & HCT(29)	0.90	C: clarity, conciseness, relevance ✓F	[EFA, CFA (oblique Promax), scree plot], ✓predictive validity	Likert (5) SDA; SA [NR]	13*
Alaei ʃKalajahi- 2022[24]	✘	Self-report	Convenience random, 805	General people	-	41(29)	0.95	C: transparency relevance, simplicity, necessity CVR*=0.73, CVI*=0.89 based on experts' opinions	[EFA, CFA (Varimax)]	Likert (5) SDA=1; SA=5 [28-140]	Scopus, PubMed, Web of Science
Holroyd- 2021[25]	✘	Telephone Interview (pretest) , Self-report	Convenience (in pretest), 1925, [20]	≥18	Beneficence, efficiency, innovation, objectivity, competence, equity, transparency, responsiveness, accuracy, integrity	20 (14)	0.86	C: clarity, completeness (research team)	[CFA PCA, (oblique Promax), EFA, scree plot]	Likert (4) SA; SDA [14-56]	Trust in government literature using [68, 69]
Bani-2021[26]	✓*	Self- report (research assist)	NR, 194, (84 %),[5]	>18, cancer patients in oncology dep	-	(18)	0.95, SF# (0.88)	Comprehensibility	[CFA], ✓construct validity using correlation	Likert (5) SDA=1; SA=5 [1–5]	41, 47
Comparcini- 2020 [27]	✓	Self-report	Convenience, 200, (98 %), [30]	18–75, patients	-	(4,5)	4:0.83 5:0.79 correlation : 0.59-0.67	C: clarity, relevance, language validity: semantic, equivalence	[CFA]	Likert (6) never=1; always=6 [1-10]	70
Ebrahimi Pour- 2020 [10]	✓	Self-report	Random cluster, 50	Patients of government hospitals.	-	36 (33)	0.83, ICC*=0.81	C: comprehensibility, clarity, simplicity and communication CVR, CVI=0.83	-	Likert (5) very low=1; very high=5 [0-100]	62

Table 2. Continued.

First author/ year	Translation	Administration	Sampling method, Sample size, (Response rate), [Sample size in Pilot study]	Target population	Initial or conceptual dimension	Initial (final) item	Reliability (α)	Validity (Content (C) & Face (F), language)	Validity ([structural], constructive, predictive, convergent)	Scoring (Score range)	Item generation sources
Sadeghi-Bazargani-2019 [28]	No	Interview	Two stage cluster, PPS, 600	≥15, head of the households or housewife	-	42 (30)	0.98 ICC=0.94 R*=0.89 Kendall's tau-a &b=0.77	C: grammar, order of words, using correct and appropriate words scoring, necessity, relevance, clarity), m kappa=0.94 Experts,	[EFA using PFA (Varimax)]	Likert (5), very low=0; very high=4 [0-120]	PubMed, Science Direct, Scopus, Web of Knowledge
Abdolahian-2019 [29]	✓	Self-report	Consecutive, 210, [10]	15-57, childbearing age female	-	10	0.81 ICC>0.81 (one month)	C: Difficulty, relevancy, vagueness, ambiguity, grammatical, word choice, CVI(clarity, simplicity, elatedness), CVR(necessity), midwifery professors	EFA, CFA, (Varimax)	Likert (5), at all=1; totally=5 [10-50]	[65]
Krajewska-Kułak-2019 [30]	NR	Self-report	Random, 1200, [130]	Surgical and medical wards	-	-	>0.70	C: understanding the statements, changes in item wording (doctor, nurse)	Using correlation	Likert (5), SDA=1; SA=5 [11-55]	[67]
Krajewska-Kułak-2018 [31]	✓ , Adopt	Self-report	NR, 849, (94.3 %)	Hospitals, dep. of internal medicine	-	11	0.89, R: 0.94-0.95	C: degree of difficulty of wording	Using association	Likert (5), SA- SDA [NR]	[67]
Kalsingh-2017 [32]	✓	Interview	Convenience, 288, (92.9 %)	≥18, patient of internal medicine, general surgery, obstetrics gynecology outpatient	Physician dependability, knowledge and skills, confidentiality, reliability of information	Physician (11), General (30)	0.707, R:0.14-0.50	✓F ✓C ✓validity of translation	[EFA]	Likert (5), SDA=1; SA=5 [(11-55), General (30-150)]	[67]
Armfield-2017 [33]	✗	Self-completing	Simple random, national, 596, (41.1 %)	≥18	Fidelity, conflict of interest, competence, honesty, global trust	11	0.92, R: 0.41-0.84, ICC=0.52	C: modifications the term 'physicians' to 'dentists', as well as some minimal wording changes	[EFA, PAF], ✓convergent validity	Likert (5) SDA=1; SA=5 [11-55]	[61] & researcher

Table 2. Continued.

First author/ year	Translation	Administration	Sampling method, Sample size, (Response rate), [Sample size in Pilot study]	Target population	Initial or conceptual dimension	Initial (final) item	Reliability (α)	Validity (Content (C) & Face (F), language)	Validity ([structural], constructive, predictive, convergent)	Scoring (Score range)	Item generation sources
Chatzea-2017 [34]	✓, Cultural adapt	Self-report	Randomization, 36, (100 %),[8]	Nurses, physicians, porters, university hospital (surgery anesthesiology)	Facotor1: tasks, expertise, help, sources, ideas and suggestions, factor 2: effective completion of tasks, problem management, quality of work and critical mistakes	10	0.97, ICC=1	C: linguistic or comprehensiveness problems	[EFA principal (Varimax)], ✓Reproducibility & construct validity using R	Likert (5), SDA=1; SA=5 [10-50]	[71]
Zhao-2017 [35]	✓, Adopt	Self-report	NR,190, [10]	≥18, hospitalized patients with cancer	Assurance to knowledge and technique, consistency, respect, reassurance, trust to future	41 (4)	0.817, retest (R=0.866), R$_{split-half}$=0.74,	Readability and feasibility	[EFA, CFA] ✓concurrent validity	Likert (5),1 never=1; always=5 [4-20]	[72]
van Velsen-2016 [36]	✗	Self-report	Convenience random) two organizations patients web link), 795, (20.2 %),[7]	Patient with rehabilitation (anticoagulation), mean age 68 (±11)	Trust in: care organization, care professional, treatment, technology, telemedicine, trusting intention, trust-related behavior	25 (24)	0.91	C: clarity and legibility patient, easier to read and interpretation	✓convergent validity using R	Likert (5), Disagree=1; agree=5 [24-120]	patient FGD & [73-75]
Hillen-2016 [18]	✗	Self-report	Random (148 panel members), 92, (68 %)	Adult cancer patients	Competence, honesty, fidelity, caring, overall trust	5	0.94 R=0.77-0.94	F	[EFA, (Varimax)], ✓Convergent validity	Likert (5), SDA=1; SA=5 [1 to 5]	[41,47]
Nooripour-2016 [37]	✓	Self-report	Quota random, 90	(18-50), Inpatients in hospitals	-	5	0.84	✓F(expert)	[EFA, scree plot]	Likert (6), never=1; always=6 [5-30]	[50]
Stolt-2016 [16]	✓	Self-report	Multistage Sampling, 599, (52-88 %) , [104]	≥18, in-patient cancer, four European countries	-	4	0.84-0.95, R:100 %	C: semantic equivalence (patient interviews and expert panel)	[EFA, PCA (Promax)]	Likert (5), never=1; always=5 [4-20]	Patient interviews & [50,76]
Tabrizi-2016 [38]	✓	Face-to-face interviews	Random cluster, 1050, [30]	(15–88), head of household	-	25	0.86	C: expert opinion CVR=0.81	NR	Likert (4)	[77]
Gopichandran-2015 [17]	✓	Interview (researcher administered)	Multistage technique, 616, [10]	≥18, developing country setting	Perceived competence, assurance of treatment irrespective of ability to pay or at any time of the day, patients' willingness to accept drawbacks in health care, loyalty to the physician and respect for the physician	31,22 (12)	0.92 R>0.4 only 22 items	✓F (experts), ✓Translation validity,	[CFA] ✓Item response analyses	Likert (5), SA-SDA [(-2, +2) -44 - +44]	[14]

Table 2. Continued.

