Uniwersytet SWPS

A dyadic analysis of agreements, predictors, and outcomes of trust and communication in a doctor-patient relationship within the context of hospital internal units

PhD Dissertation

Marta Adrianna Błaszyk

Promotor:
Dr hab. Aleksandra Kroemeke, prof. USWPS

Wrocław, 2025

Contents

Abstract

Introduction: The evolving demands for patient-centered care and the humanization of medicine necessitate a deeper understanding of the factors contributing to the doctor-patient relationship. Although this relationship involves two individuals, limited research investigates both sides of the interaction, particularly trust and communication skills, along with their antecedents and outcomes.

Objectives: This study aimed to verify the *Doctor-Patient Relationship and Outcome Model* by Van den Assem & Dulewicz in a dyadic context by exploring three types of agreements (consensus, assimilation, and dyadic reciprocity) between patients and physicians regarding trust in the doctor-patient relationship, physician's communication skills, satisfaction with medical visit, evaluation of a doctor-patient relationship, and patient's willingness to engage in treatment as well as investigating the associations between trust and communication, their antecedents (trustworthiness factors: benevolence, integrity, competence) and outcomes.

Methods: The dyadic research followed a reciprocal "one-with-many" design. The sample included 18 physicians and their 203 hospitalized patients. All patients had diagnosed chronic internal diseases; the physicians specialized in internal medicine and/or rheumatology. Multilevel linear modeling for hierarchical data (patients nested within physicians) was implemented.

Results: A strong agreement about physicians' trustworthiness was observed among patients treated by the same doctors, while there was only a weak consensus regarding trust, communication skills, and their outcomes. Physicians showed some agreement on trust, communication skills, and satisfaction; however, there was low agreement regarding the evaluation of the doctor-patient relationship and patient willingness to engage in treatment. Some level of agreement between physicians and patients (within dyads) was found for all considered interactional constructs. The findings also confirmed positive associations between trust and communication skills. Results revealed that trust and communication constitute relevant antecedents of satisfaction, better doctor-patient relationships, and patient willingness to engage in treatment. Both the dyadic aspect

of the interactions and individual differences between physicians contributed to the tested associations.

Conclusions: Although patients' and physicians' perspectives differ, they share common ground, demonstrating some degree of agreement. The adapted *Doctor-Patient Relationship and Outcome Model* can be effectively applied in dyadic settings. The most relevant finding highlights the crucial role of unique interactions in the doctor-patient relationship.

Keywords: trust; communication skills; doctor-patient relationship; satisfaction with medical visit; patient involvement; one-with-many design; dyadic research; healthcare

Streszczenie

Wstęp: Zwiększająca się potrzeba humanizacji medycyny oraz jej orientacji na pacjenta wymaga szerszego zrozumienia czynników wpływających na relację lekarz-pacjent. Mimo, że ta relacja składa się z dwóch osób, brakuje badań uwzględniających obie strony interakcji, szczególnie w kontekście zaufania oraz komunikacji, a także ich predyktorów i rezultatów.

Cele: Celem badania była weryfikacja modelu *"Doctor-Patient Relationship and Outcome Model"* Van den Assema i Dulewicza poprzez eksplorację zgodności ocen na trzech poziomach (konsensus, asymilacja, diadyczna recyprokalność) pomiędzy lekarzami a pacjentami dotycząca zaufania w relacji lekarz-pacjent, umiejętności komunikacyjnych lekarza, satysfakcji z wizyty, ewaluacji relacji lekarz-pacjent oraz chęci pacjenta do zaangażowania się w leczenie. Celem konfirmacyjnym pracy było zbadanie związków pomiędzy wyżej wymienionymi zmiennymi oraz ich predyktorami (czynnikami wiarygodności: życzliwość, uczciwość, kompetencja) w kontekście diadycznym.

Metoda: Badanie przeprowadzono w ujęciu "one-with-many", opartym na liniowym modelowaniu wielopoziomowym dla danych hierarchicznych (pacjenci „zagnieżdżeni" w lekarzach). Grupa badana składała się z 18 lekarzy (specjalistów oraz rezydentów chorób wewnętrznych lub/oraz reumatologii) i ich 203 pacjentów (obciążonych przewlekłymi chorobami internistycznymi). Badanie odbyło się w warunkach szpitalnych.

Wyniki: Badanie wykazało silną zgodność/konsensus w ocenach czynników wiarygodności lekarza pomiędzy pacjentami leczonymi przez tego samego lekarza oraz słaby konsensus dotyczący zaufania, umiejętności komunikacyjnych lekarza oraz ich zmiennych wynikowych. W kontekście postrzeganego zaufania do pacjenta, umiejętności komunikacyjnych oraz satysfakcji z wizyty lekarze do pewnego stopnia podobnie postrzegali wszystkich swoich pacjentów. Natomiast brak było zgodności w ich ocenach dotyczących ewaluacji relacji z poszczególnymi pacjentami, a także chęci pacjentów do zaangażowania się w leczenie. Zaobserwowano istotną statystycznie zgodność pomiędzy lekarzami i

pacjentami w diadach, dla wszystkich badanych konstruktów. Wyniki potwierdziły również występowanie pozytywnych związków pomiędzy zaufaniem a umiejętnościami komunikacyjnymi lekarza. Ponadto wykazano, że zaufanie i komunikacja stanowią znaczące predyktory dla satysfakcji, lepszych ocen relacji lekarz-pacjent oraz chęci pacjenta do zaangażowania się w leczenie. Zarówno aspekt diadyczny badanych interakcji jak i różnice indywidualne pomiędzy lekarzami okazały się istotnymi czynnikami w badanych związkach.

Wnioski: Chociaż perspektywy pacjentów i lekarzy różnią się, bazują na wspólnym gruncie, co odzwierciedla się w pewnym stopniu zgodności. Zaadaptowany *Doctor-Patient Relationship and Outcome Model* może znaleźć efektywne zastosowanie w badaniach diadycznych. Najważniejszym wynikiem badania jest kluczowa rola unikatowości interakcji w relacjach lekarz-pacjent.

Słowa kluczowe: zaufanie; umiejętności komunikacyjne; relacja lekarz-pacjent; satysfakcja z wizyty; zaangażowanie pacjenta; one-with-many; badania diadyczne; opieka zdrowotna

Introduction

Medicine can be considered an art, with its creative potential largely recognized in the interpersonal dynamics of the doctor-patient relationship (Baum, 2023). Despite the current collective infatuation with modern pharmaceuticals and advanced medical technologies, the dialogue between physician and patient remains the most powerful tool in medicine (Konda et al., 2023; Timmermans, 2020). Even the most proficient diagnostic skills and extensive substantive knowledge may be insufficient in the patient's treatment process without a strong doctor-patient relationship grounded in trust, empathy, and skilled communication. In fact, the quality of communication and interaction between physicians and patients is a significant indicator of medical care excellence and plays a vital role in the healthcare process, resulting in better somatic, mental, and social health (Makara-Studzińska, 2017; Matusitz & Spear, 2014). Clinical communication, including gathering comprehensive information about the patient's condition, active listening, persuasion, negotiation, and motivating patients, forms the foundation of accurate diagnosis and appropriate treatment plans (W. R. Miller & Rollnick, 2023; Silverman et al., 2013). Such tailored patient care represents the crucial response to the need for humanized medicine, which is essential for complementing scientific and technological advancements. Physician’s empathetic communication facilitates the therapeutic role of the doctor-patient relationship itself (Hojat et al., 2023). When the bond between doctor and patient is formed, care and healing can occur (Thom et al., 1999).

The evolving physician-patient relationship, shaped by patient engagement, leads physicians to prioritize treatment over diagnosis, adopt more participatory forms of recommendations, and emphasize their accountability more than in previous decades (Stivers & Tate, 2023). If the emphasis on health care in the 21st century is centered on the patient, nurturing the doctor-patient relationship must be highlighted (Engle et al., 2021; Kenny et al., 2010; M. Stewart et al., 2024). Although the concept of patient-centered medicine originated from Hippocrates, it has not been the standard of practice (particularly in the biomedical approach), nor has there been open

communication between physician and patient (Baum, 2023). Fortunately, nowadays, the shared decision model prevails, placing the patient at the central focus of medical care. Despite this shift being reflected in recent literature reviews (E.-J. Kim et al., 2024; Loban et al., 2025; van Andel et al., 2025), clinical communication is at its critical juncture, facing multiple challenges (Gessesse et al., 2022; Stivers & Tate, 2023). Compared to decades ago, physicians now spend only 20% of their time allocated to medical visits in face-to-face communication with patients (Drossman et al., 2021). Hence, they must be highly skilled in this area. Medical education, therefore, should ultimately aim to equip both current and future generations of physicians in communication skills (an integral part of medical practice) with the same diligence as clinical skills (Elendu et al., 2024; Flanagan & Cummings, 2023; Salmon & Young, 2011). As it has been determined that communication between physicians and patients is vital for patient recovery, adherence, and satisfaction, it is crucial to further expand its role not only in education but also in healthcare research (Konda et al., 2023; Liu et al., 2024; Turabian, 2019).

Clinical communication is one of the most important factors contributing to the quality of the doctor-patient relationship; however, it is essential to also recognize the significant role of trust in the therapeutic process (Chandra et al., 2018). The trust-based relationship forms the foundation for bonding between physician and patient, encouraging open communication and facilitating shared decision-making (Elwood, 2023; Thom et al., 2011). Building mutual trust is crucial in chronic diseases, where patients may fear judgment about their lifestyle choices or adherence to medical advice (Frazier et al., 2013), and physicians need to delegate self-care responsibilities to them (Rotaru & Oprea, 2015). It allows specialists to conduct thorough interviews, involve patients in the treatment process, ensure maximal comfort, and promote adherence to medical recommendations (Georgopoulou et al., 2020; Hojat et al., 2010). In chronic care and medicine overall, trust is essential for bridging the gap between practice and evidence.

While the significance of patients trusting their physicians has long been acknowledged and heavily researched, the trust that physicians place in their patients remains overlooked, unexplored,

and under-theorized (Sousa-Duarte et al., 2020; Williamson et al., 2022). The limited literature in this field hinders our capability to fully comprehend the dynamics of trust between healthcare providers and their patients (Wilk & Platt, 2016). Investigating trust in patients is essential for fostering balanced healthcare relationships. It can also improve healthcare professionals' education by prompting physicians to reflect on their interactions with patients, challenge the assumption of automatic trust, and consider how different levels of trust can impact care outcomes (Sousa-Duarte et al., 2020). By recognizing a patient's agency, the willingness to trust them becomes a significant ethical step in treating them as autonomous individuals who can take responsibility for their health rather than passive care recipients (Rotaru & Oprea, 2015).

Medical treatment constitutes a complex and multifaceted process that involves various interacting variables, actors, and systems (Wei et al., 2020). The psychological perspective on trust, communication, and the doctor-patient relationship, shaped by sociological factors and the external world, acts as an optical prism during consultations and affects doctor-patient interactions in various ways (Turabian, 2019). Combining the perspectives of physicians and patients and exploring their congruence could provide valuable insights in this field of research. Thus, this study will aim to explore three levels of agreement between patients and physicians: *consensus* – the evaluation of (one) physician by his/her patients, *assimilation* – the evaluation of patients by one/their physician, and *dyadic reciprocity* – the congruence between a patient and physician within a dyad.

One of the theoretical models that reflects the intricacy of the doctor-patient relationship, including its predictors and outcomes, is the *Doctor-Patient Relationship and Outcome Model* (Van Den Assem & Dulewicz, 2015). The model focuses on ***trust*** and physician's performance (***communication*** with patient), including trustworthiness factors (***benevolence, integrity, competence***) as trust predictors, and ***evaluation of doctor-patient relationship*** or ***satisfaction from medical visit*** as outcomes of trust and communication. Therefore, testing the associations between this model's variables within a new context (hospitalized patients with chronic internal diseases) and a new approach – dyadic analysis – would be a subsequent aim of this work.

Theory Framework

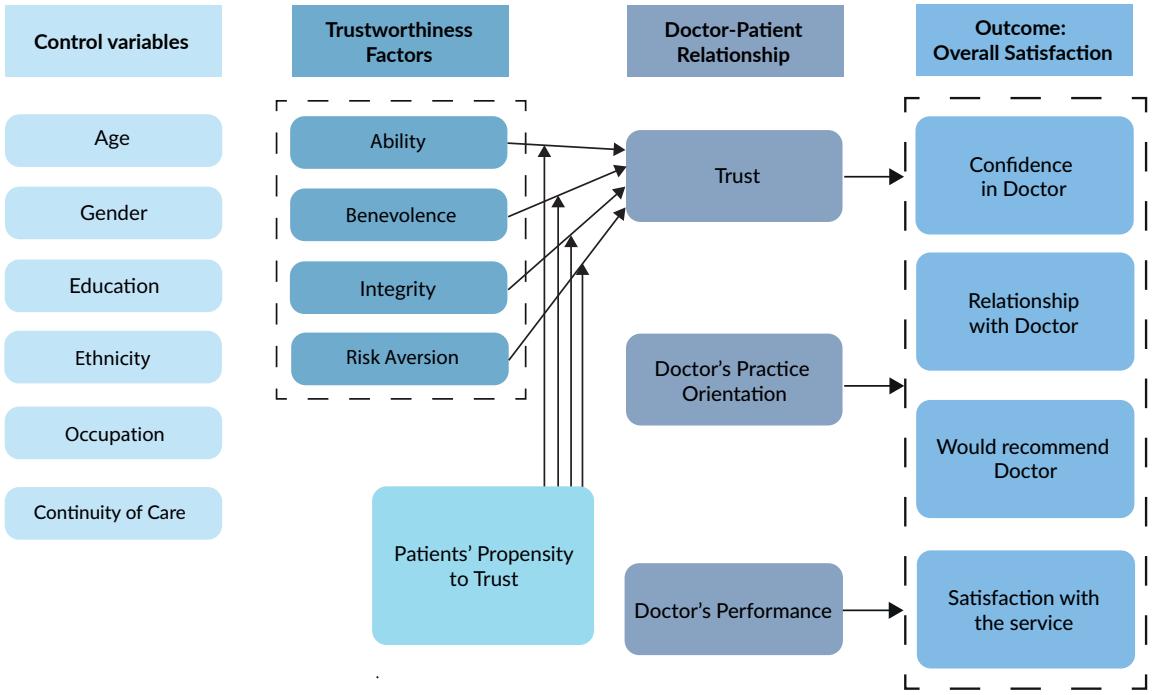
Doctor-Patient Relationship and Outcome Model

The project is based on the theoretical model *Doctor-Patient Relationship and Outcome Model* developed by Barend Van Den Assem and Victor Dulewicz (2015). This model posits that the factors influencing a doctor and patient's overall satisfaction with their interactions are trust, the doctor's practice orientation, and the doctor's performance. Trust is defined as *"the willingness of one party to be vulnerable to the actions of another party*" (Van Den Assem & Dulewicz, 2015, p. 83). Doctor's practice orientation is understood as the dichotomous nature of the relationship—whether it is oriented more towards the doctor or the patient. Doctors' performance is characterized by the overall attitude and behavior of the physician, yet this is primarily explained by their manner of communication with the patient. The outcome of the *"Doctor-Patient Relationship and Outcome Model"* constitutes overall patient satisfaction, operationalized as four factors: confidence in doctor, (evaluation of) relationship with doctor, willingness to recommend the doctor, and satisfaction with the service. The model also includes four predictors of trust (trustworthiness factors): ability, benevolence, integrity, and risk aversion. Additionally, patients' propensity to trust moderates the relationship between each trustworthiness factor and trust. Figure 1 presents the original model.

