

Review Article



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

Ehsan Sarbazi¹, Homayoun Sadeghi-Bazargani¹, Zahra Sheikhalipour², Mostafa Farahbakhsh³, Alireza Ala⁴, Hassan Soleimanpour⁵

¹Road Traffic Injury Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

²Department of Medical Surgical Nursing, Tabriz University of Medical Sciences, Tabriz, Iran

³Research Centre of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran

⁴Emergency and Trauma Care Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

⁵Medical Philosophy and History Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

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*Corresponding Author:

Hassan Soleimanpour,
Email: h.soleimanpour@gmail.
com

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 opinions⁹ 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 elements¹⁵ 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

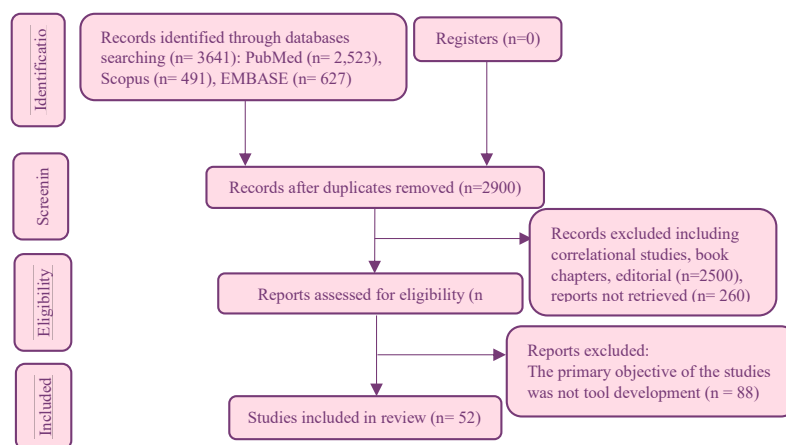


Figure 1. Flow diagram of this study

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 Instruments 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=24943) 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 nine⁶⁶ 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 (Kalajahi)-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-Kulak-2019 ³⁰	Poland, Polish	Cross-sectional	Trust in nurse	Nurse	Not reported
Krajewska-Kulak-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: $\lambda=2.356$	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 %, $\lambda=4.09$	Oncologist	Satisfaction
Nooripour-2016 ³⁷	Iran, Persian	Cross-sectional	Trust in nurses: V scale=61.395 %, $\lambda=3.070$	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 %, $\lambda=3$, factor 2: V=19.23 %, $\lambda=2$	Physician	Number of admissions, schizophrenic relapses, and adherence
Dong-2014 ³⁹	China, Chinese (Mandarin)	Cross-sectional	Factor 1: V=39.54 %, $\lambda=4.35$, factor 2: V=15.65 %, $\lambda=1.72$	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, $\lambda=2.736$, teamwork: I=4, $\lambda=1.706$	Trust and teamwork among maternal healthcare workers	Not reported
Dinc-2012 ⁴³	Turkey, Turkish	Cross sectional	Trust in health care (providers: $\lambda=7.30$, payers: $\lambda=2.61$, institutions: $\lambda=1.21$), 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 %, $\lambda=9.05$	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 %, $\lambda=8.2$	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, $\lambda=11.7$, policies at macro level: V=7.6, $\lambda=2.7$, providers' expertise: V=5.6, $\lambda=2$, quality of care: V=4.5, $\lambda=1.6$, Information supply and communication: V=3.7, $\lambda=1.3$, quality of cooperation: V=3.3, $\lambda=1.2$,	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 ⁶	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 (Kalajahi- 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 ² (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
Abdolohian-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-Kulak-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-Kulak-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)	Factor1: 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], \checkmark 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], \checkmark 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.

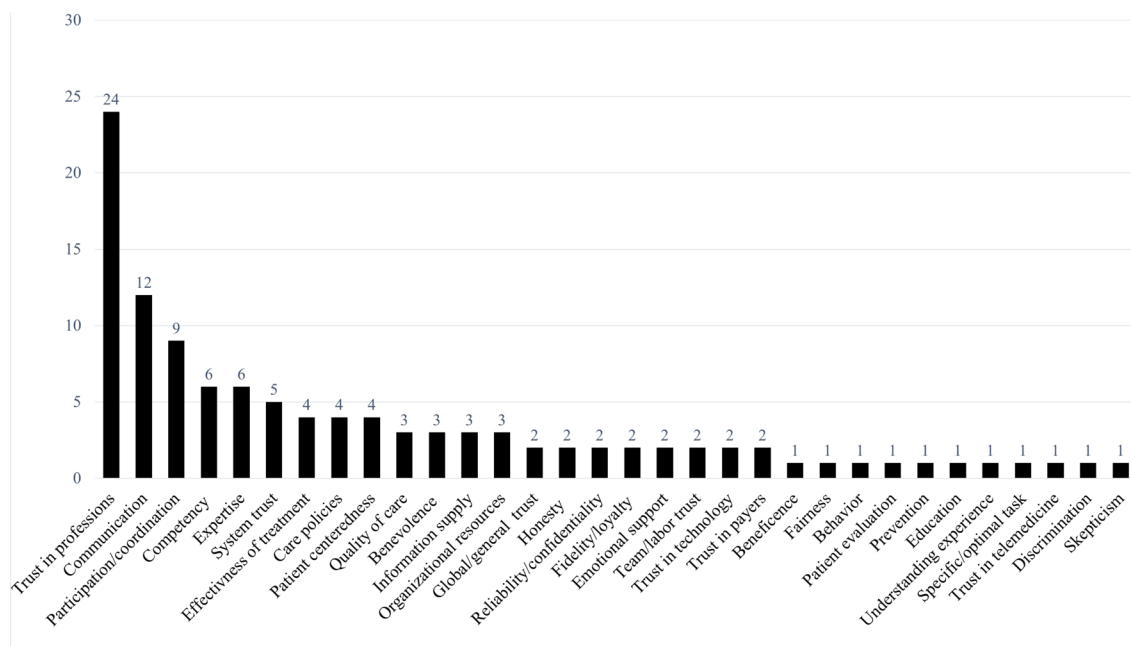


Figure 2. Frequency of final dimensions of trust in medicine in instruments designed for trust studies up to 2023

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
Other 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.

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Authors' Contribution

Conceptualization: Ehsan Sarbazi, Homayoun Sadeghi-Bazargani, Hassan Soleimanpour.

Data curation: Ehsan Sarbazi, Hassan Soleimanpour.

Formal analysis: Ehsan Sarbazi, Hassan Soleimanpour.

Investigation: Ehsan Sarbazi, Hassan Soleimanpour.

Methodology: Ehsan Sarbazi, Homayoun Sadeghi-Bazargani.

Project administration: Ehsan Sarbazi, Hassan Soleimanpour.

Supervision: Hassan Soleimanpour.

Validation: Ehsan Sarbazi, Homayoun Sadeghi-Bazargani, Hassan Soleimanpour.

Visualization: Ehsan Sarbazi.

Writing—original draft: Ehsan Sarbazi.

Writing—review & editing: Ehsan Sarbazi, Homayoun Sadeghi-Bazargani, Mostafa Farahbakhsh, Alireza Ala, Zahra Shekhalipour, Hassan Soleimanpour.

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).

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Supplementary File

Table S1. Search strategy in PubMed

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