First author/ year	Translation	Administration	Sampling method, Sample size, (Response rate), [Sample size in Pilot study]	Target population	Initial or conceptual dimension	Initial (final) item	Reliability (α)	Validity (Content (C) & Face (F), language)	Validity ([structural], constructive, predictive, convergent)	Scoring (Score range)	Item generation sources
Aloba-2014 [4]	✗	Interview	Consecutive, 223	≥18, outpatients psychiatric disorders university hospital	-	11	0.68	-	[PFA (Varimax)], correlation	Likert (5), SDA=1; SA=5 [0-100]	8, 67
Dong-2014 [39]	✓	Self-report	Random, 3442, [10]	≥18, outpatients at general hospitals	-	11	0.83	C: cultural relevance, equivalence (by panel), cognitive debriefing by patients), clarity, interpretation, Semantic: (conceptual, idiomatic consistency)	[EFA, direct oblimin), CFA]	Likert (5), SDA=1; SA=5 [11-55]	60
Peters-2014 [40]	✗	Interview (research visit)	Convenience, 189	18–44, pregnant women (African American)	-	11	0.80, R:≥0.49	-	[CFA], ✓criterion validity	Likert (5), SDA=1; SA=5 [24-55]	67
Hillen-2013 [41]	✓	Interview, Self-report (mail)	NR, 175, (70 %), [✓, NR]	≥18, cancer patients, medical oncology and radiation oncology hospital dep.	Fidelity, competence, honesty, caring, global trust	33 (18)	0.94 R=43–.81	-	CFA, EFA, correlations	Likert (5), SDA=1; SA=5 [18-90]	60
Lori-2013 [42]	✗	Interview	All available participants, 90, [42]	≥18, maternity waiting homes, community level health workers (trained traditional midwives and certified midwives	-	40,39,16 (11)	0.81*	C: Clarity, avoid repeating, eliminating double-negative format items	[EFA, (varimax, oblique), scree plot], ✓validity of: contrast, & convergent	Dichotomous: agree; disagree truth or lies'	78
Dinc- 2012 [43]	✓	Self-administered	Multistage random, 232, [10]	18–65, hospitalized patients	Trust in health care: providers, payers, institutions	17	0.87 R=0.67 R Split-half=0.67	C: compatibility for forward-backward translation, modification	[EFA, PCA (Varimax) CFA]	Likert (5), SA=5; SDA=1 [17- 85]	FGD, expert opinion & 55
Bova- 2012 [44]	✗	Survey (mail)	Random, 150, (43 %),[30]	≥18, chronic health conditions	Interpersonal connection, respectful professional partnering	15 (13)	0.96 R=0.40-0.84	C: rewording	[Factor analysis, PCA (Varimax)]	0 – 4 [0–52]	56

Table 2. Continued.

First author/ year	Translation	Administration	Sampling method, Sample size, (Response rate), [Sample size in Pilot study]	Target population	Initial or conceptual dimension	Initial (final) item	Reliability (α)	Validity (Content (C) & Face (F), language)	Validity ([structural], constructive, predictive, convergent)	Scoring (Score range)	Item generation sources
Eisenman-2012 [45]	✓	Computer-assisted telephone interview	2-phase, Random-digit-dialed telephone, computer-assisted telephone interviewing system, 2588, (59.1 %), [✓, NR]	≥18, Asian and African American	Honesty, fairness, competency, confidentiality	4	0.79. R:0.73-0.78	NR	[PCA]	Likert (5), No confident=1; very confident=4, [4-16]	literature review & community FGD
Jeschke- 2012 [46]	✗	Self-report	Consecutively invited by midwives, 221	19–45, expectant mothers, maternity ward of a general hosp.	-	15,13 (11)	0.79	C: removal of similar items, rephrasing	[PCA (Varimax)], ✓external validity	Likert (7), very=1; not at all=7 [11-77]	Literature, interviews of midwives mothers
Hillen- 2012 [47]	✓	Self-report	Patients visiting Oncology dep., 423, (65 %), [12]	Cancer, academic hosp.	Competence, fidelity, confidentiality, honesty, caring, global trust	33 (18)	High	C: difficulty of items, wording and relevance for trust	[EFA (oblimin) CFA], correlations	Likert (5), SDA=1; SA=5	[3,64,65,67,79] & Item Pool for[60]
Thom- 2011 [48]	✗	NR	Recruited from a preceding study of homeless or marginally housed, HIV positive adults, 61 PHC clinician, 168 patients [14]	HIV-positive adults,	-	18 (12)	0.93	C: modification in wording,	[EFA using polychoric correlation matrix, ML, (promax)], ✓convergent validity, ✓discriminant validity	Likert (5), No confident=1; completely confident=5 [12-60]	physician FGD, semi structured individual interviews & [80-83]
Montague-2010 [49]	✓	Self-report	Randomly invited, 101, [✓, NR]	18-38, women who used electronic fetal monitor	Trust in: care provider, medical technology, using technology	80	0.92	C: revised when necessary, wording, format, or item position	[PCA], ✓Validity (structure, external, consequential), ✓Generalizability	Linacre (3) 1=disagree 2=neutral, 3=agree [80-210]	[84,85]
Radwin-2010 [50]	✗	Self-report	Random, single acute care setting, 187, [✓, NR]	Hospitalized cancer patients hematology-oncology setting	-	(5,4)	0.77, 0.82	NR	[CFA, ML, EFA, PCA], ✓construct validity	Likert (5), never=1; always=6 [5-30,4-24]	-
Zhang- 2009 [51]	✗	Self-administered	Convenience, 1196, (41 %), [77]	≥18	Technical competence, benevolence	18 (12)	0.83	C: clarity, relevance, avoid using negative worded, minimize confusion ✓F	[EFA, CFA, partial correlation matrix, (Varimax)] ✓convergent validity by R	Likert (5,7), SDA=-3; SA=3 [-36-36]	Literature & [67,86,87] study team FGD
Bachinger-2009 [52]	✓	Self-report	Random, 201, (52 %)	19-88, of internal medicine patients	Competence, honesty, fidelity, global trust	10	0.88, R:45	-	[EFA (direct oblimin), CFA], correlations	Likert (5), SA=1; SDA=5 [1.6–5.0]	[60]

Table 2. Continued.

First author/ year	Translation	Administration	Sampling method, Sample size, (Response rate), [Sample size in Pilot study]	Target population	Initial or conceptual dimension	Initial (final) item	Reliability (α)	Validity (Content (C) & Face (F), language)	Validity ([structural], constructive, predictive, convergent)	Scoring (Score range)	Item generation sources
Ngorsuraches-2008 [53]	✘	Self-report	Convenience, 400, [30]	>18, general population public venues, such as shopping malls and bus stations	Fidelity, competence, confidentiality, honesty, global trust	47,40 (30)	0.74-0.91	C: relevance, ambiguity, clarity create, delete, and adjust revised (expert)	[EFA, with PCA, (Promax), Scree test], correlation	Likert (5), SA; SDA [NR]	Expert reviews, FGD, think aloud method & [61, 64, 65, 88]
Rotenberg-2008 [54]	✘	Self-report	Drawn from two schools, 391	5-6 of elementary school children's parents	Honesty, emotional, reliability	12 (9)	0.70	-	[PCA, CFA, (promax)], ✓Correlatio, ✓inter-correlation, Convergence	Likert (5), trust very much=1; I don't trust at all=5 [9-45]	[89-91]
Egede- 2008 [55]	✘	Self-report	Convenience, 301, [256]	University students, primary care academic medical center	-	70 (17)	0.86 Using R	C: revised	[EFA, orthogonal set of correlated factors, PCA (Varimax)]	Likert (5), SA=5; SDA=1 [17-85]	[2, 8, 58, 60, 61, 65-67, 92-98] & expert opinion
Bova- 2006 [56]	✘	Semi-structured focus group, Interview	Purposeful (mail, phone, directly by a team), 99, [10]	≥18, living with HIV, primary care sites	Knowledge sharing, emotional connection, professional connection, respect, honesty, partnership	58,30 (15)	0.92 Using test–retest	C: relevance, clarity, applicability, appropriateness of the response options, alternative wording for awkward or confusing items	[Exploratory PFA, (varimax)]	Options (5), no time=0; all the time=4 [27-60]	FGD, interviews of HIV-infected adults
Kelly- 2005 [57]	✘	Phone, interview, mail	Selected from ED log recently received care, 383, [238]	Urban teaching hospital serving ED patients	Eight factors(but not reported domains)	42 (18)	0.88	C: ambiguity, redundancy, or unsuitability, ✓F	[PCA(Varimax)]	Likert (5), SDA=1; SA=5 [18-90]	[67] & staff feedback, FGD, in-person & telephone interviews
Dugan- 2005 [58]	✘	Telephone interview (computer assisted)	Random-digit dialing, Random, National (1064) Insurance (1045)	≥21	Competence, motivation, honesty, confidentiality	(5,5,5)	0.87, 0.84, 0.77	Feasibility analyses for completeness, floor and ceiling effects, and the dispersion of scores	[Exploratory iterated principal components factor analysis], Correlations ✓Construct validity ✓concurrent validity	Coded SA=1; SDA=5 [5-25]	[60,88]

Table 2. Continued.