The authors empirically verified the model in the cross-sectional study using a regression model, considering the patients' perspective. All tested constructs together explained 74.5 percent of the patient's overall satisfaction variance. The hierarchical regression analysis indicated a very good model fit, which was later confirmed by structural equation modeling (using a PLS variant).

Figure 1

Doctor-Patient Relationship and Outcome Model (Van Den Assem & Dulewicz, 2015, p. 85)



Notwithstanding the foregoing, in their work, the authors indicated the need for the model's further development by considering other factors that could potentially influence the outcomes of the doctor-patient relationship (Van Den Assem & Dulewicz, 2015). Among their suggestions was testing different physicians' behaviors. They also deliberated on adding the patient's involvement in the treatment as an additional and significant outcome of the visit. Another vital limitation of their work was focusing only on the patients' perspectives, which they also pointed out. Finally, they suggested the need to test the model in various settings, regarding doctor-patient relationship contexts (in their study, the sample consisted of general physicians' patients).

The following chapters present literature reviews that outline the current state of knowledge regarding the *"Doctor-Patient Relationship and Outcome Model"* constructs within the doctor-patient relationship that will be further tested in the novel approach and settings in the present study.

Trust and communication in a doctor-patient relationship

Trust – review of definitions and doctor-patient relationship context

The core variable of the *Doctor-Patient Relationship and Outcomes Model* (Van Den Assem & Dulewicz, 2015) is **trust**. Trust is essential for adopting and sustaining health-related behaviors and social norms – that is why it can be referred to as "the glue of a healthy society" (Schiavo & Chou, 2023). For years, social scientists have considered trust a crucial, multifaceted factor in personal relationships, organizations, financial transactions, social networks, and societal dynamics – an essential part of social capital (Coleman, 1988; Wilk & Platt, 2016). Upon reviewing the literature on trust, it becomes clear that it is a term difficult to define distinctly because of its intricate nature and multidimensionality (Chandra et al., 2018; Raatikainen et al., 2023). According to the philosophical paradigm, trust is a value or an attitude based on the hope that the other party will be trustworthy (Taylor et al., 2023). Sociological literature focuses on trust antecedents and predictors rather than outcomes (Schilke et al., 2021) or the socialization process in communities and groups (Raatikainen et al., 2023). The economic perspective draws from the game theory and emphasizes the role of repeated interactions and cooperative behaviors in building trust (Vanneste et al., 2014). The rational choice theory describes trust as a calculation between the future actions of the trustee and the benefit rather than harm of the trustor, with the cooperation outweighing the costs and risks involved (Gilson, 2003). Psychological theories and research address the salience of the subconscious processes and heuristics in deciding whether to trust or expose vulnerability (DeSteno, 2015). Trust can also be perceived as a result of people's shared values or mutual knowledge (Luhmann, 2018). Nevertheless, several definitions of trust have been proposed.

Trust might be defined as the expectation of an individual or a collective group to act in good faith, demonstrate honesty, fulfill commitments, and not abuse (Cummings & Bromiley, 1996; Wei et al., 2020). In simpler terms, it is a belief in sincerity, kindness, benevolence, motivation to be honest, and a lack of intention to cause harm (Chandra et al., 2018). Certain individuals tend to be more

calculative in handling relationships, whereas others are more inclined to trust instinctively (Gilson, 2003). Trust is predicated on a context characterized by potential and unavoidable risks in life. The attempts made to avoid them are tantamount to waiving the associated advantages (Luhmann, 2000). Therefore, trust can also be understood as optimistic acceptance of a situation in which one side of the interaction is vulnerable and aware of the existing risk and yet willing to entrust their fate to the other person (Rotaru & Oprea, 2015; Van Den Assem & Dulewicz, 2015). This definition of trust is commonly used in the literature and encompasses willingness to accept vulnerability, positive expectations of trustworthiness, or a combination of both (Fulmer & Gelfand, 2012; Serrano Archimi et al., 2018).

The ability to build relationships upon a higher level of trust is developed in childhood and based on the first interpersonal experiences, e.g., between a child and a parent (John Bowlby's attachment theory; Erik Erikson's theory of psychosocial development) (Bowlby, 1982; Erikson, 1963). Trust develops within a familiar environment, with changes to this environment affecting trust in relationships. Therefore, it is vital to consider the role and limits of familiarity when examining trust conditions (Luhmann, 2000). From a psychological point of view, trust plays a crucial role in developing and cultivating any well-functioning relationship between two people and appears through both cognitive (regarding people’s predictability and competence) and emotional (believing in others' good intentions) interactions (Raatikainen et al., 2023). Being a fragile and dynamic phenomenon, it requires constant care, patience, and time, with the capacity to endure disappointments.

Trust can be viewed as a belief that the other party will act appropriately, responsibly, competently, and considerately (Taylor et al., 2023). 'Given trust’ stems from expertise, whereas 'earned trust' arises from successful interactions and high competence (professionalism) (Raatikainen et al., 2023). It also varies in two forms: general trust in someone perceived as trustworthy or situation-specific trust, representing the expectation that the trustee will undertake a particular action (Taylor et al., 2023). The level of trust within the doctor-patient relationship may differ among

situations due to various competencies involved (Schoorman et al., 2007). An individual may be trustful in certain circumstances but not in others (Rotaru & Oprea, 2015). The attitude, competencies (both technical-instrumental and non-technical-interpersonal), and behavior of the physician, as well as the level of institutional trust (concerning a specific medical facility or the entire healthcare system), directly influence trust formation (Chandra et al., 2018). In order to pursue medical treatment, patients need to trust the healthcare system and its representatives (Blödt et al., 2021).

Trust is fundamental in the doctor-patient relationship (M. A. Hall et al., 2001; Thom et al., 1999; Williamson et al., 2022) and is considered the most essential psychological aspect (Rotaru & Oprea, 2015) with the potential of having a direct therapeutic effect (Gilson, 2003). This relationship is unequal due to information asymmetry between both parties (Calnan & Rowe, 2008; Wu et al., 2022). Such asymmetry implies patients' vulnerability, uncertainty, and expectation of their caregiver to provide truthful information and beneficial care (Gabay & Bokek-Cohen, 2019). Each instance of trust features its particular dynamics and varies across diverse contexts. Consequently, entrusting a physician does not consistently depend on the evaluated risk calculations (Skirbekk et al., 2023). Nevertheless, it is important to understand that healthcare professionals can also be vulnerable to their patients and that their trust in them should not be taken for granted (Brennan et al., 2013; Tofan et al., 2013).

Some studies pointed out that fostering trust is mainly driven by the resultants of relational factors and general trust (Skirbekk et al., 2023; Williams, 2001). Emotional attachment may lead to a scenario when the trustee is willing to take risks, even in circumstances without evidence of the other party's trustworthiness (Schoorman et al., 2007). Q. He et al. (2022) highlighted that a patient's trustworthiness and personal characteristics are equally important for a physician's trust, just as a physician's trustworthiness factors are significant for a patient's trust. LoCurto & Berg (2016) also emphasized the influence of prior interactions and past experiences as a vital determinant of trust. Though often stable, patient trust can change with new experiences of information, as it is fragile

and subject to influence. Trust can be built, stabilized, or declined based on new experiences (Griffith et al., 2021). As in any other relationship, trust tended to develop and grow over time in the doctor-patient relationship (Williamson et al., 2022). In this regard, its greater duration was linked to higher trust (Croker et al., 2013; Fiscella et al., 2004). In turn, trust predicted the continuity of care (R. Baker et al., 2020; Berger et al., 2020).

In the doctor-patient relationship, it is worth paying attention to the plural meaning of trust. A patient decides to disclose personal information and trusts their health in the competencies and knowledge of the specialist (Birkhäuer et al., 2017). A physician expects patients to honestly share all the information and motives, accurately describe symptoms, follow recommendations, and respect boundaries (Thom et al., 2011). Moreover, as patients need to trust their competencies in managing their own health (Rotaru & Oprea, 2015), physicians must trust in their skills, actions, and decisions (Douglass & Calnan, 2016). Patients' and physicians' trust share similarities, as in both cases, it refers to the expectations of future behaviors in their relationship (Thom et al., 2011). The link between distinct dimensions suggests that trust in healthcare is all-encompassing and, thence, uniquely holistic (M. A. Hall et al., 2001).

Mutual trust between physician and patient is essential in building a properly functioning therapeutic alliance (Heszen-Celińska & Sęk, 2020; Hillen et al., 2011; Rotaru & Oprea, 2015). It allowed physicians to gather a more detailed interview because trusting patients shared information about themselves more frankly (Rotaru & Oprea, 2015; Wilk & Platt, 2016). Trust encouraged patients to disclose even stigmatizing concerns (Sousa-Duarte et al., 2020) or to admit to non-compliance (irregular use of prescribed medications, not following the established diet, forgetting about blood pressure or blood glucose level measurements, omitting recommended physical activity) (Lee & Lin, 2009). Moreover, patients anticipated that physicians would handle their personal data properly, which involves protecting, documenting, and disseminating the information (Campos-Castillo & Anthony, 2019).

Trust is predominantly a reciprocal phenomenon based on situational interdependence (Elwood, 2023). The reciprocity is essential to mutual trust in the doctor-patient relationship, as it facilitates cooperative behaviors and fosters the other party's trust (Grob et al., 2019; Thorne & Robinson, 1988). This reciprocity constitutes the foundation of shared decision-making (Elwyn et al., 2012; Taylor et al., 2023) and lessens the need for monitoring (Thom et al., 2011). One of the vital factors influencing physicians' trust in patients is the perception of patients' self-management and health-related ability. That can reciprocally shape patients' trust in their own competence to manage their health condition (Doekhie et al., 2019).

Mutual trust may positively impact both: the partnership model of the relationship – empowering the patient's autonomy in the decision-making process regarding the choice of treatment (Mechanic & Schlesinger, 1996; Suzuki et al., 2022), and the paternalistic model - contributing to greater psychological comfort in patients who expect the specialist to make the best decision for the patient (Makara-Studzińska, 2017). Furthermore, mutual trust translates into long-term effects of the relationship, such as increased satisfaction (both patients' and physicians'), continuity of care, and adherence to medical recommendations, which is a crucial goal of any therapeutic procedure (Georgopoulou et al., 2020; Skirbekk et al., 2023; Thom, 2001; Trachtenberg et al., 2005). Conducting medical consultations in an atmosphere of trust may also determine the physicians' job satisfaction and thus prevent them from developing professional burnout (Grob et al., 2019; Wu et al., 2022). In their meta-analysis, Birkhauer et al. (2017) named three groups of trust outcomes in the doctor-patient relationship: objectively measured indicators (lab tests), clinical observations, and patients' subjective ratings. Those results were confirmed by Lerch et al. (2024) in their recent review. Due to the greater continuity of care, trusting physicians knew their patients better and felt more clinical engagement. As a consequence of the abovementioned factors, trust reduced overall mortality (R. Baker et al., 2020).

Trust is critical in managing chronic illnesses and can affect patient health outcomes in many ways (Lee & Lin, 2011). It reduced patients' uncertainty, enhanced their sense of control, and

supported their self-efficacy in managing chronic illnesses (Banerjee & Sanyal, 2012; Georgopoulou et al., 2020; Lee & Lin, 2009). Trust also affected patient care efficiency, effectiveness, and quality (Berger et al., 2020; Croker et al., 2013; Grob et al., 2019; Wilk & Platt, 2016). Trusted patients felt treated with respect and perceived as reliable; their competence was recognized, and their experiences were validated (Skirbekk et al., 2011; Williamson et al., 2022). That significantly increased the likelihood of them seeking care, involvement in recovery, earlier detection of serious diseases, symptom improvement, and health-related quality of life (Elwood, 2023; Lee & Lin, 2011; Mainous III et al., 2004). Furthermore, it built a sense of psychological safety, which played a vital role in the doctor-patient relationship (for example, allowing the necessary physical examination or communicating openly without the worry of being doubted or criticized) (Raatikainen et al., 2023; Rotaru & Oprea, 2015). Patient trust can also reduce transaction costs, including expenses related to reassuring patients (such as ordering extra tests and referrals) or inefficiencies caused by incomplete information disclosure from the patient (Croker et al., 2013; Thom, 2001).

Physicians' trust in their patients is often regarded as a moral obligation and the standard foundation for healthcare interactions (Skirbekk et al., 2011). However, it is a sociopsychological concept linked to the physicians' vulnerability, not just enhanced through morality or training (Q. He et al., 2022). They risk their future careers, professional calling, personal identities, and public reputations by trusting specific patients (Sousa-Duarte et al., 2020). Physicians may identify possible 'risks' in trusting patients, leading them to justify a certain level of distrust (Pilgrim et al., 2010). Nevertheless, trusting physicians are more attuned and become better diagnosticians (Grob et al., 2019). Trust in patients makes the clinical relationship meaningful and is vital to medical ethics (M. A. Hall et al., 2002).

Although trust in professional relationships strengthens professionalism and promotes ethical issues in the work environment (Raatikainen et al., 2023), trust can also be used in immoral ways, such as exploiting others for personal gains (Rotaru & Oprea, 2015). For instance, it involves patients' manipulation of medical appointments to obtain undue benefits, such as sick leave or

prescriptions for unadvised substances (Thom et al., 2011). Contrarily, the negative consequence of an unquestioned, high level of trust toward a physician can be patient's complete withdrawal from active involvement in the treatment process (L. A. Anderson & Dedrick, 1990). Inversely, the dearth of trust toward patients may disempower them and deprive of dignity (Williamson et al., 2022).

Due to the situational context, patients or physicians may hold some level of trust and some level of distrust in the doctor-patient relationship (Campos-Castillo & Anthony, 2019; Hillen et al., 2011). In the framework of medical care, distrust, based on skepticism, involves questioning someone's motives and actions, as compromising care quality or information accuracy (Griffith et al., 2021). Negative feelings in doctor-patient interactions, such as doubt and fear, lead to distrust (Keitz et al., 2007). Physician distrust was portrayed as a strategy for avoiding uncertainty and vulnerability (Sousa-Duarte et al., 2020). Although it has a presumed strategic role, compromised trust toward patients may result in treatment barriers (Moskowitz et al., 2011). Distrusting attitudes can harm physicians' mental health, life satisfaction, and service quality (Gabay & Bokek-Cohen, 2019; Q. He et al., 2022). Subsequently, patients' distrust was linked to feelings of objectification, lack of self-value, not being listened to, poor appointment manners, and incompetence (Gabay, 2019; Grob et al., 2019). Distrustful patients may undermine a physician's credibility or motivations and even act aggressively during medical interaction (Wu et al., 2022). Trust can be thoroughly affected by mistakes. In a broader perspective, distrust in a physician can extend to the medical system, resulting in annulments of medical knowledge, low patient satisfaction, poor patient-provider relationships, missed follow-up appointments, and disregarded treatment recommendations (Lemmers & van der Voort, 2021). Lack of trust in physicians may financially strain healthcare systems and increase patient complaints (Lerch et al., 2024). Nevertheless, it can be overcome by expressing empathy (Sousa-Duarte et al., 2020).