First author/ year	Translation	Administration	Sampling method, Sample size, (Response rate), [Sample size in Pilot study]	Target population	Initial or conceptual dimension	Initial (final) item	Reliability (α)	Validity (Content (C) & Face (F), language)	Validity ([structural], constructive, predictive, convergent)	Scoring (Score range)	Item generation sources
Freburger-2003 [59]	✗	Survey (mail)	Outpatient visit, 713, (42 %)	Patients (rheumatoid arthritis, osteoarthritis, fibromyalgia rheumatology clinic from hosp. or private practices)	-	15	0.87, R:≥0.40	-	[Correlational analyses and factor analysis, PCFA]	Likert (5), SDA=1; SA=5 [0–100]	[8,67]
Hall-2002 [60]	✗	Telephone interview	Random, National 1117 Regional 1199, [108]	>21, households	Fidelity, competence, confidentiality, honesty, global trust	78 (10)	0.93 (national) 0.92 (regional)	C: modification	[EIPFA (varimax, promax)], correlation	Likert (5), SA-SDA [10-50]	Medical setting[1, 92,99-102] Nonmedical settings[12, 103-115] previous scales,[8,60,64,67,88] study team
Hall-2002 [61]	✗	Telephone interview	Random (residential telephone), 502, [8]	Adult, regular physician and source of payment	Fidelity, competence (technical, interpersonal), confidentiality, honesty, global trust	25 (11)	0.89	C: modification	[EIPFA, (varimax promax), scree plot], ✓construct validity: R	Following Kao,1998 [11 to 55]	Medical trust,[1,2,66,116] Other,[109, 117, 118] FGD, expert reviewers
Straten- 2002 [62]	NR	Telephone interview, Interview	Simple systematic, 1500, (70 %), [100]	General	Trust in: the patient-focus of health care providers; macro policies; expertise; quality of care; information supply and communication, quality of cooperation, the time spent on patients, availability of care	37	0.80, R among dimensions 0.20- 0.69.	-	[PCA, (oblique)]	Likert (4), very low - very high trust [NR]	The original phrases in the qualitative interviews were employed to describe the items.
Leisen- 2001 [63]	✗	Self-administered	Random, internal mail system), 214, (23 %), [40]	Employees of a service organization	evaluating problems thoroughly, understanding patients' experiences, expressing caring, providing appropriate and effective treatment, communicating clearly and completely, building partnership and sharing power, demonstrating honesty and respect for patients, predisposing factors, structural/ staffing factors, keeping information confidential	25 (11)	0.8-0.9	C: clarity, relevance	[CFA], ✓Validity (convergent, discriminant, criterion)	Likert (7) [NR] SDA=1 SA=7 [NR]	[66,67]

Table 2. Continued.

First author/ year	Translation	Administration	Sampling method, Sample size, (Response rate), [Sample size in Pilot study]	Target population	Initial or conceptual dimension	Initial (final) item	Reliability (α)	Validity (Content (C) & Face (F), language)	Validity ([structural], constructive, predictive, convergent)	Scoring (Score range)	Item generation sources
Thom- 1999 [8]	✗ (Modified)	Self-administered	Consecutive, 6-month follow-up, 440, (67 %), [193]	Adult diabetes patients in community-based, primary care practices	-	11	0.89, ICC=0.77	C: modified	✓Validity (construct, predictive) using R, ANOVA	SDA=1; SA=5 [7-100]	[67]
Safran- 1998 [64]	✗	Patient-completed	Random sample of employees stratified by health plan, 6094, (68.5 %),[500]	Adult	Assessment of primary physician's integrity, competence and role as the patient's agent	11	0.86, ICC=0.44	C: completeness, score distribution	Correlations (equal item variance, equal item-scale), ✓Validity (item-convergent, Item discriminant)	Likert (5) [0-100]	Authors
Kao- 1998 [65]	✗	Telephone interview	Two stage stratified, 300 (61 %)	Adult with managed care	Access to specialist, informing patients, general trust	10	0.94	C: modified	NR	Likert (5), completely - not at all	[66,67]
Thom and Campbell-1997 [66]	✗	Self-reported experiences	Random, 29	26-72, diverse settings, patients, family practice clinic	-	-	-	C: accuracy	-	NR	-
Anderson-1990 [67]	✗	Interview, Telephone interview	NR, 106, (92 %, 77 %),[160]	Outpatient clinic cases	Dependability in look out, knowledge and skills, confidentially and reliability of information	25 (11)	0.90, R=adequate	C: clarity	[Correlation]	Likert (5), SA-SDA [NR]	[119, 120] & interviews patients and health care providers

λ: Eigenvalue, NR: Not Reported * Kuder-Richardson's α (for dichotomous variables), # SF: Short Form, R: Correlation, SHR: Spearman-Brown Reliability coefficient (split half), EFA: Exploratory Factor Analysis, PAF: Principal Axis Factoring, PCA: Principal Component Analysis, EIPFA: Exploratory Iterated Principal Factor Analysis, ANOVA: Analysis of Variance, SA: Strongly Agree, SDA: Strongly Disagree, FGD: Focus Group Discussion, ICC: Intraclass Correlation Coefficient, CVR: Content Validity Ratio, CVI: Content Validity Index, ⋆:references for item generation, ✓: done, PPS: probability proportional to size, MD: My Doctor, DiG: Doctors in General, HCT: Health Care Team.
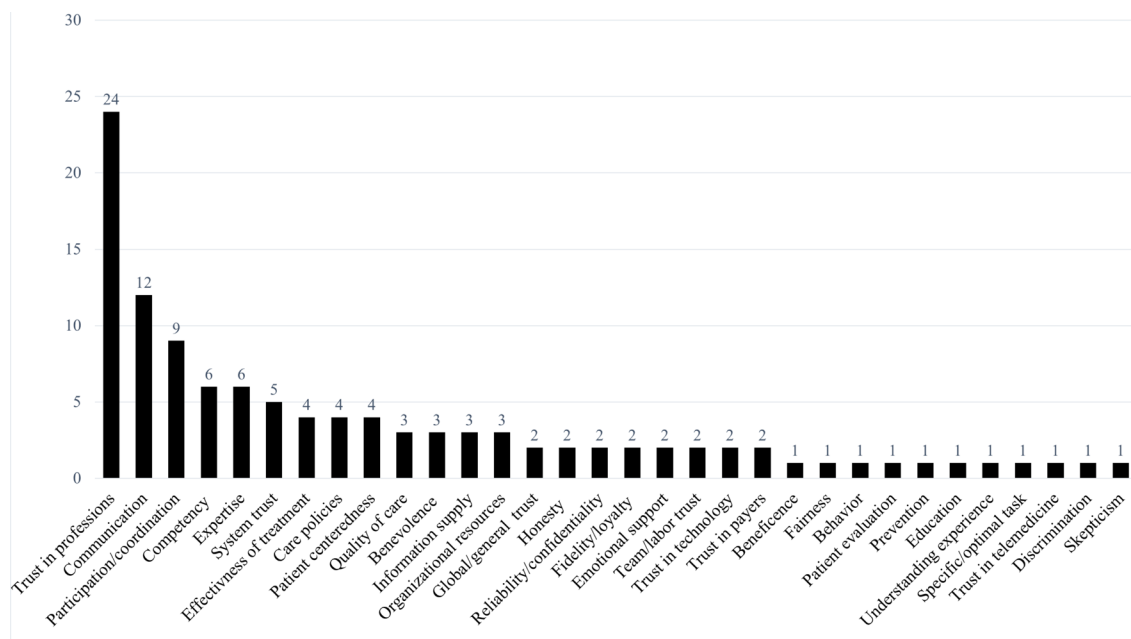
Figure 2. Frequency of final dimensions of trust in medicine in instruments designed for trust studies up to 2023

times each in studies.