Empathy and physician communication skills have been essential antecedents of trust in the doctor-patient relationship (Calnan & Rowe, 2008; Chandra et al., 2018; Q. He et al., 2022; Thom, 2001). The ability to care for and comfort patients has been equally important as instrumental

competence in predicting patients' trust (Berger et al., 2020). According to M. A. Hall (2001), caring physicians can gain a patient's trust even when lacking skills; analogically, they cannot be trusted when distancing from patients despite being competent. Skirbekk et al. (2011), emphasized the role of physicians' personal involvement with the patient in fostering trust. Thom (2001) also indicated several physician behaviors influencing patients' trust: extensively assessing issues, delivering suitable and efficient treatment, fostering collaboration, and showing honesty and respect (2001). Other important determinants of trust included patient-centered communication, demonstrating understanding (Hong & Oh, 2020), and treating patients with dignity (LoCurto & Berg, 2016). Fiscella et al. (2004) discovered that proactive exploration regarding patients' experiences with their illnesses and extended appointment time correlated positively with greater patient trust. Other researchers also added shared goals and established collaboration patterns as factors influencing trust in the doctor-patient relationship (Berger et al., 2020; Croker et al., 2013; Hsieh et al., 2010). Moreover, various external factors, such as the physician's reputation, consistency, transparency, verifiability, and accuracy, can affect trust (Waidyaratne et al., 2023).

Communication – review of definitions and doctor-patient relationship context

In addition to trust, the authors of the *Doctor-Patient Relationship and Outcomes Model* (Van Den Assem & Dulewicz, 2015) identified **communication** as a key relational-level variable between physicians and patients. People interact with one another to collectively sustain their existence and fulfill their diverse needs. Within this framework, communication primarily determines life and human development across various societal aspects. It becomes a pivotal force in the health sector, akin to its essential role in every sphere of human life (Akaydin & Baltaci, 2024). It encompasses elements of behavioral and interpersonal interaction between two parties, which can be portrayed both subjectively and objectively, such as in information sharing and cooperation (Thompson & McCabe, 2012). In-person communication involves verbal, non-verbal, written, and para-verbal

elements, observation, instant interaction, clarification, feedback, and mutual adaptation (Firdous & Hiba, 2019; Pérez-Stable & El-Toukhy, 2018; Stiefel et al., 2024). Non-verbal components include eye contact, facial expressions, gestures, and mimics, whereas para-verbal components describe pace and tone of voice (Alkhamees & Alasqah, 2023). Communication's fundamental function is to exchange information between the two interacting parties (Świątoniowska-Lonc et al., 2020). Even in brief meetings, such as medical consultations, individuals can reciprocally influence each other's thoughts, feelings, and actions (Kenny et al., 2010).

High-quality communication is key to a doctor-patient relationship (Haskard Zolnierek & Dimatteo, 2009) and serves as an essential component of medical care (Iversen et al., 2020; Makoul et al., 2007; Marlow et al., 2019; Mathis et al., 2020; Stiefel et al., 2024). It plays multiple roles and is an inextricable requirement for a successful treatment process. If patients did not express their issues and clinicians did not use anamnesis to translate patients' words into medical terms, the healthcare system, as we currently know it, would not exist (Timmermans, 2020). Traditional methods of communication between physicians and patients have emphasized the transfer of knowledge from the professional to the layperson (Turabian, 2019). Furthermore, effective communication can constitute the treatment itself (Salmon & Young, 2011). One of its vital dimensions concerns the patient's emotional support (M. A. Stewart, 1995). A conversation based on physician's empathy or validation can improve a patient's psychological well-being by reducing negative emotions (such as fear or anxiety) and enhancing positive feelings (like hope, self-worth, or optimism) – directly rendering a therapeutic outcome (L. Chen et al., 2022; Street et al., 2009). Physician communication skills encompass forming a professional therapeutic alliance, gathering and synthesizing relevant information, disclosing care details and strategies, involving patients and families in planning, and recording and sharing written or electronic medical information (Boucher et al., 2020). Moreover, patients often expect and increasingly desire personalized and individualized care (Iversen et al., 2021). Thus, from a clinical perspective, efficient and effective communication enables healthcare providers to deliver high-quality patient care (Biglu et al., 2017).

Effective communication skills are essential during the history-taking process, wherein physicians must be capable of posing a comprehensive range of questions related to the patient's somatic, emotional, and psychological concerns (Beck et al., 2002; M. A. Stewart, 1995). During this process, the interview technique shapes the development of a doctor-patient relationship and inquiries about the clinical data for diagnosis and treatment (Marlow et al., 2019). Physicians may encourage patients who lack confidence and help them feel comfortable asking questions (Świątoniowska-Lonc et al., 2020). Questions in a positive tone made patients more likely to raise additional concerns and reduced unmet needs compared to those asked in a negative tone (Stivers & Tate, 2023). According to Turabian (2019), the final diagnosis in 75% of the cases relies on the quality of the medical interview. In the subsequent consultation phase, these skills facilitate integration of gained information into a treatment plan, assessment of patient's understanding of the medical problem, the suggested course of care, their expectations from treatment, or its potential impact on functioning (Hong & Oh, 2020). Consequently, it should lead to "finding common ground". To achieve this shared understanding, physicians should clarify all details regarding accessible interventions, treatment, and prognosis. However, before providing any information, they should evaluate the patient's existing knowledge of their condition (Firdous & Hiba, 2019). To achieve this goal, patients need to understand their medical condition along with the associated risks and benefits of the prescribed regimen (Świątoniowska et al., 2019). Patients' comprehension of treatment details and the importance of follow-up have been closely linked to their recovery (Baum, 2023). More explanatory communication was also linked to a higher level of independence in medication management (Heisler et al., 2007). Thus, patient education has been another vital aspect of clinical communication (M. A. Stewart, 1995).

Patients should view themselves as engaged participants in healthcare, ensuring their concerns are thoroughly addressed (M. A. Stewart, 1995) and self-management is effectively promoted (Świątoniowska-Lonc et al., 2020). In the communication process, it is crucial not only to see themselves as collaborators in their treatment journey but also to feel that healthcare professionals

fully understand their needs (Liu et al., 2024). Patients should freely share their thoughts, fears, expectations, and details about their symptoms, including onset, frequency, and impact on the quality of life (Konda et al., 2023). They need to proactively seek clarification and prioritize questions due to time constraints (Drossman et al., 2021). Essential communication practices for patients included sharing their beliefs about illness, expressing concerns regarding side effects, and actively participating in decision-making (Liu et al., 2024; Street et al., 2009). Such practices require effective dialogue between healthcare providers and patients (Stiefel et al., 2024).

Therefore, it seems vital to personalize interactions by using the patient's name when greeting or explaining their complex clinical picture in a tailored and understandable manner (Salmon & Young, 2011). Both patients and physicians have noted that when patients feel recognized and understood, it improves a physician's ability to counsel them (Hoppenot et al., 2022). Additionally, regular assessments of mutual understanding, negotiations on specific treatment plans, and discussions about concurrence could be integrated into both sides of doctor-patient interaction (Street et al., 2009).

Communication in a doctor-patient relationship inherently encompasses challenges and complexities. It can be affected by the setting (appropriate or inappropriate space for consultation), the time allotted for the medical appointment, or the presence of third parties (Stiefel et al., 2024). Patients frequently reported negative experiences such as disrespect, pressure from time constraints, and helplessness due to the prevailing influence of biomedical culture during medical visits (Alkhamees & Alasqah, 2023). Research has also revealed that many psychosocial and psychiatric issues were overlooked, with physicians interrupting patients roughly 18 seconds into their explanation of the problem (Silverman et al., 2013). Physicians and patients often use different languages (Firdous & Hiba, 2019; Stivers & Tate, 2023). A physician's explanation may be unclear, causing the patient to misunderstand or misremember it (Turabian, 2019). Misunderstandings can lead to inadequate medication usage, resulting in increased adverse effects, insufficient access to necessary care, and improper use of diagnostic tests and services (Marlow et al., 2019; Pérez-Stable

& El-Toukhy, 2018). Problems arising from communication breakdown have been well-documented and contributed to patient non-compliance, poor treatment outcomes, low patient satisfaction, litigation, and, ultimately, higher expenses for patients and healthcare systems (Baum, 2023; Iversen et al., 2020; Mathis et al., 2020). Moreover, inadequate communication was associated with a significant amount of malpractice, medical errors, and preventable deaths (Gessesse et al., 2022; J. G. Murphy & Dunn, 2010; Tiwary et al., 2019).

Some psychological factors – such as burnout, emotional detachment, or personal experiences with end-of-life situations – may hinder physicians' encounters with patients and distort their communication (Stiefel et al., 2024). Patients might resist participating in conversations about their health for various reasons, including anxiety, fear, embarrassment, or insufficient knowledge (Konda et al., 2023). Another challenge for physicians is adjusting the amount of information to disclose to patients (Stiefel et al., 2024). Although it may seem more straightforward to assume that patients should always receive all pertinent information, there are instances where patients opt not to be fully informed and instead request the physicians to select the most optimal treatment plan on their behalf (Lazcano-Ponce et al., 2020). Communication does not only reside in objectively defined behaviors but also in how it is interpreted within a particular context. Albeit patients generally appreciate being presented with options to choose from, they often agree with physicians' recommendations (Wright et al., 2004). This does not unequivocally suggest the predominance of a paternalistic model in doctor-patient communication but rather highlights the importance of cultivating a secure and empathetic rapport, enabling patients to determine their level of participation in shared decision-making (Stivers & Tate, 2023). Given that each clinical scenario is distinct, flexible approaches based on physicians' intuition are valuable (Salmon & Young, 2011; Stivers & Timmermans, 2020).

The preferences for a patient-centered style appear to be predominant in an abundance of literature (Epstein et al., 2005; Swenson et al., 2004; Thompson & McCabe, 2012; Timmermans, 2020). Epstein et al. (2005) described patient-centered communication as grounded in a moral

philosophy that enhances understanding of patients' needs, expectations, and perspectives of illness and health decisions. Physicians often adopted a more patient-centered approach and showed reduced contentiousness when they perceived patients as effective communicators who adhered to their medical advice (Konda et al., 2023). Patient-centered treatment has been demonstrated to be ethically positive and beneficial for physical health (Hong & Oh, 2020). It also decreased physician-patient conflicts by addressing patients' emotions and facilitating information exchange (L. Chen et al., 2022). A more directive style of communication was often favored by older patients or those seriously ill, who felt overwhelmed by the weight of their upcoming decision (Liu et al., 2024; Swenson et al., 2004). Conversely, when acting as competent technical experts, physicians found the narrow biomedical approach least satisfying for themselves, due to low-quality data and poor use of their time (Roter et al., 1997). Mutual communication reduced distress for both patients and physicians in severe circumstances, for instance, during the process of delivering unfavorable news (Mathis et al., 2020). Findings have shown that emotional support and quality of information contributed significantly to patients' acceptance, while the severity of the news had little impact (Firdous & Hiba, 2019). Additionally, through its various strategies, it has the potential to improve quality of life, even for seriously ill patients (Piccinini-Vallis et al., 2023). Nevertheless, patients' autonomy must be respected so that they can make informed decisions about their level of involvement in the decision-making process (Lazcano-Ponce et al., 2020). The patient-centered approach often reduced expenditures on diagnostic testing and invasive procedures (Goebel-Stengel et al., 2023).

An additional facet of good communication practices pertains to narrative medicine, in which physicians meticulously respect and examine patients' narratives. Patients describe these techniques as linking causes with effects and physical illness with psychological dimensions (Drossman et al., 2021). Experienced healthcare providers can use these narratives to accurately and efficiently obtain health information. Allowing patients to share their stories and answer questions uninterrupted takes less time, with most speaking for no longer than two minutes, even in complex cases at tertiary

referral centers, compared to when they are asked leading questions and interrupted (Ammentorp et al., 2022; Iversen et al., 2021; Langewitz et al., 2002). Moreover, it made them feel heard, valued, and encouraged them to gain essential insights into their experience with illness (S. Hall et al., 2011). Therefore, physicians must be good listeners. Encouraging patients to discuss how illness affects their daily lives fostered trust, improved treatment adherence, and care effectiveness (Drossman & Ruddy, 2020). For physicians, these narratives balance biomedical data with humanity by being personal, relatable, and empathy-fostering, which enhances connection, purpose, and job satisfaction while reducing burnout (Ammentorp et al., 2022; Messerotti et al., 2020; Slavin, 2019).

To sum up, high-quality communication between physicians and patients significantly enhances health outcomes, including symptom management, functional and somatic status, pain regulation, and emotional well-being (Gessesse et al., 2022; Goebel-Stengel et al., 2023). Moreover, it has been recognized as a critical determinant of changes in health behavior and improved disease outcomes (Beck et al., 2002; W. R. Miller & Rollnick, 2023). Street et al. (2009) identified seven pathways through which communication can lead to improved health outcomes: enhanced access to care, greater patient knowledge and shared understanding, higher quality medical decisions, strengthened therapeutic alliances, increased social support, patient agency and empowerment, and more effective management of emotions. Effective communication also served as one of the most critical predictors of trust in the doctor-patient relationship (Hong & Oh, 2020; Liu et al., 2024).

Furthermore, good communication constitutes one of the most essential factors in improving treatment adherence (Fino et al., 2023; Konda et al., 2023; Świątoniowska-Lonc et al., 2020). The WHO identified this factor as healthcare system-related, along with patient satisfaction with medical care (Świątoniowska-Lonc et al., 2020). In response to this concern, numerous prominent organizations (e.g., the American Medical Association's Principles of Medical Ethics, the General Medical Council in the UK, the Royal College of Physicians, the Accreditation Council for Graduate Medical Education in the USA, the American Board of Medical Specialties, and the Canadian College of Physicians and Surgeons) developed guidelines and recommendations to ensure high-quality,

patient-centered communication, framing this issue as an ethical obligation (Boucher et al., 2020; C. Campbell et al., 2007; Makoul et al., 2007; Pérez-Stable & El-Toukhy, 2018). *"To succeed in the future, it is important to realise that patient-communication is a very complex skill that requires development of both professional and human skills and is part of lifelong learning."* (Ammentorp et al., 2022, p. 3336).