Quality of care, benevolence, information supply, and organizational resources were revealed three times each in studies. Also, general trust, honesty, reliability or confidentiality, emotional support, team or labor trust, trust in technology, and trust in payers were each recorded twice in these articles as a domain. Beneficence, fairness, behavior, patient evaluation, prevention, education, understanding experience, specific or optimal tasks, trust in telemedicine, discrimination, and skepticism were narrated as a domain in these studies. Four of these studies reported factors or domains without a specific name.

Trust in Medicine Correlates (Associates) in Developed Tools for Trust Studies in the Literature

Trust correlates are considered in ten categories including care, patient behavior, healthcare-patient, care provider professional, healthcare organization, personal health status, social, demographic, insurer, and other characteristics.

Healthcare-related characteristics included patient satisfaction, continuity, quality of care, public health behavior, accessibility, interpersonal treatment, comprehensiveness, service use/acceptance, patient-centeredness, and parent experience (Table 3).

Patient behavior covers features such as adherence, number of physician visits, choice, seeking a second opinion, returning for care, independent decision-making, routine health exams or health-seeking, and membership in managed care.

Care-patient features include unwillingness to switch, recommendation, previous experience, and pain manageability.

Care provider include elements like length of relationship, disputation, behavior, trust, type of service

provider, expertise, interaction, trusting information from provider, the number of physicians in practice, educational grade of care provider, and graduated place.

Healthcare organization characteristics included institutional trust, integration, and health plan. Health status comprised general health, mental health, physical health, health locus of control, depression, fibromyalgia, osteoarthritis, and schizophrenic.

Social categories include general trust, minority, racism especially in health care, interpersonal trust, racism especially in health care, the federal government, ethnic identity, social desirability, social support, partner's support, and macro-level policy. Demographics include characteristics such as age, education, income, nationality, sex/gender, marital status, and job.

Insurer categories included methods of payment and incentives for opportunistic behavior. Other characteristics included friend referral and skepticism.

Items Numbers, Variances for Domains, Eigenvalue, Reliability, and Scoring of Trust in Medicine Developed Tools in the Literature

On average, 18 final items were obtained in each tool with a maximum and minimum of 80 and 4 cases, respectively. On average, 3 dimensions have been obtained in each tool, single dimension is the most frequent with 35 %, and the maximum dimension was reported in seven domains. Most of the studies reported variances of 54 % (n = 28), with a minimum of (3.3 %), and with a maximum of (82 %). Thirty-eight percent (n = 20) reported eigenvalue (λ) in the developed tools. The average reliability of the studies was 86.44(± 7.26) with max = 0.98, and min = 0.68. Most of the studies used a 5-point Likert-type scale (82 %). Two of the studies used a 4-point Likert-type scale (Table 2).

Table 3. Trust correlates in developed scales in medical care in the literature up to 2023

Trust correlates categories	No. (%)
Healthcare related characteristics	27 (15)
Patient Satisfaction	14
Continuity	3
Quality of care	2
Public health behavior	2
Accessibility	1
Interpersonal treatment	1
Comprehensiveness	1
Service use/acceptance	1
Patient centeredness	1
Parent experience	1
Patient behavior	38 (21)
Adherence	11
Number of physicians visits	9
Choice	5
Seeking a second opinions	4
Returning for care	3
Independent decision making	2
Routine health exam/ health seeking	2
Membership in managed care	2
Healthcare-patient	18 (10)
Unwillingness to switch	7
Recommendation	6
Previous experience	3
Pain manageability	2
Healthcare provider	25 (13)
Length of relationship	5
No prior disputation	5
Behavior	4
Trust	3
Type of service provider	2
Expertise	1
Interaction	1
Trust the information from provider	1
Number of physician in practice	1
Educational grade of care provider	1
Graduated place	1
Healthcare organization	6 (3)
Trust in healthcare system	4
Integration	1
Health plan	1
Health status	18 (10)
General health	5
Health locus of control	5
Mental health	4
Physical health	1
Fibromyalgia or osteoarthritis	1

Table 3. Continued.

Trust correlates categories	No. (%)
Schizophrenic	1
Depression	1
Social factors	18(9.8)
General trust	3
Minority*	3
Racism specially in health care	2
Interpersonal trust	2
Racism specially in health care	2
Federal government	1
Ethnic identity	1
Social desirability	1
Social support	1
Partner's support	1
Macro-level policy	1
Demographic features	29(15)
Age	10
Education	9
Income	3
Nationality	3
Sex/gender	2
Marital status	1
Job	1
Insurer	2(1)
Method of payment	1
Incentives for opportunistic behavior	1
Oher characteristics	4(2.3)
Friend referral	3(1.7)
Skepticism#	1(0.5)
Total	**185**

*Minority can be both a social characteristic and a demographic feature.
#Skepticism can take different forms, whether it's exhibited by patient-related behavior or within a social context.

Validity Status in Developed Scales in Medical Care (n = 52)

Exploratory factor analysis was used in 46 % (n = 24) of studies. Confirmatory factor analysis was used in 38 % (n = 20) of the studies. Convergent validity was used in 17 % (n = 9) of the studies. Criterion validity was applied in two of the studies. External validity was used in two of the studies. Regarding content validity clarity, wording, relevancy, semantic equivalence, item position, and grammatical/linguistic were the most common properties, respectively (Table 2).

Discussion

This is the first study to undertake a scoping review of all available evidence of instruments designed for measuring trust in medical care in the world up to 2023. This study was conducted to identify dimensions of trust in medical care, common trust subjects, and correlates,

comprehensively.

Trust in professions, communication, participation or coordination, competency, expertise, system trust, effectiveness, care policies, patient-centeredness, quality of care, benevolence, informed care, resources, general trust, honesty, reliability, fidelity, and support were the most prevalent dimension of trust in medicine, respectively. Furthermore, beneficence, fairness, behavior, patient evaluation, prevention, education, understanding experience, specific task, trust in telemedicine, no discrimination, skepticism each were seen once as dimension of trust in medicine in literature studies.

The diversity in different dimensions of trust tools in the medical field can be caused by the sample size, disease-specific, study design, subject of trust, level of measurement, department or institution, time of study, time saving, and uniqueness of a language, type of specialties, data collection method, and location under investigation. Future research should, therefore, concentrate on the investigation of trust in medicine dimensions. "Trust will not be the same at all times and in all places".[121]

Considering that there is a priority for one-dimensional scale, it may be conceivable to measure patients' trust through a shorter form. Such a shortened form would be of specific intrigue for investigations including time-saving.[18] A brief scale would reduce the patient and investigator burden, especially in investigations in which trust is not the essential focus.[18] Due to the subjective nature of patient trust and its crucial importance in the physician-patient relationship, it is imperative to employ specialized instruments which are tailored to particular patient populations in the quantitative assessment of patient trust.[39]

Tool development studies in the field of trust in medicine have identified many correlates of trust in medicine which fall into nine general categories. These characteristics are related to healthcare (such as quality of care, patient-centeredness, acceptance, patient satisfaction …), patient behavior, healthcare-patient, care provider professional, healthcare system, individual health status, social factors, demographics, insurer, and other characteristics.

The results of this study showed that trust in medicine is closely related to all factors affecting the survival of the health organization, including the customer (patient), service provider, organization, and social systems. Trust acts as the glue that holds the system together.[122] The decreasing trust is a sign of the quality of care decline of the systems that need attention to improve the family of trust to continually quality improvement. The existence of trust is the factor of people's cooperation and their participation in public spheres and normal behaviors. The coronavirus pandemic showed that lack of trust leads to people's non-cooperation which in turn brings about poor consequences.[123-126] It is suggested that trust building should be seriously included in the main program of management and leadership of health organizations.