Trustworthiness factors – review of definitions and doctor-patient relationship context

According to the Van Den Assem & Dulewicz's *Doctor-Patient Relationship and Outcome Model* (2015), three trustworthiness factors – benevolence, integrity, and competence – are the most essential predictors of trust. The concept of trustworthiness plays a central role in understanding and predicting levels of trust in many contexts (Colquitt et al., 2007). Most researchers agree that trust is multidimensional in its components or dimensions, indicating strong evidence of trustworthiness factors (Di Battista et al., 2020; McKnight et al., 2002). Moreover, trustworthiness refers to the qualities of a trustee that elicit trust (Colquitt & Rodell, 2011; Di Battista et al., 2020) and can be measured by the motivation to lie (Khana et al., 2020). An essential condition to foster trust is to first demonstrate trustworthiness (Leonard et al., 2022). This perspective reflects an optimistic and confidence-driven expectation regarding the trustor (Colquitt & Rodell, 2011; Fulmer & Gelfand, 2012).

Trustworthiness represents a multifactorial structure and, as a relevant construct, it can be studied in many contexts and disciplines. Although its contexts may vary among disciplines, some domains seem to have common characteristics: fidelity, confidentiality, honesty, competence, and global trust (M. A. Hall et al., 2002). Regarding the *'Doctor-patient Relationship and Outcome Model,'* which is based on *'An integrative model of organizational trust'* (Mayer et al., 1995), three domains of trustworthiness were implemented: benevolence, integrity, and competence. Those three

cognitive domains were empirically proven to constitute crucial trust antecedents (Schoorman et al., 2007; Williams, 2001).

Although trustworthiness factors (benevolence, integrity, competence) are separable, they are not unrelated; each can vary independently and should be perceived as a continuum rather than a dichotomous variable (Mayer et al., 1995). All three determine the trustworthiness level (Fulmer & Gelfand, 2012). In addition, each contributes a distinct perspective from which a trustor considers a trustee (Mayer et al., 1995). Together, they form two components: “will-do” and “can-do” (Barki et al., 2015). The “will-do” component includes the character (or ethical) traits (McKnight et al., 2002)– benevolence and integrity. The “can-do” aspect consists of the third dimension – competence (Barki et al., 2015; Colquitt et al., 2007). In this manner, both components complement each other, and while competence defines one’s ability to do something, the character facets determine one’s will to use the skills and act (Colquitt et al., 2007). The three trustworthiness factors can also be divided based on the character of the trusting reason. In this regard, integrity and competence form the cognitive component grounded on rational reasoning, while benevolence is affected by emotional attachment to the trustee (Colquitt et al., 2007). Furthermore, trustworthiness is conditioned by situational dependent trust—established on the abovementioned rational and emotional premises—hence, the trustor decides whether to trust the trustee in a particular context (Dinç & Gastmans, 2012).

Trustworthiness has normative aspects, attributing attitudes and behaviors of the trustee (Dinç & Gastmans, 2012). It plays a significant role in professions of public trust, especially in the healthcare sector (Dinç & Gastmans, 2012; Khana et al., 2020; Leonard et al., 2022; Nong, 2023). Healthcare trust is well embedded in the expectations regarding the trustee's capacity and willingness to influence specific outcomes. Trustworthiness represents a desirable and valuable trait connected to perceived reliability and confidence, which is particularly salient concerning the risks included in trusting situations (Dinç & Gastmans, 2012; Khana et al., 2020). Trust depends on the professional's ability to demonstrate that their actions adhere to standards of competence and

compassion (Cantarutti & Pothos, 2023). A physician's trustworthiness perceptions inspire patients' trust by giving them a reasonable foundation. Although competence, benevolence, and integrity are trustworthiness factors for individual physicians, they should be considered in the context of the whole healthcare system (A. Anderson & Griffith, 2022). Experiences associated with a social group or institution may also influence beliefs about trustworthiness (Williams, 2001). A trustworthy environment constitutes the foundation of institutional trust (McKnight et al., 2002). Therefore, creating a positive and credible image of healthcare institutions in society is particularly relevant.

Benevolence. Benevolence can be described as acting with good intentions and will, selflessly, and in someone's interest. It pertains to the motives of a trustee and is founded upon altruism – helping others without expecting any personal benefit (Akbolat et al., 2019; Gelhaus, 2013; McKnight et al., 2002). Gelhaus (2013) defined benevolence as goodwill and wishing another party to thrive and emphasized that an intrinsic moral value of helping/caring originates in benevolent attitudes. In other words, benevolence signifies the degree to which a trustor perceives that a trustee is concerned with their interests (Barki et al., 2015). Mayer et al. (1995) characterized benevolence as the extent of believing in the trustee's goodwill toward the trustor, deprived of egocentric and profitable motivations. He also indicated the presence of some personal attachment occurring between these two parties. An example of such an attachment in a professional relationship, where helpfulness is not required, is a mentor-protégé or manager-subordinate (Mayer et al., 1995). In mentor-protégé relationships, behaviors demonstrating kindness contribute positively to interpersonal trust, with this effect being shaped by fulfilled expectations (Fulmer & Gelfand, 2012).

Regarding the trustworthiness framework, benevolence is one of the character variables representing the will-do component in trusting volitional behaviors, based on the trustee's choice to act to the truster's advantage (Barki et al., 2015; Williams, 2001). It reflects the trustee's perceived positive, favorable, open, and caring orientation toward the trustor (Barki et al., 2015; Colquitt & Rodell, 2011). Voluntary assistance considered by the trustee and the rapport demonstrated through

empathy and collaboration have been identified to increase interpersonal trust (Jap et al., 2011). Perceived levels of benevolence are also contingent on contextual factors. Additionally, benevolence is essential to trustworthiness by inversing the motivation to lie (Mayer et al., 1995).

Being benevolent towards others also means considering their needs and interests (Akbolat et al., 2019). In the medical field, benevolence plays a vital role in forming social relationships by representing the affective part and being interrelated to trust and reciprocity, which may influence mutual satisfaction from the doctor-patient relationship (Berger et al., 2020). Mayer et al. (1995) brought up another crucial contextual facet of benevolence—perceived similarity. This implies that shared goals, attitudes, or behaviors between two parties in an interaction increase perceived benevolence, which might be crucial in the doctor-patient relationship.

In the context of the doctor-patient relationship, benevolence translates into improving patient comfort and holistic care. Moreover, along with the perceived competence of the physician, these two aspects affect the patient's commitment to the treatment process (Akbolat et al., 2019). Cantarutti & Pothos (2023) broadened the definition of benevolence: *"equality amongst patients, accessible treatment and honesty from healthcare providers"* (p. 832). In addition, benevolence constitutes an essential predictor of interpersonal trust (Colquitt et al., 2007; Mayer & Davis, 1999). Its trust-elevating effect is mediated by cooperation, helpfulness, support, and sympathy, which may be relevant in the doctor-patient context (Fulmer & Gelfand, 2012; Colquitt et al., 2007).

Integrity. Integrity is a multifaceted term with various meanings, depending on the paradigm (Edgar & Pattison, 2011). One paradigm originates in ethics and relates to personal values such as professional accountability and honesty (Sommerville, 2013). In personality psychology, integrity reflects a coherent identity with all the meaningful values integrated into it (Sastrawan et al., 2019). Personal integrity means acting in accordance with oneself. Therefore, it represents the core value for healthcare professionals who strive to deliver ethical care and support in the workplace culture (Iacono, 2019). Professional integrity is perceived as an indispensable aspect of working in the

healthcare system in many professions, such as physicians and nurses (De Raeve & Ba, 2002; Edgar & Pattison, 2011).

From another perspective, the social sciences consider integrity as a trustworthiness factor and one of the most important antecedents of trust (Fulmer & Gelfand, 2012; Mayer et al., 1995; McKnight et al., 2002). Such an approach will be binding for this work. It shares common ground with philosophical dogma, recognizing integrity as the moral virtue of doing right, even in challenging circumstances (Sastrawan et al., 2019). This conceptualization of integrity encompasses the coherence of words and actions (behavioral integrity) and a unity of values between the trustor and trustee (Tomlinson et al., 2020). Regarding the abovementioned distinction of integrity into two separate factors – values congruence and behavioral integrity – some research proposed implementing the four trustworthiness factors solution (Moorman et al., 2018; Tomlinson et al., 2020).

Integrity is considered the act of upholding ethical behavior and conduct in morally problematic situations within a professional setting. Mayer et al. (1995) described this variable as context-dependent. Trustworthiness framework often equates integrity with honesty, fairness, or a sense of justice (Colquitt & Rodell, 2011; Fulmer & Gelfand, 2012; Khana et al., 2020; Mayer et al., 1995). The ability to act honestly towards others constitutes human integrity – it is being capable of telling the truth despite the situation, being dependable, credible, and acting in a predictable way (Colquitt et al., 2007; Fulmer & Gelfand, 2012; Khana et al., 2020). In this regard, integrity belongs to the group of core ethical values significant to the healthcare system (Khana et al., 2020).

Patients associate physicians' integrity—an essential aspect of patient trust—with transparency in information disclosure. Complete transparency involves sharing even unfavorable information, such as being open about potential risks or mistakes (Nong, 2023). On the other hand, physicians link patients' integrity to sharing their personal and medical data, regardless of how it may reflect on them. Ultimately, integrity refers to the trustor's belief that the trustee follows principles acceptable to the trustor's values (Barki et al., 2015; Colquitt & Rodell, 2011; Fulmer & Gelfand,

2012; Mayer et al., 1995). Considering the doctor-patient relationship, one more facet of integrity seems salient – promise fulfillment (Colquitt et al., 2007). A crucial aspect for patients, especially those hospitalized, is that the physician fulfills their promises, such as providing the correct diagnosis and treatment, or revisiting the patient before completing the duty. Physicians considerably value patients' ability to adhere to treatment or keep up their scheduled appointments.

Competence. Although *An Integrative Model of Organizational Trust* (Mayer et al., 1995) delineates ability, the term evolved into competence in the literature with time. Nevertheless, these are equivalent constructs, varying in nomenclature (Barki et al., 2015; Tomlinson et al., 2020). Along with integrity, competence constitutes the cognition-based predictor of trust as one of the main facets of trustworthiness (Delbon, 2018; Di Battista et al., 2020; Khana et al., 2020). Competence refers to the expectations of a trustor's abilities and skills to behave in a particular manner (Barki et al., 2015; Di Battista et al., 2020; Khana et al., 2020). According to Schoorman et al. (2007), competence can be perceived or assessed much earlier in the course of a relationship than benevolence or integrity. Therefore, it mainly appears in situations of dependency (Di Battista et al., 2020). Fulmer & Gelfand (2012) incorporated another definition of competence – *"domain-specific competence of a trustee"*- which accurately reflects this trustworthiness factor's meaning. It refers to the skillset allowing an individual to perform in a particular area (Barki et al., 2015; Cantarutti & Pothos, 2023; Williams, 2001).

The perceptions of one's competence can vary in different settings (Mayer et al., 1995). For instance, the physician's competence level in identifying the cause of a disease can be perceived as higher than their competence level in adjusting the treatment plan. In a professional framework, such as a doctor-patient relationship, competence occurs as one of the most essential trustworthiness factors (Colquitt et al., 2007; Delbon, 2018; Di Battista et al., 2020, 2021; Taylor et al., 2023; Thom, 2001). A physician's competence, strongly related to trust, can also include interpersonal skills, such as communication skills, caring, and presenting an empathetic approach

toward patients (Delbon, 2018; Di Battista et al., 2020; Thom, 2001). This construct has also been a core element in enhancing patients' autonomy and shared decision-making (Delbon, 2018; Hemberg & Hemberg, 2020).

Competence is one of the most essential dimensions in the patient care process (Drummond, 2021; Hemberg & Hemberg, 2020). Patients expect physicians to provide competent care based on objectivity, skillsets, knowledge, and expertise (Di Battista et al., 2021; Drummond, 2021; Nong, 2023). This construct's hallmarks are a good reputation and commitment to hard work (Di Battista et al., 2020; Hemberg & Hemberg, 2020). Drummond (2021) specified the four fundamental tasks that comprise the concept of a physician's competence: establishing a diagnosis, estimating prognosis, identifying the cause of the disease, and selecting a treatment plan. All of them encompass the physician's capability to affect health outcomes (Cantarutti & Pothos, 2023). For this reason, competence is considered one of the most desired features of a physician (M. Murphy & Salisbury, 2020). Patients were more inclined to trust clinicians when they perceived them to be competent, empathetic towards their well-being, and aligned with their values (A. Anderson & Griffith, 2022). The constant development of professional skills allows physicians to remain credible and fit to practice medicine (Dinç & Gastmans, 2012; Hemberg & Hemberg, 2020; Leonard et al., 2022; Rethans et al., 2002). Competence embodies working up to the highest standards and embraces patient safety (Akbolat et al., 2019).

Conversely, an important yet often undermined aspect is the patient's competence perceived by doctors. It concerns being able to manage one's health, adhering to or complying with treatment plans, taking part in shared decision-making, and meaningfully contributing to one's overall care (Doekhie et al., 2019; Grob et al., 2019; Q. He et al., 2022). In this regard, the level of competence can influence a physician's trust in the patient (Grob et al., 2019; Thom et al., 2011).

Propensity to trust – review of definitions and doctor-patient relationship context

Van Den Assem & Dulewicz (2015) identified one more factor influencing trust in their model – propensity to trust. The propensity to trust originated in psychology (1950s) and has been identified as a distinct personality trait (Patent & Searle, 2019). It has been concluded that this individual trust tendency may be influenced by various personality types, developmental experiences, cultural backgrounds, social value orientation, moral identity (egocentric vs. prosocial motives), and human nature beliefs (in a just world or life as a zero-sum game) (Istanbulluoglu & Sakman, 2024; Weiss et al., 2021). A greater propensity to trust displays more optimistic perceptions and positive expectations of the world and other people (M. Zhang, 2021). An extreme example, commonly called blind trust, concerns some people's tendency to repeatedly place their trust in situations that would not be trust-warranting for most individuals (Mayer et al., 1995). Conversely, lower levels correspond with a negative and suspicious attitude toward interaction partners, perceiving them as potentially dangerous (Mooradian et al., 2006; H. Zhang et al., 2020). Some people hesitate to trust despite supportive circumstances (Mayer et al., 1995). Propensity to trust, except for having positive or negative expectations about people, contributes to making optimistic or pessimistic attributions of their actions (Mooradian et al., 2006).