Based on the findings of the present study, the following themes are suggested for future research towards building confidence in medicine scales: It is advised that the association of these factors is investigated in future studies. In developing tools, we need to pay attention to the most common dimensions of trust. Measurements of trust in medicine have implications for clinical practice by influencing therapeutic patient-provider relationships, patient engagement, adherence to treatment plans, perception of quality of care, satisfaction, and ultimately, patient outcomes. Trust in medical care and public health is crucial for the well-being of individuals and society as a whole.

The emergency department is one of the important and busy departments[127,128] of the clinical settings that may have a significant impact on the satisfaction of the patients[129,130] which should be given more attention in measuring the trust and satisfaction of the patients.

Although this scoping review research extends our knowledge of measuring trust in medicine, it has some restrictions. The biggest drawback of this study was that it only looked at literature in English and Persian, even if there may be worthwhile studies in other languages that were left out of the current synthesis. Another drawback of this study is the subjective interpretation of the results. Also, we did not evaluate the quality of each of the included studies.

Further investigation and experimentation into measuring trust in medical care is strongly recommended. It is recommended that further research in the development of tools related to the measurement of trust in medicine should pay attention to the most frequent dimensions and correlates of family of trust.

Conclusion

This study provides a comprehensive view of the discussion of creating and developing tools in the field of medical care trust. However, existence of trust is an important factor, especially in the provision of medical and health practice. Trust in professions, communication, participation, competency, expertise, system trust, effectiveness, policies, patient-centeredness, quality of care, benevolence, informed care, resources, general trust, honesty, reliability, fidelity, and support were the most widespread dimensions of trust in medicine. The findings from this study make several contributions to the current literature. First, researchers in the field of trust are recommended to pay more attention to the most commonly known domains in preparing tools. Second, medical care providers and authorities need to consider the most common dimensions for the improvement of trusted care as an important index of healthcare quality improvement for future practice.

Research Highlights

What is the current knowledge?
- The measurements of trust in medical care have significant implications for clinical practice and patient care.
- This enables healthcare providers to deliver patient-centered care, which is a crucial aspect of ensuring high-quality healthcare.

What is new here?
- This investigation has revealed that trust in professions, communication, participation, competency, expertise, system trust, effectiveness, policies, patient-centeredness, quality of care, benevolence, information supply, resources, general trust, honesty, reliability, fidelity, and support is the most prevalent dimension of trust in medicine.

Authors' Contribution
Conceptualization: Ehsan Sarbazi, Homayoun Sadeghi-Bazargani, Hassan Soleimanpour.
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Competing Interests
The authors declare that they have no conflicts of interest.

Data Availability Statement
All data generated or analyzed during this study are included in this published article.

Ethical Approval
This research was approved by the Research Ethics Committee of Tabriz University of Medical Sciences, Iran with No. IR.TBZMED. REC.1399.1098. All methods were performed following the relevant guidelines and regulations of the Declaration of Helsinki (DoH).

Supplementary File
Table S1. Search strategy in PubMed

References
1. Hall MA, Dugan E, Zheng B, Mishra AK. Trust in physicians and medical institutions: what is it, can it be measured, and does it matter? Milbank Q. 2001; 79(4): 613-39. doi: 10.1111/1468-0009.00223
2. Mechanic D, Meyer S. Concepts of trust among patients with serious illness. Soc Sci Med. 2000; 51(5): 657-68. doi: 10.1016/s0277-9536(00)00014-9
3. Hillen MA, Onderwater AT, van Zwieten MC, de Haes HC, Smets EM. Disentangling cancer patients' trust in their oncologist: a qualitative study. Psychooncology. 2012; 21(4): 392-9. doi: 10.1002/pon.1910
4. Aloba O, Mapayi B, Akinsulore S, Ukpong D, Fatoye O. Trust in Physician Scale: factor structure, reliability, validity and correlates of trust in a sample of Nigerian psychiatric outpatients. Asian J Psychiatr. 2014; 11: 20-7. doi: 10.1016/j.ajp.2014.05.005
5. Collins TC, Clark JA, Petersen LA, Kressin NR. Racial differences in how patients perceive physician communication regarding cardiac testing. Med Care. 2002; 40(1 Suppl): I27-34. doi: 10.1097/00005650-200201001-00004
6. Zarei E, Daneshkohan A, Khabiri R, Arab M. The effect of hospital service quality on patient's trust. Iran Red Crescent Med J. 2015; 17(1): e17505. doi: 10.5812/ircmj.17505
7. Dinç L, Gastmans C. Trust in nurse-patient relationships: a literature review. Nurs Ethics. 2013; 20(5): 501-16. doi: 10.1177/0969733012468463
8. Thom DH, Ribisl KM, Stewart AL, Luke DA. Further validation and reliability testing of the Trust in Physician Scale. The Stanford Trust Study Physicians. Med Care. 1999; 37(5): 510-7. doi: 10.1097/00005650-199905000-00010
9. Hillen MA, de Haes HC, Smets EM. Cancer patients' trust in their physician-a review. Psychooncology. 2011; 20(3): 227-41. doi: 10.1002/pon.1745
10. Ebrahimipour H, Heidariyan Miri H, Askarzadeh E. Validity and reliability of measurement tool of public trust of health care providers. J Paramed Sci Rehabil. 2020; 9(1): 81-90. doi: 10.22038/jpsr.2020.41802.1988
11. Rowe R, Calnan M. Trust relations in health care--the new agenda. Eur J Public Health. 2006; 16(1): 4-6. doi: 10.1093/eurpub/ckl004
12. Baier A. Trust and antitrust. Ethics. 1986; 96(2): 231-60. doi: 10.1086/292745
13. Ozawa S, Sripad P. How do you measure trust in the health system? A systematic review of the literature. Soc Sci Med. 2013; 91: 10-4. doi: 10.1016/j.socscimed.2013.05.005
14. Gopichandran V, Chetlapalli SK. Dimensions and determinants of trust in health care in resource poor settings--a qualitative exploration. PLoS One. 2013; 8(7): e69170. doi: 10.1371/journal.pone.0069170
15. Suhonen R, Saarikoski M, Leino-Kilpi H. Cross-cultural nursing research. Int J Nurs Stud. 2009; 46(4): 593-602. doi: 10.1016/j.ijnurstu.2008.09.006
16. Stolt M, Charalambous A, Radwin L, Adam C, Katajisto J, Lemonidou C, et al. Measuring trust in nurses - psychometric properties of the Trust in Nurses Scale in four countries. Eur J Oncol Nurs. 2016; 25: 46-54. doi: 10.1016/j.ejon.2016.09.006
17. Gopichandran V, Wouters E, Chetlapalli SK. Development and validation of a socioculturally competent trust in physician scale for a developing country setting. BMJ Open. 2015; 5(4): e007305. doi: 10.1136/bmjopen-2014-007305
18. Hillen MA, Postma RM, Verdam MG, Smets EM. Development and validation of an abbreviated version of the Trust in Oncologist Scale-the Trust in Oncologist Scale-short form (TiOS-SF). Support Care Cancer. 2017; 25(3): 855-61. doi: 10.1007/s00520-016-3473-y

19. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Int J Surg. 2021; 88: 105906. doi: 10.1016/j.ijsu.2021.105906

20. Peters MD, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil H. Scoping reviews: Joanna Briggs Institute reviewer's manual. 2017. doi: 10.46658/jbirm-20-01

21. Peters MD, Godfrey CM, Khalil H, McInerney P, Parker D, Soares CB. Guidance for conducting systematic scoping reviews. Int J Evid Based Healthc. 2015; 13(3): 141-6. doi: 10.1097/xeb.0000000000000050

22. Sarbazi E, Sadeghi-Bazargani H, Farahbakhsh M, Ala A, Soleimanpour H. Psychometric properties of trust in trauma care in an emergency department tool. Eur J Trauma Emerg Surg. 2023; 49(6): 2615-22. doi: 10.1007/s00068-023-02348-z

23. Richmond J, Boynton MH, Ozawa S, Muessig KE, Cykert S, Ribisl KM. Development and validation of the trust in my doctor, trust in doctors in general, and trust in the health care team scales. Soc Sci Med. 2022; 298: 114827. doi: 10.1016/j.socscimed.2022.114827

24. Alaei Kalajahi R, Saadati M, Azami Aghdash S, Rezapour R, Nouri M, Derakhshani N, et al. Psychometric properties of public trust in COVID-19 control and prevention policies questionnaire. BMC Public Health. 2022; 22(1): 1959. doi: 10.1186/s12889-022-14272-9

25. Holroyd TA, Limaye RJ, Gerber JE, Rimal RN, Musci RJ, Brewer J, et al. Development of a scale to measure trust in public health authorities: prevalence of trust and association with vaccination. J Health Commun. 2021; 26(4): 272-80. doi: 10.1080/10810730.2021.1927259

26. Bani M, Rossi E, Cortinovis D, Russo S, Gallina F, Hillen MA, et al. Validation of the Italian version of the full and abbreviated Trust in Oncologist Scale. Eur J Cancer Care (Engl). 2021; 30(1): e13334. doi: 10.1111/ecc.13334

27. Comparcini D, Simonetti V, Tomietto M, Radwin LE, Cicolini G. Trust in Nurses Scale: validation of the core elements. Scand J Caring Sci. 2021; 35(2): 636-41. doi: 10.1111/scs.12885

28. Sadeghi-Bazargani H, Farahbakhsh M, Tabrizi JS, Zare Z, Saadati M. Psychometric properties of primary health care trust questionnaire. BMC Health Serv Res. 2019; 19(1): 502. doi: 10.1186/s12913-019-4340-6

29. Abdolahian S, Ozgoli G, Ebadi A, Kariman N. Translation and psychometric assessment of the Persian version of patient trust in midwifery care scale. Evid Based Care J. 2018; 8(4): 52-60.

30. Krajewska-Kułak E, Kułak W, Cybulski M, Kowalczuk K, Guzowski A, Łukaszuk C, et al. Trust in nurse scale developed on the basis of the standardized Trust in Physician Scale by Anderson and Dedrick. Mater Sociomed. 2019; 31(1): 57-61. doi: 10.5455/msm.2019.31.57-61

31. Krajewska-Kułak E, Kułak W, Łukaszuk C, Lewko J, Sengupta P, Cybulski M, et al. Validation of the Polish version of the Anderson and Dedrick Trust in Physician Scale. Progress in Health Sciences. 2018; 8(1): 27-35.

32. Kalsingh MJ, Veliah G, Gopichandran V. Psychometric properties of the Trust in Physician Scale in Tamil Nadu, India. J Family Med Prim Care. 2017; 6(1): 34-8. doi: 10.4103/2249-4863.214966

33. Armfield JM, Ketting M, Chrisopoulos S, Baker SR. Do people trust dentists? Development of the Dentist Trust Scale. Aust Dent J. 2017; 62(3): 355-62. doi: 10.1111/adj.12514

34. Chatzea VE, Sifaki-Pistolla D, Dey N, Melidoniotis E. Validation of the TRUST tool in a Greek perioperative setting. J Perioper Pract. 2017; 27(6): 137-42. doi: 10.1177/175045891702700604

35. Zhao L, Wang R, Liu S, Yan J. Validation of Chinese version of the 4-item Trust in Nurses Scale in patients with cancer.

Patient Prefer Adherence. 2017; 11: 1891-6. doi: 10.2147/ppa.s144971

36. van Velsen L, Tabak M, Hermens H. Measuring patient trust in telemedicine services: development of a survey instrument and its validation for an anticoagulation web-service. Int J Med Inform. 2017; 97: 52-8. doi: 10.1016/j.ijmedinf.2016.09.009

37. Nooripour R, Habibi M, Ghanbari N, Hossein Zade Oskoei A. An Investigation into psychometric properties of Trust in Nurses Scale. Psychometry. 2016; 4(15): 1-12. [Persian].

38. Tabrizi JS, Saadati M, Sadeghi-Bazargani H, Abedi L, Alibabayee R. Iranian public trust in health services: evidence from Tabriz, Islamic Republic of Iran. East Mediterr Health J. 2017; 22(10): 713-8. doi: 10.26719/2016.22.10.713

39. Dong E, Liang Y, Liu W, Du X, Bao Y, Du Z, et al. Construction and validation of a preliminary Chinese version of the Wake Forest Physician Trust Scale. Med Sci Monit. 2014; 20: 1142-50. doi: 10.12659/msm.889992

40. Peters RM, Benkert R, Templin TN, Cassidy-Bushrow AE. Measuring African American women's trust in provider during pregnancy. Res Nurs Health. 2014; 37(2): 144-54. doi: 10.1002/nur.21581

41. Hillen MA, Butow PN, Tattersall MH, Hruby G, Boyle FM, Vardy J, et al. Validation of the English version of the Trust in Oncologist Scale (TiOS). Patient Educ Couns. 2013; 91(1): 25-8. doi: 10.1016/j.pec.2012.11.004

42. Lori JR, Munro ML, Moore JE, Fladger J. Lessons learned in Liberia: preliminary examination of the psychometric properties of trust and teamwork among maternal healthcare workers. BMC Health Serv Res. 2013; 13: 134. doi: 10.1186/1472-6963-13-134

43. Dinç L, Korkmaz F, Karabulut E. A validity and reliability study of the Multidimensional Trust in Health-Care Systems Scale in a Turkish patient population. Soc Indic Res. 2013; 113(1): 107-20. doi: 10.1007/s11205-012-0084-y

44. Bova C, Route PS, Fennie K, Ettinger W, Manchester GW, Weinstein B. Measuring patient-provider trust in a primary care population: refinement of the health care relationship trust scale. Res Nurs Health. 2012; 35(4): 397-408. doi: 10.1002/nur.21484

45. Eisenman DP, Williams MV, Glik D, Long A, Plough AL, Ong M. The public health disaster trust scale: validation of a brief measure. J Public Health Manag Pract. 2012; 18(4): E11-8. doi: 10.1097/PHH.0b013e31823991e8

46. Jeschke E, Ostermann T, Dippong N, Brauer D, Matthes H. Psychometric properties of the Confidence and Trust in Delivery Questionnaire (CTDQ): a pilot study. BMC Womens Health. 2012; 12: 26. doi: 10.1186/1472-6874-12-26

47. Hillen MA, Koning CC, Wilmink JW, Klinkenbijl JH, Eddes EH, Kallimanis-King BL, et al. Assessing cancer patients' trust in their oncologist: development and validation of the Trust in Oncologist Scale (TiOS). Support Care Cancer. 2012; 20(8): 1787-95. doi: 10.1007/s00520-011-1276-8

48. Thom DH, Wong ST, Guzman D, Wu A, Penko J, Miaskowski C, et al. Physician trust in the patient: development and validation of a new measure. Ann Fam Med. 2011; 9(2): 148-54. doi: 10.1370/afm.1224

49. Montague E. Validation of a trust in medical technology instrument. Appl Ergon. 2010; 41(6): 812-21. doi: 10.1016/j.apergo.2010.01.009

50. Radwin LE, Cabral HJ. Trust in Nurses Scale: construct validity and internal reliability evaluation. J Adv Nurs. 2010; 66(3): 683-9. doi: 10.1111/j.1365-2648.2009.05168.x

51. Zhang XH, Jin J, Ngorsuraches S, Li SC. Development and validation of a scale to measure patients' trust in pharmacists in Singapore. Patient Prefer Adherence. 2009; 3: 1-7. doi: 10.2147/ppa.s4362

52. Bachinger SM, Kolk AM, Smets EM. Patients' trust in their

physician--psychometric properties of the Dutch version of the "Wake Forest Physician Trust Scale". Patient Educ Couns. 2009; 76(1): 126-31. doi: 10.1016/j.pec.2008.11.020

53. Ngorsuraches S, Lerkiatbundit S, Li SC, Treesak C, Sirithorn R, Korwiwattanakarn M. Development and validation of the patient trust in community pharmacists (TRUST-Ph) scale: results from a study conducted in Thailand. Res Social Adm Pharm. 2008; 4(3): 272-83. doi: 10.1016/j.sapharm.2007.10.002

54. Rotenberg KJ, Cunningham J, Hayton N, Hutson L, Jones L, Marks C, et al. Development of a Children's Trust in General Physicians Scale. Child Care Health Dev. 2008; 34(6): 748-56. doi: 10.1111/j.1365-2214.2008.00872.x