It reflects one's predisposition or tendency to trust others and is one of the individual differences (Freitag & Bauer, 2016; Mayer et al., 1995; Zeffane, 2020). Based on the research, biophysiological structure, genetics, social learning, and lifetime experiences were added to those temperamental facets (Frazier et al., 2013; Mooradian et al., 2006). This perspective focuses on the stable determinants of trust that transcend situations and targets (Patent & Searle, 2019; Weiss et al., 2021). Therefore, it can be conceptualized as an inherent inclination not only to assume others can be relied on but also to accept that trusting requires vulnerability and dependence (Istanbulluoglu & Sakman, 2024; Patent & Searle, 2019). Propensity to trust constitutes an essential dispositional variable, yet it does not represent trusting behaviors per se. This distinction is of great

salience when comprehending the concept of trust and its constructs (Gill et al., 2005). As a personality trait, its level does not depend on context, remaining relatively stable across situations, which reflects a broader interpersonal orientation (Alarcon & Jessup, 2023; Colquitt et al., 2007; M. Zhang, 2021). The propensity to trust relates to relationship development, adjustment, and satisfaction. Moreover, it is linked to a range of wider social activities and consequences beyond personal relationships, including collective preferences, for example, sharing cars or public transportation (Mooradian et al., 2006).

In the literature, it is also called dispositional or general (generalized) trust, defined as a belief in benevolent human nature (Colquitt et al., 2007; Yamagishi & Yamagishi, 1994). The grounds of dispositional trust constitute the perceived likelihood of experiencing loss or gratification upon trusting strangers (Alarcon et al., 2018). The propensity to trust plays a particular role in situations involving unfamiliar parties and when knowledge about the trustee is unavailable (Alarcon & Jessup, 2023; Colquitt et al., 2007; Frazier et al., 2013). It shapes the initial perception of others and their behaviors in the early interaction stages (Alarcon & Jessup, 2023; Patent & Searle, 2019). Once more information about the trustee is gathered, including their previous behaviors, the effect of propensity to trust will fade (Alarcon et al., 2018; Gill et al., 2005). That indicates a transition in the trustor's perceptions from rational, based on instincts and beliefs, to information-based processing (Alarcon et al., 2018; Schoorman et al., 2007). Another definition states that the propensity to trust less considerably depends on who the interaction partner is, but instead responds to variations in individual esteem and sense of security (Beldad et al., 2010; M. Zhang, 2021).

The propensity to trust is one of the most important predictors and moderators of trust (Colquitt et al., 2007; Mayer et al., 1995). This characteristic represents one of the two empirically proven components of interpersonal trust (the second is trust in others) (Patent & Searle, 2019; M. Zhang, 2021). It is also related to other trust predictors, such as trustworthiness factors, namely benevolence, integrity, and competence (Colquitt et al., 2007; Fulmer & Gelfand, 2012). In addition to this relation, in the process of trust building, propensity to trust also independently complements

the judgments of the other party's trustworthiness (H. Zhang et al., 2020; M. Zhang, 2021). According to Rotter (1980), a higher propensity to trust can catalyze the mutual formation of trust between both parties of the relationship. A generalized propensity to trust facilitates interpersonal trust, as it encourages the act of forming new connections or offering second chances, thereby fostering an open-minded approach in relationships (Fulmer & Gelfand, 2012). When summarizing the extent to which an individual will be inclined to trust another, we should discern the trustor's propensity to trust and perceptions of the trustee's trustworthiness factors (Mayer et al., 1995).

The assumption that individuals are fundamentally honest has numerous significant implications for the ability to operate within intricate social systems (Couch et al., 1996; Mooradian et al., 2006). With all its complexities and intertwined dependencies, the healthcare system may serve as a good representation. Following that, the propensity to trust is one of the most essential psychological factors contributing to the formation of trust in the doctor-patient relationship (Lerch et al., 2024). In this context, the propensity to trust translates into more risk-taking behaviors toward the physician or generally more trusting behaviors on both sides of the relationship (A. Anderson & Griffith, 2022; Lerch et al., 2024). Patients characterized by lower levels of dispositional trust may tend to avoid active healthcare-seeking (A. Anderson & Griffith, 2022). Consequently, they are at greater risk of receiving delayed medical help or not receiving it at all. Postponed consultation with a healthcare provider may result in worse treatment outcomes or prognosis, which in turn may deepen the distrustful attitude towards the physician.

As a personality-based factor, the propensity to trust may affect patients' strategy of seeking medical information, influencing the extent of overall healthcare satisfaction and patient compliance (H. Zhang et al., 2020). For patients who base their propensity to trust on cognitive aspects, it is more natural to strive for direct health-oriented information when establishing physician's trustworthiness, whereas, for those with an affect-based propensity to trust, the relational aspect of a doctor-patient contact would prevail (H. Zhang et al., 2020). The latter group is more likely to consider physician's empathy as an essential trust-forming factor. Moreover, they tend to seek

second opinions significantly less often (H. Zhang et al., 2020). The patient’s propensity to trust may be reflected in their involvement in the relationship formed with a healthcare provider. This attitude is shaped by personal experiences, both direct and indirect, individual goals, as well as beliefs regarding physician's trustworthiness (A. Anderson & Griffith, 2022).

Research gap

The majority of studies concerning the constructs related to the doctor-patient relationship have focused solely on patients' perspectives. For instance, studying trust in a doctor-patient relationship from a single viewpoint without considering how mutual interactions between physicians and patients influence it may yield a narrow understanding of the topic (LoCurto & Berg, 2016; Williamson et al., 2022). Neglecting the fact that patients' perspectives are a part of reciprocal interactions—where physicians must simultaneously decide if and to what extent they should trust their patients—will always lead to limited and biased results (Q. He et al., 2022; Sousa-Duarte et al., 2020; Taylor et al., 2023). Therefore, the issue of reciprocal and embedded relationships needs consideration. Evaluating both the physician's trust in the patient and the patient's trust in the physician may facilitate an exploration of the role and dynamics of reciprocal trust in the doctor-patient relationship and its outcomes (Thom et al., 2011).

Communication may serve as another example of such an understudied construct. It is undoubtedly a two-way process that heavily depends on both participants. Furthermore, the therapeutic alliance, evaluation of the relationship itself, and satisfaction with the contact are all concepts rooted in the interaction between two individuals. Compared to the extensive research on patients' perspectives of these constructs, there is a scarcity of data regarding physicians' perspectives, and only a few studies have combined them (C. Campbell et al., 2007; Hagiwara et al., 2014; Kwissa-Gajewska & Kroemeke, 2022). Doctor-patient communication, mutual trust, and relationship formation embody interpersonal processes essential for patient-centered care. However, these components are usually operationalized as actions taken by either doctors or patients rather than their interactions (Chandra et al., 2018; Eveleigh et al., 2012; Fino et al., 2023; Konda et al., 2023; Netemeyer et al., 2020). Hence, exploring concepts related to these interpersonal dynamics, simultaneously from physicians and patients, offers a valuable opportunity to thoroughly

understand the inherently dyadic nature of various social and behavioral measurements (Kenny et al., 2020). Moreover, the possibility of estimating the strength of the connections between them is crucial for correctly interpreting the effects of interaction.

Trust or communication as dyadic processes involve examining hypotheses on the independent effects of each member of the doctor-patient relationship, as well as the interdependent influences that arise as each individual in a dyad affects the other partner (Elwood, 2023). Kenny et al. begin their book on the analysis of dyadic data with the sentence: '*The dyad is arguably the fundamental unit of interpersonal interaction and interpersonal relations'* (2020, p. 1). Thus, analyzing dyadic interactions in the constructs related to the doctor-patient relationships (trust, communication, satisfaction with the visit, evaluation of the relationship) should be a foundational starting point and a standard approach to address this research gap (Doekhie et al., 2019; Petrocchi et al., 2019; Petrocchi & Rotenberg, 2024; Raatikainen et al., 2023).

Although dyadic approaches appear fundamental for investigating the doctor-patient relationship, there are only a few one-with-many (OWM) designed studies conducted within this context (Anagnostopoulos et al., 2012; Hagiwara et al., 2014; Kenny et al., 2010; Kwissa-Gajewska & Kroemeke, 2022; Petrocchi et al., 2019). In their research, Anagnostopoulos and colleagues (2012) concentrated on the association between physicians' burnout rates and patients' satisfaction with the medical care provided. However, they carried out their research in primary care facilities and did not investigate any assessment agreements (such as consensus, assimilation, or reciprocity). The authors observed a negative correlation between physicians' burnout and patient satisfaction, indicating that patients of physicians experiencing higher levels of burnout reported significantly lower satisfaction with the care received.

Hagiwara et al. (2014) conducted a study on physician-patient communication in a primary care setting. The focus of their research was on talk time, perceived teamness, physician implicit racial bias, and patient adherence. Among the tested associations, only one was statistically significant – higher physicians' perceived teamness was linked to higher patient adherence at the

within-dyad level. In addition to examining these associations, they also performed variance partitioning for talk time and perceived teamness, estimating consensus, assimilation, and reciprocity. The physicians' ratings revealed weak assimilation for talk time and medium assimilation for perceived teamness. The patients' ratings indicated no consensus among patients seeing the same physician (for talk time and for perceived teamness). The results proved only one significant finding for tested reciprocities – dyadic reciprocity for talk time, which showed strong agreement between physicians' and patients' ratings.

Kenny and associates (2010) gathered data from a substantial sample size (general practitioners or specialists and their patients); however, they did not examine any associations. Instead, their focus was on investigating consensus, assimilation, and reciprocity concerning physicians' communication skills. Their findings revealed a lack of consensus among patients treated by the same physician. Conversely, the assimilation effect was notably high, indicating that physicians perceived their communication skills consistently across their patients. Additionally, they obtained significant yet weak evidence for dyadic reciprocity and a non-significant result for generalized reciprocity, suggesting that physicians and patients were not in agreement regarding the physicians' communication skills during their interaction, and in general.

Another OWM design study was conducted by Kwissa-Gajewska & Kroemeke (2022), who explored two types of agreements concerning physicians' communication skills: between many patients treated by one physician, and between patients and physicians. The study was carried out in outpatient clinics involving dermatologists and their patients. The researchers also examined the association between physicians' communication skills (evaluated by both patients and physicians) and reported satisfaction with the medical consultation. The findings indicated a strong consensus among patients treated by the same physician (for the process and for the content subscales of communication skills). Neither dyadic reciprocity nor generalized reciprocity yielded statistically significant results. Regarding the examined associations, the authors observed that content skills are positively correlated with higher reported satisfaction at both the between-dyad and within-dyad

levels for physicians and patients. Similar outcomes were observed for process skills and satisfaction, except for the patient between-dyad level (nonsignificant).

Petrocchi et al. (2019) conducted an OWM design study on trust in the doctor-patient relationship, which took place in primary care facilities and involved general practitioners and their patients. They focused on examining agreements in assessments between physicians and patients, as well as whether trust is reciprocated in such relationships. A strong consensus for trust between patients was noted, along with moderate assimilation for physicians. The researchers also observed a significant dyadic reciprocity, indicating weak agreement between physicians and patients regarding trust. Additionally, they tested the quality of communication as a predictor of trust. The results confirmed that communication quality can predict trust at the between-dyad level for physicians, as well as at the within-dyad level for both physicians and patients. However, trust as a predictor of communication was not verified.

The studies referenced above disclose inconsistencies in the OWM design methodology. Their results present challenges for comparison due to their focus on different variables and the examination of various effects. Most studies primarily investigated the agreement between physicians and patients. While these findings are vital for understanding potential discrepancies in perceptions between patients and physicians, examining only a single construct in each study does not provide a comprehensive overview of these perspectives. Only two of the studies employed the full potential of the OWM design by analyzing not merely agreements but also the relationships between variables (Kwissa-Gajewska & Kroemeke, 2022; Petrocchi et al., 2019). Nevertheless, each of these studies examined only a single association—specifically, physicians' communication skills in relation to satisfaction with the medical visit (Kwissa-Gajewska & Kroemeke, 2022) and the quality of communication as a predictor of trust within the doctor-patient relationship (Petrocchi et al., 2019). Consequently, there is a need to implement this advanced OWM design to validate more complex models. Although this design does not permit testing mediation, it remains applicable for verifying models involving multiple variables.

Another gap in the current literature pertains to the setting of doctor-patient interactions. Most studies concern the outpatient context, with a prevalence of general practitioner (GP) visits. Available studies regarding dyadic designs also usually occur in outpatient clinic environments (Hagiwara et al., 2014; Kwissa-Gajewska & Kroemeke, 2022; Petrocchi et al., 2019). Thus, there is a significant lack of data from the hospitalized patients and their attending physicians. The hospital treatment process is unique – much more intimate and intense (as there are numerous interactions with one physician during each day of hospitalization) compared to outpatient clinics or primary care facilities. Therefore, obtaining data from hospital settings is relatively challenging yet strongly desired (Skirbekk et al., 2011; Wei et al., 2020). It can contribute to understanding how the relationships between patients with severe medical conditions and their physicians are shaped.

Furthermore, certain variables are often overlooked in research on the doctor-patient relationship. In their literature review, Taylor et al. (2023) emphasized that trust in physicians has been examined merely 11 times over the past fifty years, whereas trust in patients by physicians has been explored on 499 occasions. In dyadic research designs, trustworthiness factors have yet to be definitively established as predictors of trust. Additionally, notwithstanding the extensive literature on patient adherence to treatment, limited data exist regarding patients' willingness to engage in treatment, which constitutes a potentially critical component in comprehending patients' health behaviors (Johnson et al., 2019). It is also noteworthy that there is a complete absence of data concerning physicians' perceptions of their patients' willingness to engage in treatment and their active involvement. Consequently, investigating the factors associated with patients' willingness to participate in treatment appears highly valuable.