55. Egede LE, Ellis C. Development and testing of the Multidimensional Trust in Health Care Systems Scale. J Gen Intern Med. 2008; 23(6): 808-15. doi: 10.1007/s11606-008-0613-1

56. Bova C, Fennie KP, Watrous E, Dieckhaus K, Williams AB. The health care relationship (HCR) trust scale: development and psychometric evaluation. Res Nurs Health. 2006; 29(5): 477-88. doi: 10.1002/nur.20158

57. Kelly JJ, Njuki F, Lane PL, McKinley RK. Design of a questionnaire to measure trust in an emergency department. Acad Emerg Med. 2005; 12(2): 147-51. doi: 10.1111/j.1553-2712.2005.tb00853.x

58. Dugan E, Trachtenberg F, Hall MA. Development of abbreviated measures to assess patient trust in a physician, a health insurer, and the medical profession. BMC Health Serv Res. 2005; 5: 64. doi: 10.1186/1472-6963-5-64

59. Freburger JK, Callahan LF, Currey SS, Anderson LA. Use of the Trust in Physician Scale in patients with rheumatic disease: psychometric properties and correlates of trust in the rheumatologist. Arthritis Rheum. 2003; 49(1): 51-8. doi: 10.1002/art.10925

60. Hall MA, Zheng B, Dugan E, Camacho F, Kidd KE, Mishra A, et al. Measuring patients' trust in their primary care providers. Med Care Res Rev. 2002; 59(3): 293-318. doi: 10.1177/1077558702059003004

61. Hall MA, Camacho F, Dugan E, Balkrishnan R. Trust in the medical profession: conceptual and measurement issues. Health Serv Res. 2002; 37(5): 1419-39. doi: 10.1111/1475-6773.01070

62. Straten GF, Friele RD, Groenewegen PP. Public trust in Dutch health care. Soc Sci Med. 2002; 55(2): 227-34. doi: 10.1016/s0277-9536(01)00163-0

63. Leisen B, Hyman MR. An improved scale for assessing patients' trust in their physician. Health Mark Q. 2001; 19(1): 23-42. doi: 10.1300/J026v19n01_03

64. Safran DG, Kosinski M, Tarlov AR, Rogers WH, Taira DH, Lieberman N, et al. The Primary Care Assessment Survey: tests of data quality and measurement performance. Med Care. 1998; 36(5): 728-39. doi: 10.1097/00005650-199805000-00012

65. Kao AC, Green DC, Zaslavsky AM, Koplan JP, Cleary PD. The relationship between method of physician payment and patient trust. JAMA. 1998; 280(19): 1708-14. doi: 10.1001/jama.280.19.1708

66. Thom DH, Campbell B. Patient-physician trust: an exploratory study. J Fam Pract. 1997; 44(2): 169-76.

67. Anderson LA, Dedrick RF. Development of the Trust in Physician scale: a measure to assess interpersonal trust in patient-physician relationships. Psychol Rep. 1990; 67(3 Pt 2): 1091-100. doi: 10.2466/pr0.1990.67.3f.1091

68. Lee C, Whetten K, Omer S, Pan W, Salmon D. Hurdles to herd immunity: distrust of government and vaccine refusal in the US, 2002-2003. Vaccine. 2016; 34(34): 3972-8. doi: 10.1016/j.vaccine.2016.06.048

69. Taylor-Clark K, Blendon RJ, Zaslavsky A, Benson J. Confidence in crisis? Understanding trust in government and public attitudes toward mandatory state health powers. Biosecur Bioterror. 2005; 3(2): 138-47. doi: 10.1089/bsp.2005.3.138

70. Radwin L. Oncology patients' perceptions of quality nursing care. Res Nurs Health. 2000; 23(3): 179-90. doi: 10.1002/1098-240x(200006)23:3<179::aid-nur2>3.0.co;2-t

71. Erdem F, Ozen J. Cognitive and affective dimensions of trust in developing team performance. Team Perform Manag. 2003; 9(5/6): 131-5. doi: 10.1108/13527590310493846

72. Zhe-Mei H, Wan-Mei H, Li-Hong C, Jian-Ni L. Qun-Di M. Analysis of reliability and validity of a nurse-patient trust scale. J Nurs Admin. 2010; 10(10): 700-1.

73. Van Velsen L, Wildevuur S, Flierman I, Van Schooten B, Tabak M, Hermens H. Trust in telemedicine portals for rehabilitation care: an exploratory focus group study with patients and healthcare professionals. BMC Med Inform Decis Mak. 2016; 16: 11. doi: 10.1186/s12911-016-0250-2

74. Mayer RC, Davis JH, Schoorman FD. An integrative model of organizational trust. Acad Manage Rev. 1995; 20(3): 709-34. doi: 10.5465/amr.1995.9508080335

75. McKnight DH, Choudhury V, Kacmar C. Developing and validating trust measures for e-commerce: an integrative typology. Inf Syst Res. 2002; 13(3): 334-59. doi: 10.1287/isre.13.3.334.81

76. Radwin LE, Farquhar SL, Knowles MN, Virchick BG. Cancer patients' descriptions of their nursing care. J Adv Nurs. 2005; 50(2): 162-9. doi: 10.1111/j.1365-2648.2005.03375.x

77. van der Schee E, Braun B, Calnan M, Schnee M, Groenewegen PP. Public trust in health care: a comparison of Germany, The Netherlands, and England and Wales. Health Policy. 2007; 81(1): 56-67. doi: 10.1016/j.healthpol.2006.04.004

78. Dynes M, Hadley C, Sibley L. Using qualitative data to develop locally relevant and valid quantitative measurement tools: a case example of trust in Ethiopia. J Midwifery Womens Health. 2011; 56(5): 527-. doi: 10.1111/j.1542-2011.2011.00097.x

79. Wolf MH, Putnam SM, James SA, Stiles WB. The Medical Interview Satisfaction Scale: development of a scale to measure patient perceptions of physician behavior. J Behav Med. 1978; 1(4): 391-401. doi: 10.1007/bf00846695

80. Cook KS, Kramer RM, Thom DH, Stepanikova I, Mollborn SB, Cooper RM. Trust and Distrust in Patient-Physician Relationships: Perceived Determinants of High-and Low-Trust Relationships in Managed-Care Settings. New York: Russell Sage Foundation; 2004.

81. Kramer RM, Cook KS. Trust and Distrust in Organizations: Dilemmas and Approaches. New York: Russell Sage Foundation; 2004. doi: 10.1017/s0047279405219438

82. Stepanikova I, Cook KS, Thom D, Kramer R, Mollborn SB, Levi M, et al. Trust in managed care settings. In: Whom Can We Trust. New York: Russell Sage Foundation; 2009. p. 149-81.

83. Cook KS, Levi M, Hardin R. Whom Can We Trust? How Groups, Networks, and Institutions Make Trust Possible. New York: Russell Sage Foundation; 2009. doi: 10.1177/0268580911411516

84. Montague E. Patient user experience of medical technology. In: Ergonomics and Health Aspects of Work with Computers, International Conference. EHAWC; 2009. p. 70-7.