Present study

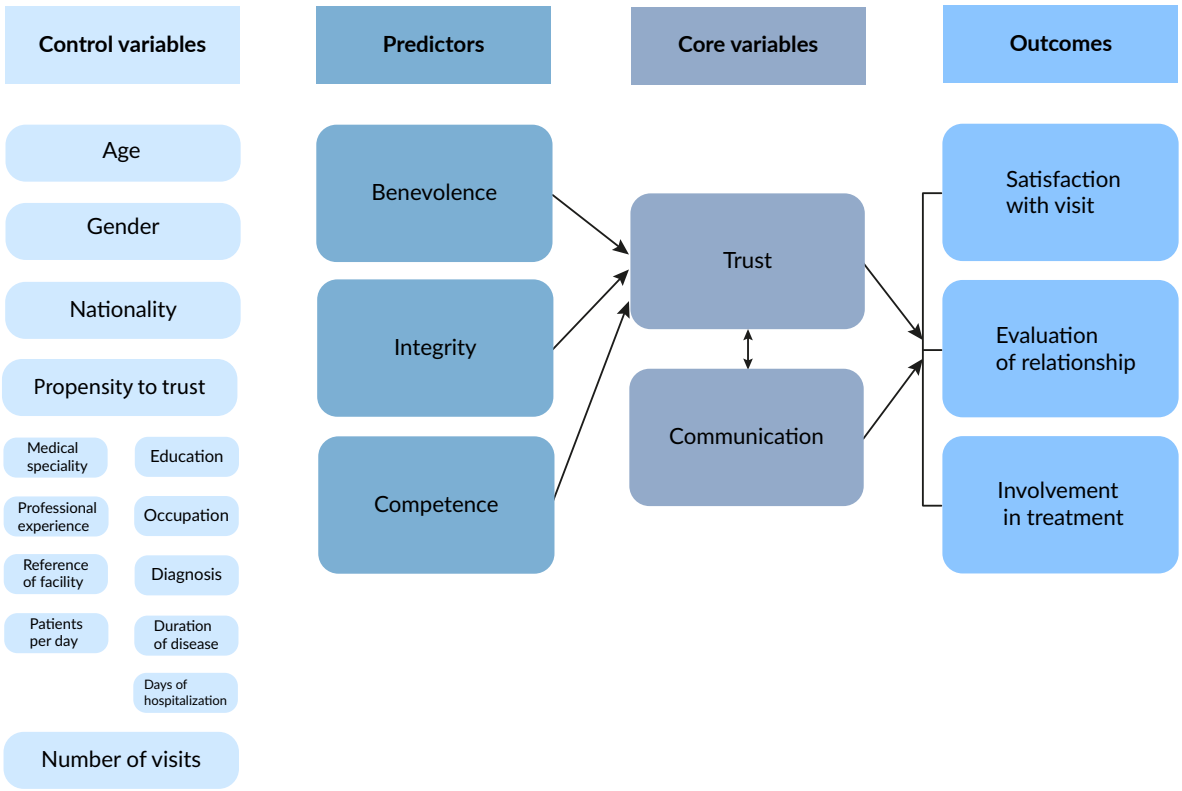
This research could fill the identified gaps in the literature regarding the complexities of the doctor-patient relationship (L. Chen et al., 2022; Petrocchi et al., 2019; Świątoniowska-Lonc et al., 2020; Taylor et al., 2023). The project aims to expand the *Doctor-Patient Relationship and Outcome Model* (Van Den Assem & Dulewicz, 2015) by thoroughly exploring the perspectives of both patients and physicians, as well as the interdependencies between them. The issues addressed in this study pertain to the intertwined concepts of trust and clinical communication, along with their antecedents and outcomes within the context of the doctor-patient relationship.

To address the limitations of the Doctor-Patient Relationship and Outcome Model (Van Den Assem & Dulewicz, 2015), modified and additional variables were incorporated into the model, such as physician communication skills and patient willingness to engage in treatment. Including these variables enabled a broader, multifactorial examination of the doctor-patient relationship, filling a research gap in the current knowledge (Kors et al., 2020). Figure 2 displays the revised model. The core variables of the model are trust (as in the original model) and communication (instead of the doctor's performance). Although the authors of the Doctor-Patient Relationship and Outcome Model primarily described the doctor's performance in terms of communication with patients (Van Den Assem & Dulewicz, 2015), operationalizing this construct as physician communication skills appeared to be a more straightforward approach. Consequently, based on existing literature, the doctor's performance from the original model was replaced with physician communication skills as the second predictor of outcome variables (S. He et al., 2024; Patel et al., 2019; Hojat et al., 2010, 2023). Three outcome variables related to the doctor-patient relationship were included in the adapted model: satisfaction with the visit, evaluation of the doctor-patient relationship (as in the original model), and patient willingness to engage in treatment (based on the authors' suggestion) (Van Den Assem & Dulewicz, 2015). Three trustworthiness factors—benevolence, integrity, and competence—

remained in the model (aligned with the original) as trust predictors. The propensity to trust was tested as a control variable due to its dispositional nature; this decision was grounded in the theoretical framework of the construct (Alarcon et al., 2018; A. Anderson & Griffith, 2022). Risk aversion was removed from the model because it was considered inappropriate for testing in the context of genuine relationships involving chronically ill and hospitalized patients and their attending physicians (as it could harm such relationships). Additionally, new control variables were introduced: for patients—diagnosis, disease duration, days of hospitalization, and number of visits with the attending physician; for physicians—medical specialization, place of employment (facility reference), professional experience, the daily average number of patients under their care, and the number of visits with a given patient.

Figure 2

Conceptual model adapted for the study [Doctor-Patient Relationship and Outcome Model]



Most of the above-mentioned adjustments were made to facilitate the primary goal of this research – the verification of the *Doctor-Patient Relationship and Outcome Model* in the reciprocal dyadic design. Therefore, all included variables had to be reciprocal in relation to the doctor-patient interaction and could be assessed by both physicians and patients. The variables that did not meet these criteria (doctor's practice orientation, the desire to recommend a doctor, or confidence in a physician) had to be removed from the model, as they were not eligible to be assessed by both parties of the interaction.

To provide data from a significantly understudied environment, this research was conducted within a hospital setting. The hospital environment constitutes a notably private context for research, given that patients are frequently unclothed, confined to beds, and exposed during ongoing treatments such as continuous infusion therapies, diagnostic monitoring, or nursing care procedures. Furthermore, the study concentrated on patients with chronic illnesses, as they typically possess greater experience interacting with physicians, thereby enabling more accurate assessments of various aspects of the doctor-patient relationship.

From a methodological perspective, measuring effective communication and mutual trust as interpersonal, interdependent, and reciprocal processes requires dyadic measurements and analysis (Kenny et al., 2010). Typically, dyadic measurement captures the input of two individuals, although the roles of those inputs may vary significantly (Bond Jr & Kenny, 2002). One approach that can help clarify these dependencies, associations, and roles is a *one-with-many design* (OWM). Applying OWM design allows for testing dyadic relationships, wherein one individual interacts with multiple partners, and has been shown to be feasible in various settings (Brinberg et al., 2021; Hagiwara et al., 2014; Hogekamp et al., 2016; Petrocchi et al., 2019; Uckelstam et al., 2020). Although it can address many research questions, the one-with-many design is rarely utilized, probably due to its complexity and data requirements (Brinberg et al., 2021; Kenny et al., 2020).

One-with-many design

Studying the dyadic relationships requires awareness that both parties of a dyad influence each other's behaviors and perceptions and, therefore, are interdependent (Campbell & Kashy, 2002). Interdependence leads to notable variations in a person's behaviors, shaped by their relationships and the development of their cognitive, emotional, and social abilities as they recognize, assess, and react to social dynamics (Reis & Collins, 2004). Another essential aspect arising from the complexity of dyadic constructs is the idea of non-independence. In dyadic data analysis, Kenny et al. (2006) highlight non-independence as the most fundamental concept, which can be defined as increased similarity or difference between the two scores of members within one dyad compared to the scores of individuals outside this dyad. Data regarding doctor-patient relationships are inherently interdependent and non-independent, stemming from individuals who interact and know each other (Petrocchi et al., 2019). Moreover, patients of one physician should also be considered as non-independent due to sharing a common healthcare environment (Kenny et al., 2020).

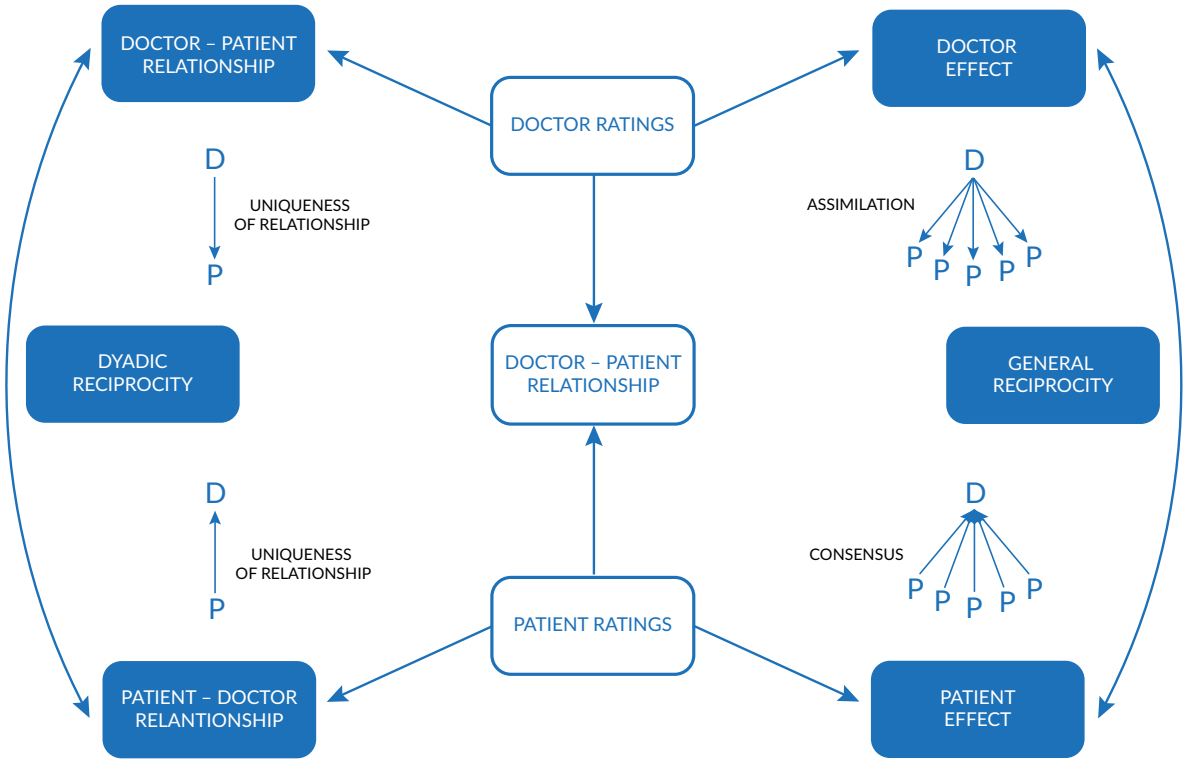
From a statistical perspective, an appropriate dyadic design should be utilized to address the non-independence of data. Given the nature of doctor-patient interactions and the imbalance arising from the fact that patients typically have one physician while physicians manage multiple patients, the most suitable design is OWM (Marcus et al., 2009). The imbalance is caused by a situation where physicians can compare their relationships with multiple patients, while patients have limited opportunities to do the same (Uckelstam et al., 2020). The OWM was explicitly developed to address this imbalance and to evaluate the non-independence of data by estimating the variance shared between the one and the many (for instance, physician and patients or therapist and clients) (Kenny et al., 2020). It originated from the standard dyadic model, which was combined with the social relations model (SRM) (Brinberg et al., 2021). Three types of OWM designs exist: MP1T (many perceivers, one target), in which data is collected from many patients/clients of a single physician/therapist; 1PMT (one perceiver, many targets) – allowing data collection from a

physician/therapist (who for instance evaluates their alliance with patients/clients); and a reciprocal design – which constitutes a comprehensive model enabling the testing of both dyad members (i.e., the data are generated by focal persons and partners) (Marcus, 2015). This approach allows for the consideration of multiple perspectives on a dyadic relationship and its outcomes, providing multifaceted and complex data (Gregoriadis et al., 2022). The OWM model was designed to explore the features of various dyadic relationships involving a group of focal persons (physicians) and others (multiple patients) (Brinberg et al., 2021).

Variance partitioning. The OWM model can be used to determine how much outcome variability is attributable to distinctions within focal persons compared to differences between them. The reciprocal design allows for the separate estimation of variances from both perspectives – physicians and patients. Figure 3 presents the analyzed variance components in a reciprocal OWM. Based on doctor ratings, the variance can be decomposed into two components: the actor effect and the relationship effect. The actor effect pertains to the extent to which a physician responds or behaves in a similar way toward all their patients – ***assimilation*** (see Figure 3) (Hagiwara et al., 2014). Its significance indicates behavioral consistency in a physician's approach. The doctor relationship effect estimates the portion of variance derived from the uniqueness of the relationship with a specific patient. This effect is always confounded with the patient partner effect (as it cannot be assessed in OWM – patients are evaluated only by one physician) (Uckelstam et al., 2020).

Figure 3

Variance components derived from reciprocal one-with-many design (Marcus et al., 2009; Petrocchi et al., 2019).



Analogously, two components can arise from patient ratings: the partner effect and the relationship effect. The partner effect refers to the extent to which patients of a particular physician perceive their behaviors or characteristics similarly – ***consensus*** (see Figure 3) (Marcus et al., 2009). This significant effect demonstrates alignment among patients treated by the same physician regarding the evaluated aspect (for example, the level of communication skills). The patient relationship effect assesses the portion of variance attributed to the uniqueness of the relationship with a specific physician (Gregoriadis et al., 2022). This effect is confounded with the patient actor effect (since it cannot be evaluated using the OWM model – patients assess only one physician) (Uckelstam et al., 2020). It is important to note that both actor and partner effects are individual-level (between) variables that differ among the focal persons (there are actor and partner effects for each physician) (Marcus et al., 2009).

Reciprocity. Variance partitioning permits the second step of analysis – examining reciprocity at two levels: generalized and dyadic (Marcus et al., 2009). This step aims to estimate the agreement between physicians' and patients' ratings of the studied constructs (Hogekamp et al., 2016). ***Generalized reciprocity*** represents the correlation between the average ratings of actors and partners (the actor effect correlated with the partner effect – individual level) (Uckelstam et al., 2020). It reflects the degree of congruence in both dyad members' ratings – if the physician generally assesses their relationships with all patients as very good, do all their patients also perceive the relationships with this physician as very good?

The second type of reciprocity tested in OWM models is ***dyadic reciprocity***. It refers to the extent to which both the physician and patient report similar levels of agreement regarding the unique role of their relationship (dyadic level) (see Figure 3) (Gregoriadis et al., 2022). Dyadic reciprocity is statistically estimated by correlating the two relationship variance components: doctor-rated and patient-rated (Altena et al., 2017). This suggests whether a physician who reports uniquely good communication skills with a particular patient is also viewed as uniquely skilled in communication by that patient. The relationship effects are dyad-level (within) variables that measure the uniqueness of a specific doctor-patient relationship.

Associations and outcomes. In addition to variance partitioning, the OWM model enables the estimation of fixed effects, which are the primary focus of standard multilevel linear models (MLM) (Hagiwara et al., 2014). In an OWM design, MLM is utilized to test relations between doctor-level and patient-level covariates, as well as actor, partner, and relationship effects. This approach facilitates the exploration of associations between physicians' and/or patients' variables/predictors and selected outcomes of the doctor-patient relationship. The other category of effects that can be assessed using the OWM model is random effects; these determine the (in)consistency across focal persons and (in)consistency across relationships (Brinberg et al., 2021).

Aims of the study

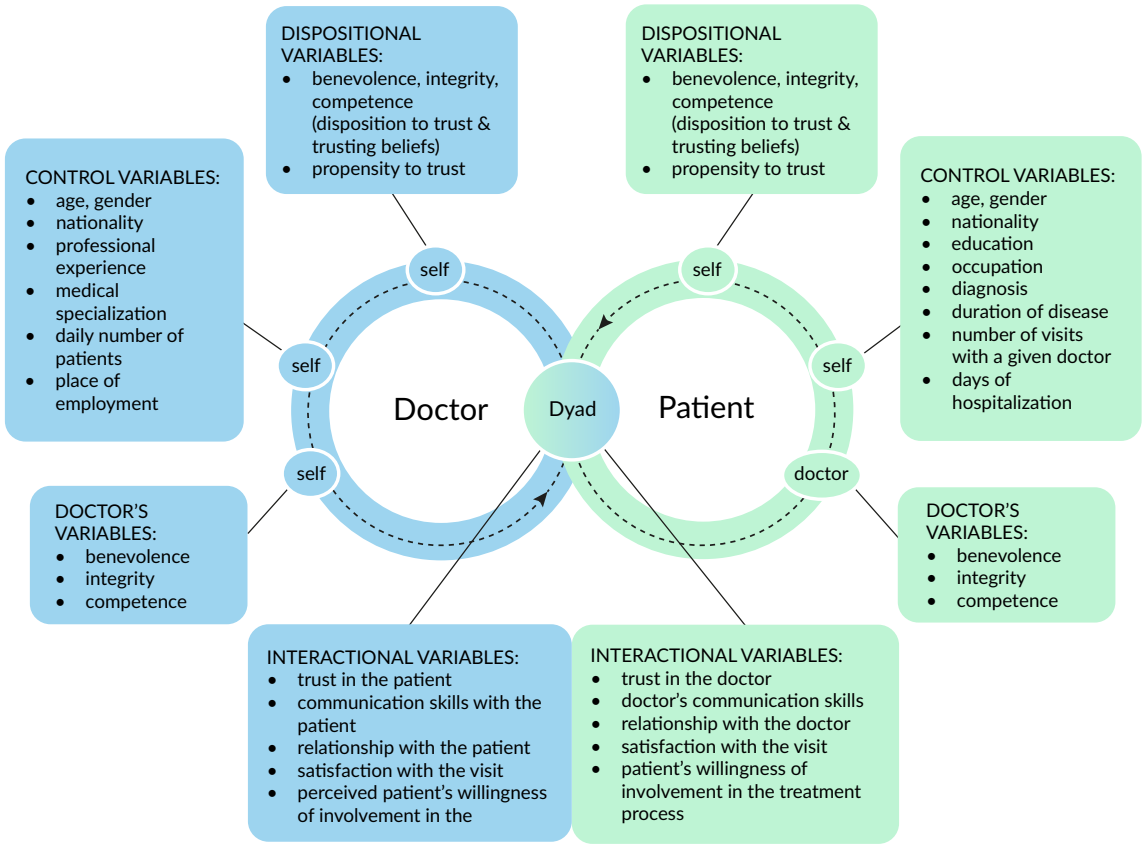
Aims and constructs. The applied OWM design will facilitate the verification of the theoretical model (*Doctor-Patient Relationship and Outcome Model*), revised for the study through:

- exploring three levels of agreement in the ratings given by physicians and patients: between multiple patients of one physician (consensus), the physician's perspectives towards many patients (assimilation), and between patients and physicians within dyads (dyadic reciprocity) – exploratory aims;
- investigating the associations between clinical communication and trust, their predictors (benevolence, integrity, competence), and outcomes (satisfaction with the medical visit, evaluation of the doctor-patient relationship, patient's willingness to engage in treatment) in a reciprocal dyadic approach – confirmatory aims.

Therefore, the research questions address the exploratory aims, while the hypotheses reflect the confirmatory aims. Figure 4 illustrates the categories of variables considered in the study. The project thoroughly examines the perspectives of patients with chronic internal diseases, their physicians within hospital settings (internal medicine units), and the authentic interactions between them.

Figure 4

Scheme of studied constructs and their raters in the dyadic approach



The exploratory goal is to test the agreement of assessments regarding:

- physician trustworthiness (benevolence, integrity, competence),
- trust,
- physician communication skills,
- satisfaction with medical visit,
- evaluation of the doctor-patient relationship,
- patient willingness to engage in the treatment

at three different levels:

I. agreement of assessments among patients of one physician (consensus),

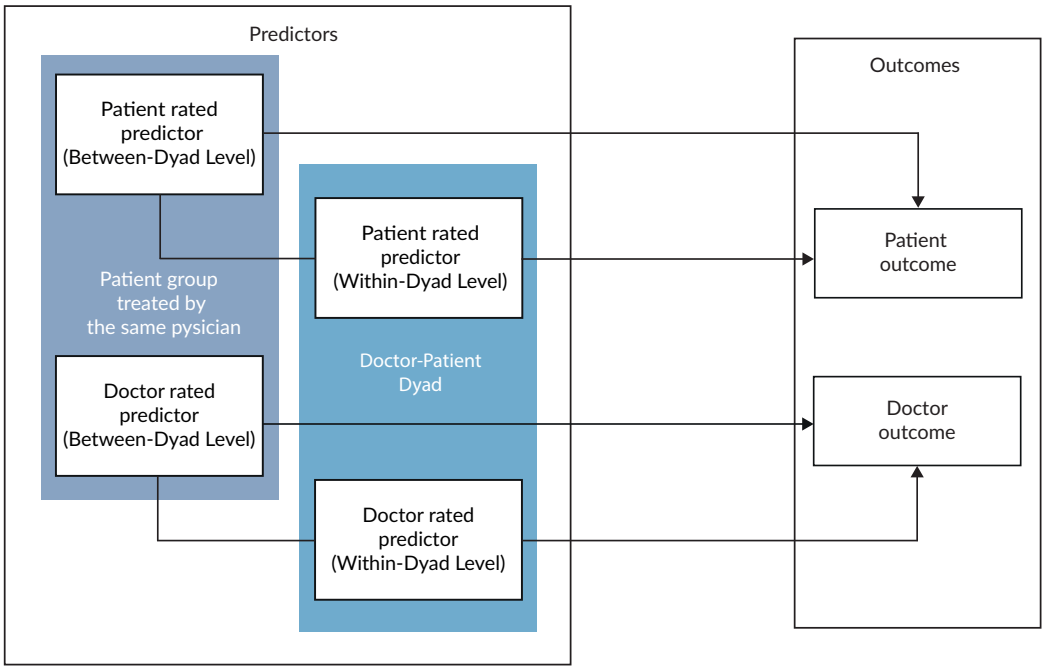
II. agreement of the physician's perceptions of all his patients (assimilation),

III. agreement within dyad (physicians' and patients') assessments (dyadic reciprocity).

Two levels of associations were investigated in the confirmatory part of the project: between-dyad level and within-dyad level. In the OWM design, the between-dyad variables pertain to the individual level (for physicians – the average across all their patients, and for patients – the average of the patient group treated by the same physician). Therefore, the between-dyad variables inform about the focal person means (herein: physicians) and have the same values among the whole group of one physician and all of their patients (Kenny et al., 2020). The within-dyad variables pertain to the dyadic level (the results obtained separately from both dyad members regarding their reciprocal interaction) and represent different values for each dyad member. Figure 5 depicts the general scheme of testing associations between the studied constructs. The connection between the between-dyad level and the within-dyad level does not represent mediation; rather, it delineates the multilevel structure of the data.

Figure 5

Scheme of individual and dyadic levels of associations tested in the one-with-many reciprocal design



Research questions

Agreement of assessments:

1. Do patients of a particular physician agree on their levels of physician's perceived trustworthiness (benevolence, integrity, competence), trust in physician, communication skills, satisfaction with the medical visit, evaluation of a doctor-patient relationship, and reported levels of patient willingness to engage in the treatment (consensus; Question 1; Q1)?
2. Do physicians report similar levels of trust in patients, communication skills, satisfaction with medical visits, evaluation of doctor-patient relationship, and patients' willingness to engage in treatment across patients (assimilation; Question 2; Q2)?
3. Do physicians and patients agree in their assessments of the physician's trustworthiness (benevolence, integrity, competence), physician's communication skills, trust, satisfaction with the visit, evaluation of a doctor-patient relationship, and patient's willingness to engage in the treatment (dyadic reciprocity; Question 3; Q3)?

Research hypotheses

Verification of the constructs' associations and outcomes:

1. There is a positive association between physicians' perceived trustworthiness and trust in physician at both the between-dyad and within-dyad levels.
   1.1. Higher physicians' perceived benevolence is positively associated with greater trust in physician at both the individual level (Hypothesis 1.1a; H1.1a) and dyadic level (Hypothesis 1.1b; H1.1b).

1.2. Higher physicians' perceived integrity is positively associated with greater trust in physician at both the individual level (Hypothesis 1.2a; H1.2a) and dyadic level (Hypothesis 1.2b; H1.2b).

1.3. Higher physicians' perceived competence is positively associated with greater trust in physician at both the individual level (Hypothesis 1.3a; H1.3a) and dyadic level (Hypothesis 1.3b; H1.3b).

2. There is a positive association between physicians' communication skills and trust in the doctor-patient relationship at both the individual level (Hypothesis 2a; H2a) and dyadic level (Hypothesis 2b; H2b).
3. There is a positive association between trust in the doctor-patient relationship and satisfaction with the medical visit at both the individual level (Hypothesis 3a; H3a) and dyadic level (Hypothesis 3b; H3b).
4. There is a positive association between trust in the doctor-patient relationship and the evaluation of a doctor-patient relationship at both the individual level (Hypothesis 4a; H4a) and dyadic level (Hypothesis 4b; H4b).
5. There is a positive association between trust in the doctor-patient relationship and patient's willingness to engage in the treatment at both the individual level (Hypothesis 5a; H5a) and dyadic level (Hypothesis 5b; H5b).
6. There is a positive association between physicians' communication skills and satisfaction from the medical visit at both the individual level (Hypothesis 6a; H6a) and dyadic level (Hypothesis 6b; H6b).
7. There is a positive association between physicians' communication skills and the evaluation of a doctor-patient relationship at both the individual level (Hypothesis 7a; H7a) and dyadic level (Hypothesis 7b; H7b).

8. There is a positive association between physicians' communication skills and patients' willingness to engage in the treatment at both the individual level (Hypothesis 8a; H8a) and dyadic level (Hypothesis 8b; H8b).

Methods

Participants

The study involved a highly vulnerable group of dyads—hospitalized patients and their attending physicians—and was limited by the inclusion criteria. In some healthcare systems, involving hospitalized patients in psychological studies is entirely prohibited; therefore, the collected data is extremely valuable. Due to the relatively new and statistically advanced research design, there are no established formulas or calculators for determining sample size a priori. Previous studies using an OWM design were conducted in outpatient clinics and included: 1749 dyads/91 physicians (Kenny et al., 2010), 300 dyads/30 physicians (Anagnastopoulos et al., 2012), 189 dyads/12 physicians (Petrocchi et al., 2019), 112 dyads/13 physicians (Hagiwara et al., 2014), and 122 dyads/8 physicians (Kwissa-Gajewska & Kroemeke, 2022). Thus, according to the statistical practice, resource and time constraints justify the sample size for this study (Lakens, 2022; Lenth, 2001).

The sample consisted of 203 doctor-patient dyads comprising 18 physicians and 203 of their patients (with *M* = 11.27 patients/per doctor). The patient group in the study was heterogeneous in terms of diagnoses. Nevertheless, the following inclusion criteria were established: a diagnosis of chronic internal disease, age over 18, and a minimum of four full days of hospitalization on the day the questionnaires were completed (at least four visits with the attending physician). Patients' cognitive status ought to be entirely logical, demonstrating complete verbal contact, orientation in time and place, and without any doubt in the attending physician's assessment. Table 1 presents the sociodemographic and contextual characteristics of the participants.

Table 1

Sociodemographic and contextual characteristics of participants (N = 221)

Characteristics	**Physicians (*N* = 18)**	**Patients (*N* = 203)**
Gender		
Women	11 (61.1%)	114 (56.2%)
Men	7 (38.9%)	89 (43.8%)
Age in years ($M \pm SD$)	32 ± 6.47	60 ± 18.09
Professional experience in years ($M \pm SD$)	6.8 ± 5.83	
Patients per day ($M \pm SD$)	$4.86 \pm .97$	
Nationality		
Polish	16 (88.9%)	200 (98.5%)
Ukrainian	2 (11.1%)	3 (1.5%)
Medical specialization		
Internal medicine	12 (66.7%)	
Rheumatology	4 (22.2%)	
Internal medicine + rheumatology	2 (11.1%)	
Reference of facility		
First	3 (16.7%)	
Third	15 (83.3%)	
Education		
Elementary		12 (5.9%)
Secondary		89 (43.9%)
Vocational		58 (28.6%)
Higher	18 (100%)	44 (21.7%)
Occupation		
Employed	18 (100%)	86 (42.4%)
Unemployed		7 (3.4%)
Retired		98 (48.3%)
On disability pension		12 (5.9%)
Duration of chronic disease in years ($M \pm SD$)		7.47 ± 10.1
Hospitalization in days*		9.07 ± 8.34
Visit frequency per day ($M \pm SD$)		$1.94 \pm .85$
Number of visits per doctor-patient dyad ($M \pm$ SD)	17.08 ± 20.07	17.08 ± 20.07
Reason of hospitalization		
Exacerbation of symptoms		129 (63.5%)
Emergence of new symptoms		74 (36.5%)

Note. * at the day of collecting data

The patients in the study were diagnosed with 34 different diseases. Appendix 1 shows the frequencies of all diagnoses recorded in the study. The most prevalent diagnoses were hypertension (35.5%), rheumatoid arthritis (10.3%), and anemia (6.9%). Patients' diagnoses were classified into groups based on their characteristics and the systems affected by the disease. In this way, nine main groups of diseases were identified (Table 2). The most frequently occurring type of disease was cardiovascular disease, accounting for 48.3%.

Table 2

Frequencies of patients' diseases type (N = 203)

Disease Type	Counts	% of Total	Cumulative %
Cardiovascular system diseases	98	48.3 %	48.3 %
Chronic joint diseases	31	15.3 %	63.6 %
Hematological and oncological diseases (chronic phase)	29	14.3 %	77.9 %
Chronic systemic rheumatological diseases	17	8.4 %	86.3 %
Chronic metabolic diseases	10	4.9 %	91.2 %
Chronic vasculitis	7	3.4 %	94.6 %
Chronic respiratory diseases	6	3.0 %	97.6 %
Chronic kidney failure	3	1.5 %	99.1 %
Chronic infectious inflammatory diseases	2	1.0 %	100 %

Measures

All data collected in the study were based on validated psychometric tools and prepared surveys with controlled variables (Table 3 presents all implemented tools). The full versions of the questionnaires are available in Appendix 2. Appendix 3 contains data regarding the Polish adaptations of the tools prepared for the needs of the study.