85. Montague E, Kleiner B, Winchester W. Empirically understanding trust in medical technology. Int J Ind Ergon. 2009; 39(4): 628-34. doi: 10.1016/j.ergon.2009.01.004

86. Piette JD, Heisler M, Krein S, Kerr EA. The role of patient-physician trust in moderating medication nonadherence due to cost pressures. Arch Intern Med. 2005; 165(15): 1749-55. doi: 10.1001/archinte.165.15.1749

87. Thom DH, Hall MA, Pawlson LG. Measuring patients' trust in physicians when assessing quality of care. Health

Aff (Millwood). 2004; 23(4): 124-32. doi: 10.1377/hlthaff.23.4.124

88. Kao AC, Green DC, Davis NA, Koplan JP, Cleary PD. Patients' trust in their physicians: effects of choice, continuity, and payment method. J Gen Intern Med. 1998; 13(10): 681-6. doi: 10.1046/j.1525-1497.1998.00204.x

89. Rotenberg KJ. Loneliness and interpersonal trust. J Soc Clin Psychol. 1994; 13(2): 152-73. doi: 10.1521/jscp.1994.13.2.152

90. Rotenberg KJ. Interpersonal trust across the lifespan. In: Smelser NJ, Baltes PB, eds. International Encyclopedia of the Social & Behavioral Sciences. Oxford: Pergamon; 2001. doi: 10.1016/b0-08-043076-7/01774-5

91. Rotenberg KJ, Fox C, Green S, Ruderman L, Slater K, Stevens K, et al. Construction and validation of a children's interpersonal trust belief scale. Br J Dev Psychol. 2005; 23(2): 271-93. doi: 10.1348/026151005x26192

92. Mechanic D. Changing medical organization and the erosion of trust. Milbank Q. 1996; 74(2): 171-89. doi: 10.2307/3350245

93. Corbie-Smith G, Thomas SB, St George DM. Distrust, race, and research. Arch Intern Med. 2002; 162(21): 2458-63. doi: 10.1001/archinte.162.21.2458

94. Rose A, Peters N, Shea JA, Armstrong K. Development and testing of the health care system distrust scale. J Gen Intern Med. 2004; 19(1): 57-63. doi: 10.1111/j.1525-1497.2004.21146.x

95. Thompson HS, Valdimarsdottir HB, Winkel G, Jandorf L, Redd W. The Group-Based Medical Mistrust Scale: psychometric properties and association with breast cancer screening. Prev Med. 2004; 38(2): 209-18. doi: 10.1016/j.ypmed.2003.09.041

96. Goold SD, Fessler D, Moyer CA. A measure of trust in insurers. Health Serv Res. 2006; 41(1): 58-78. doi: 10.1111/j.1475-6773.2005.00456.x

97. Zheng B, Hall MA, Dugan E, Kidd KE, Levine D. Development of a scale to measure patients' trust in health insurers. Health Serv Res. 2002; 37(1): 185-200. doi: 10.1111/1475-6773.00145

98. Doescher MP, Saver BG, Franks P, Fiscella K. Racial and ethnic disparities in perceptions of physician style and trust. Arch Fam Med. 2000; 9(10): 1156-63. doi: 10.1001/archfami.9.10.1156

99. Pellegrino ED, Veatch RM, Langan J. Ethics, Trust, and the Professions: Philosophical and Cultural Aspects. Georgetown University Press; 1991.

100. Mechanic D, Schlesinger M. The impact of managed care on patients' trust in medical care and their physicians. JAMA. 1996; 275(21): 1693-7. doi: 10.1001/jama.1996.03530450083048

101. Mechanic D. The functions and limitations of trust in the provision of medical care. J Health Polit Policy Law. 1998; 23(4): 661-86. doi: 10.1215/03616878-23-4-661

102. Rogers DE. On trust: a basic building block for healing doctor-patient interactions. J R Soc Med. 1994; 87(Suppl 22): 2-5.

103. Baker J. Trust and rationality. Pac Philos Q. 1987; 68(1): 1-13. doi: 10.1111/j.1468-0114.1987.tb00280.x

104. D'Cruz J. Trust within limits. International Journal of Philosophical Studies. 2018;26(2):240-50. doi:10.1080/09672559.2018.1450080

105. Braithwaite V, Levi M. Trust and Governance. New York: Russell Sage Foundation; 1998.

106. Kramer RM, Tyler TR. Trust in Organizations: Frontiers of Theory and Research. SAGE Publications; 1996. doi: 10.4135/9781452243610

107. Rempel JK, Holmes JG, Zanna MP. Trust in close relationships. J Pers Soc Psychol. 1985; 49(1): 95-112. doi: 10.1037/0022-3514.49.1.95

108. Hardin R. Trusting persons, trusting institutions. In: Strategy and Choice. 1991.

109. Luhmann N. Trust and power. John Wiley & Sons; 2018.

110. Gambetta D. Trust: Making and Breaking Cooperative Relations. Blackwell; 1988.

111. Govier T. Social Trust and Human Communities. Montreal: McGill-Queen's University Press; 1997. doi: 10.1515/9780773566828

112. Seligman A. The problem of trust, Princeton 1997. In: Coleman JS, ed. Foundations of Social Theory. Harvard University Press; 1990.

113. Braithwaite V, Levi M. Trust and Governance. Russell Sage Foundation; 1998.

114. Hollis M. Trust within Reason. Cambridge: Cambridge University Press; 1998.

115. Cook K. Trust in Society. Russell Sage Foundation; 2001.

116. Thorne SE, Robinson CA. Reciprocal trust in health care relationships. J Adv Nurs. 1988; 13(6): 782-9. doi: 10.1111/j.1365-2648.1988.tb00570.x

117. Rousseau DM, Sitkin SB, Burt RS, Camerer C. Not so different after all: a cross-discipline view of trust. Acad Manage Rev. 1998; 23(3): 393-404. doi: 10.5465/amr.1998.926617

118. Grovier T. An epistemology of trust. Int J Moral Soc Stud. 1994; 8(2): 155-74.

119. Rotter JB. A new scale for the measurement of interpersonal trust. J Pers. 1967; 35(4): 651-65. doi: 10.1111/j.1467-6494.1967.tb01454.x

120. Wallston KA, Wallston BS, Gore S. Development of a scale to measure nurses' trust of patients. Nur Res. 1973; 22(3): 232-5. doi: 10.1097/00006199-197305000-00006

121. Tschannen-Moran M, Hoy WK. A multidisciplinary analysis of the nature, meaning, and measurement of trust. Rev Educ Res. 2000; 70(4): 547-93. doi: 10.3102/00346543070004547

122. Lewicka D, Zakrzewska-Bielawska AF. Trust and distrust in interorganisational relations-scale development. PLoS One. 2022; 17(12): e0279231. doi: 10.1371/journal.pone.0279231

123. Sapienza A, Falcone R. The role of trust in COVID-19 vaccine acceptance: considerations from a systematic review. Int J Environ Res Public Health. 2022; 20(1): 665. doi: 10.3390/ijerph20010665

124. Soleimanpour H, Sarbazi E, Davtalab Esmaeili E, Mehri A, Ghaffari Fam S, Nikbakht HA, et al. Predictors of receiving COVID-19 vaccine among adult population in Iran: an observational study. BMC Public Health. 2023; 23(1): 490. doi: 10.1186/s12889-023-15409-0

125. Shadvar K, Tagizadiyeh A, Gamari AA, Soleimanpour H, Mahmoodpoor A. Hemoperfusion as a potential treatment for critically ill COVID-19 patients with cytokine storm. Blood Purif. 2021; 50(3): 405-7. doi: 10.1159/000511391

126. Shahsavarinia K, Ghojazadeh M, Ghabousian A, Hatefnia F, Soleimanpour M, Soleimanpour H. An umbrella review of clinical efficacy and adverse cardiac events associated with hydroxychloroquine or chloroquine with or without azithromycin in patients with COVID-19. Anesth Pain Med. 2021; 11(4): e115827. doi: 10.5812/aapm.115827

127. Rahmani F, Rezazadeh F, Ala A, Soleimanpour M, Mehdizadeh Esfanjani R, et al. Evaluation of overcrowding of emergency department in Imam Reza hospital in 2015 by implementing 2 scales: NEDOCS and EDWIN. Iran Red Crescent Med J. 2017; 19(6): e15609. doi: 10.5812/ircmj.15609

128. Morteza Bagi H, Soleimanpour M, Abdollahi F, Soleimanpour H. Evaluation of clinical outcomes of patients with mild symptoms of coronavirus disease 2019 (COVID-19) discharged from the emergency department. PLoS One. 2021; 16(10): e0258697. doi: 10.1371/journal.pone.0258697

129. Soleimanpour H, Gholipouri C, Salarilak S, Raoufi P, Gholi Vahidi R, Jafari Rouhi A, et al. Emergency department patient satisfaction survey in Imam Reza hospital, Tabriz, Iran. Int J Emerg Med. 2011; 4: 2. doi: 10.1186/1865-1380-1-2

130. Pezeshki MZ, Alizadeh M, Nikpajouh A, Ebadi A, Nohi S, Soleimanpour M. Evaluation of the health promotion standards in governmental and non-governmental hospitals in East-Azerbaijan. Med J Islam Repub Iran. 2019; 33: 113. doi: 10.34171/mjiri.33.113