Table 3

Tools implemented in the study

Measured construct	Name of the tool	Authors	No. of items	Answers type	α
Trustworthiness factors according to Mayer et al. conceptualization (1995): **Benevolence**, **Integrity**, and **Competence**; the scale concerns trusting beliefs in specific social contexts (regarding other people, herein: medical doctors). It consists of 3 subscales: Benevolence, Integrity and Competence. Two versions were implemented – patients' assessments of doctors, and doctors' self-assessments. The higher score – the higher benevolence, integrity, and competence in a given context.	The Disposition to Trust & Trusting Beliefs Measure	McKnight et al., 2002; Polish adaptation and contextualization prepared for the needs of this study	20 statements	7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree)	.93 (P)[2] .94 (D)[2]
Propensity to trust – defined by Frazier et al. (2013, p. 80) as "*a general willingness to trust others, regardless of social and relationship-specific information*". The higher score – the higher propensity to trust.	Propensity to Trust Scale	Frazier et al., 2013; Polish adaptation prepared for the needs of this study	4 statements	5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree)	.86 (P) .91 (D)
Physician's trust in the patient – operationalized by physician's expectations toward patients' regarding providing thorough and accurate medical histories, asking questions, following treatment plans, attending follow-ups, respecting the doctor's time and personal boundaries, and avoiding any manipulation of the relationship for personal purposes. The higher score – the higher level of physician's trust in the patient.	Physician's Trust in Patient Scale	Thom et al., 2011; Polish adaptation: Błaszyk & Kroemeke, 2024	12 questions	5-point Likert scale from 1 (not at all confident) to 5 (completely confident)	.91
Patient's trust in the physician – conceptualized as a patient's belief that the doctor's actions and words are credible and dependable and that the doctor will act in the patient's best interest, providing support and assistance regarding treatment and medical care. This conception refers to interpersonal trust within the ongoing doctor-patient relationship. The higher score – the higher level of patient's trust in physician.	Trust in Physician Scale (TIPS)	L. A. Anderson & Dedrick, 1990; Polish adaptation: Krajewska-Kułak, 2018	11 statements	5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree)	.83

Table 3

Tools implemented in the study

Measured construct	Name of the tool	Authors	No. of items	Answers type	α
Physician's clinical communication skills in doctor-patient relationship divided into two dimensions: process of communication and content of communication. MPI is the tool tailored for the dyadic research – measuring physician's communication skills from both sides of the interaction (medical visit) – the physician and the patient. The higher score – the higher level of physician's communication skills.	Matched-Pair Instrument (MPI)	Campbell et al., 2007; Polish adaptation: Kwissa-Gajewska & Kroemeke, 2022	19 statements	5-point Likert scale from 1 (not at all) to 5 (definitely yes)	.89 (P) .91 (D)
Doctor-patient relationship outcomes – divided into three parts: Evaluation of the relationship with the patient/doctor, satisfaction with medical visit, and patient willingness to engage in the treatment (perceived – D, declared – P). The higher score – the higher level of measured construct.	The author's questionnaire based on the theoretical model		5 questions (P); 4 questions (D)	5-point Likert scale from 1 to 5	.84 (P) .80 (D)

Note. (P) – version for patient, (D) – version for physician; The individual respondents' results for each scale or subscale were operationalized as the means of scores obtained by the respondent.

Data collection

Physicians' and their patients' participation in the study was voluntary, and the participants were not remunerated. The Ethical Committee of the Faculty of Psychology at SWPS University in Wroclaw, approved the research protocol (Decision No. 01/P/02/2023). The whole data collection process – illustrated in Figure 6 – was conducted by the author of this dissertation.

The data collection process started by obtaining written agreements from all four department heads. The study took place in four wards of two hospitals in Wroclaw, Poland: the Department of Internal and Occupational Diseases, Hypertension and Clinical Oncology at the University Clinical Hospital in Wroclaw; the Department of Angiology and Internal Diseases at the University Clinical Hospital in Wroclaw; the Department of Rheumatology and Internal Diseases at the University Clinical Hospital in Wroclaw; and the Department of Internal Medicine IV at the Lower Silesian Center of Oncology, Pulmonology, and Hematology. Both hospitals differed in their levels of referral. The University Clinical Hospital in Wroclaw is a third reference facility, while the Lower Silesian Center of Oncology, Pulmonology, and Hematology is a first reference facility. Data were collected based on prepared sets of questionnaires, separate for physicians and patients. The study method was paper-and-pencil.

In the next step, physicians were recruited through personal invitations in their doctors' offices. Out of 25 invited physicians, 18 agreed to participate. Physicians completed the questionnaires in two parts. Data regarding self-assessments (including the control variables and the dispositional variables) – Figure 4 – were collected only once after obtaining the agreement to participate in the study. The average time required to complete this part of the questionnaires was between 15 and 20 minutes. In the next step, the recruited physicians were instructed regarding patient inclusion criteria, as they were responsible for identifying patients who met the conditions of the study. They were not informed of the project's exact aim, which was to prevent bias in selecting patients with whom they felt more comfortable.

Patients were recruited to the study in their rooms. Out of 215 invited patients, 203 agreed to participate. Data from patients were collected in one part and included patients' control variables, patients' dispositional variables, the physician's dispositional variables, and interactional variables (see Figure 4). Patients always completed their questionnaires after a morning visit with their attending physician, provided it was their fourth visit or later with that physician. Patients, on average, needed approximately 20-25 minutes to complete the whole set of tools.

Once the patient finished fulfilling their part of the study, the second part of the questionnaires, pertaining to the interactional variables with particular patients (see Figure 4), was delivered to the attending physician. They completed this part after the same visit (assessed by the patient) with the given patient (once for each dyad). It took them about 5 minutes to accomplish that set.

The data were stored in individual, sealed envelopes with coded personal data to hinder the identification of participants. Neither the physicians nor the patients had access to each other's responses.

Figure 6

Data collection – scheme

Statistical analysis

To test study hypotheses, a reciprocal OWM design (one doctor and many patients) was implemented. This design represents a dyadic approach, wherein focal persons are in multiple dyadic relationships with many partners, but each partner is in a relationship with one focal person (Kenny et al., 2020). To verify the hypotheses and answer the research questions, various variances and covariances, consisting of the following components—actor/perceiver effect, partner/target effect, and relationship effect—were examined.

The reciprocal OWM design necessitates the use of multilevel linear modeling (MLM) with a hierarchical data structure, as it is based on a two-intercept approach (Raudenbush et al., 1995). In the OWM design, hierarchical data – information collected from participants is organized at two levels. In this design, patients are nested within physicians, where physicians are considered as the upper-level units and patients as the lower-level units (Marcus et al., 2009). The MLM framework was applied in this study to estimate fixed effects (testing associations and outcomes between variables) and random effects with variance components for all tested variables, as well as two types of reciprocity correlations (Marcus et al., 2009). Statistical data analyses were conducted using version 29 of IBM SPSS (IBM Corporation; Armonk, NY, United States) by implementing a Mixed Model with Repeated Measures based on the adapted Syntax developed by Marcus et al. (2009).

The first step of OWM analysis was variance partitioning, which involved decomposing the total variance of focal persons—physicians and partners—patients' ratings into actor, partner, and relationship variances, allowing the estimation of the ICC (Altena et al., 2017). In OWM design, four sources of effects (variances) were assessed: the doctor effect (actor/perceiver), the patient effect (partner/target), the patient relationship effect (patient-doctor relationship), and the doctor relationship effect (doctor-patient relationship) – Figure 3 (Marcus, 2015). Table 4 outlines the components, descriptions, and examples (derived from this study) of all the aforementioned effects.

Table 4

Components of the one-with-many design used in the study

Component	Source	Effect & example
Individual (between variance)		
Actor	Doctor report	Assimilation: Doctor perceives similarly patients' willingness to engage in treatment (across all of them)
Partner	Patient report	Consensus: Patients of one doctor perceives his/her trustworthiness in a similar way
Generalized reciprocity	Correlation of actor and partner components	Doctors who report high communication skills with all their patients, are perceived to have high communication skills by all patients
Dyad (within variance)		
Relationship (+error)	Doctor report	Uniqueness: Doctor reports unique satisfaction from medical visit with a given patient
Relationship (+error)	Patient report	Uniqueness: Patient reports unique level of trust in a particular physician
Dyadic reciprocity	Correlation of doctor and patient reports	Agreement between doctor and patient: Doctor reports having good relationship with patient, and so does the patient

Exploration of research questions. To answer the first research question – assessing the ***consensus*** (see Figure 3) between many patients of one physician regarding the physician's perceived trustworthiness factors (benevolence, integrity, competence), levels of trust in them, communication skills, satisfaction with the medical visit, evaluation of a doctor-patient relationship, and reported levels of patient willingness to engage in the treatment – intraclass correlation coefficient (ICC) for patient data was computed. The second ICC for the physician data was estimated to address Question 2 – evaluating how physicians perceive their trust in patients, communication skills, satisfaction with the medical visit, evaluation of the doctor-patient relationship, and patient willingness to engage in treatment with all their patients – ***assimilation*** (see Figure 3). The ICCs for physician data and for patient data were computed from the MLM. The ICC represents the variance proportion, and its higher values indicate higher consistency in patients' or physicians' ratings. The proportion of variance for each effect is reported to facilitate the interpretation of the data. The remaining part of the variance is attributable to the 'relationship (+error)' variance. For physician ratings, the 'relationship (+error)' variance estimates include undifferentiated relationship, partner,

and error variance components. For patient ratings, the ‘relationship (+error)’ variance estimates consist of a combination of relationship, actor, and error variance. The ‘relationship (+error)’ term is used consistently throughout the results section to enhance clarity and support the comprehension of the findings. Subsequently, in order to explore the third research question – assessing the level of agreement in physicians' and patients' ratings of the physician’s trustworthiness, the physician's communication skills, trust, satisfaction with medical visit, evaluation of the relationship, and patient’s willingness to engage in the treatment – the dyadic reciprocity was tested.

Verification of hypotheses. To verify study hypotheses, eleven separate multilevel models were conducted to test the associations between the trustworthiness factors (benevolence, integrity, competence) and trust, between trust and physician communication skills, as well as between trust, physician communication skills, and their outcomes (satisfaction with the visit, evaluation of a doctor-patient relationship, and patient willingness to engage in treatment). To perform these analyses, all variables used in the study were transformed into distinct variances at the individual and dyadic levels (Heck et al., 2013). In the first step, all variables in the model were centered on the grand mean (Field, 2024). Subsequently, the individual-level variables were calculated through group mean centering, which aggregates the individual scores within the clustering variable – one physician (Bolger & Laurenceau, 2013). The final transformation step involved computing a dyadic level variable by subtracting the average residualized score from the individual level variable (Altena et al., 2017). This process resulted in two orthogonal components, where the individual-level effects (between-dyad effects) can be interpreted as individual differences between physicians (average of a physician’s or group of their patients’ ratings), whereas the dyadic-level effects (within-dyad effects) should be understood as changes from the average rating typical for a given physician or patient (physician’s or patient’s rating).

Obtaining these two levels of variables allows the applied OWM design to estimate relations between doctor and patient covariates at both individual and dyadic levels (fixed effects), as well as

actor, partner, and relationship effects (random effects) (Hagiwara et al., 2014). Both fixed and random effects facilitate multiple analyses that determine associations between variables and predict outcomes (testing all eight hypotheses) (Uckelstam et al., 2020). According to the parsimony rule, the theoretical model was tested in two stages due to the complexity of the multilevel linear models developed. In the first stage, trustworthiness factors (benevolence, integrity, competence) were tested as predictors of trust in a doctor-patient relationship. Due to the limited number of tested dyads and hierarchical analysis, four independent variables were tested separately to assess the first hypothesis: physician general trustworthiness, benevolence, integrity, and competence (all perceived by patients and self-reported by physicians). Additionally, propensity to trust was tested as a covariate of the associations between trustworthiness factors and trust in the doctor-patient relationship. Subsequently, the association between trust and communication skills was investigated. In the second stage, trust and physicians' communication skills were tested as predictors of model outcomes: satisfaction with medical visit, evaluation of the relationship with the physician/patient, and patient's willingness to engage in treatment.

Six types of fixed effects parameter estimates were calculated for all tested dependent variables within the framework of linear mixed models: doctor and patient intercepts, doctor and patient between-dyad effects (individual levels), and doctor and patient within-dyad effects (dyadic levels). Subsequently, six types of random effects parameter estimates were obtained—at the within-dyad level (doctor and patient residuals, doctor-patient residual covariance) and the between-dyad level (doctor and patient intercepts, doctor-patient intercept covariance). Nevertheless, only fixed effects were reported due to the volume of this work.

Additionally, all control variables—patient’s and physician’s gender, age, nationality, education level, diagnosis, disease duration, days of hospitalization, number of visits, average number of daily treated patients by the physician, and physician’s professional experience—were examined as potential predictors of physicians’ communication skills, trust in the doctor-patient relationship, satisfaction with the medical visit, evaluation of the doctor-patient relationship, and

patients' willingness to engage in treatment. Propensity to trust, as a dispositional variable, was treated the same as the control variables and was tested as a covariate in the association between trustworthiness factors (benevolence, integrity, competence) based on the literature. The sensitivity analysis was conducted for all main models with covariates that attained statistical significance in the primary analysis.

Results

Descriptive statistics

The collected dataset contained no missing data. The descriptive statistics of all variables used in the study are presented in Table 5. Variables lacking annotations are to be understood as constructs assessed by both parties of the dyad in an identical manner.

Table 5

Descriptive statistics of all variables (N=221)

Variable		N	*M*	*SD*	Range	Min.	Max.
Trustworthiness_doctor	D	18	5.48	.82	3.64	3.18	6.82
	P	203	6.07	.58	2.36	4.64	7.00
Benevolence_doctor	D	18	5.83	.79	3.00	4.00	7.00
	P	203	6.18	.62	2.67	4.33	7.00
Integrity_doctor	D	18	5.97	.89	3.50	3.50	7.00
	P	203	6.02	.66	3.00	4.00	7.00
Competence_doctor	D	18	4.72	1.00	4.50	2.25	6.75
	P	203	6.05	.64	3.00	4.00	7.00
Propensity to Trust	D	18	3.50	.90	3.50	1.50	5.00
	P	203	3.50	.81	3.50	1.50	5.00
Communication_doctor	D	203	4.17	.53	2.74	2.26	5.00
	P	203	4.41	.50	2.63	2.37	5.00
Trust*	D	203	3.96	.67	3.33	1.67	5.00
	P	203	4.13	.46	2.27	2.73	5.00
Satisfaction*	D	203	4.15	.73	3.00	2.00	5.00
	P	203	4.65	.61	3.00	2.00	5.00
Relationship*	D	203	4.23	.81	4.00	1.00	5.00
	P	203	4.70	.56	3.00	2.00	5.00
Involvement_patient	D	203	3.85	.92	4.00	1.00	5.00
	P	203	4.67	.60	3.00	2.00	5.00

Note. **_doctor** – both dyad members assessed physician characteristics; **_patient** – both dyad members assessed patient characteristics; ***** - variables assessed in relation to the other dyad member; **D** – measurements obtained from physicians; **P** – measurements obtained from patients

Exploring research questions

Exploring Question 1.: *Consensus between patients of a particular physician on their levels of physician's perceived trustworthiness (benevolence, integrity, competence), trust in physician, communication skills, satisfaction with the medical visit, evaluation of a doctor-patient relationship, and reported levels of patient willingness to engage in the treatment.*

To answer this question, the ICCs for patients were computed for all explored variables (Table 6; Rater: Patient, ICC for Partner). The ICCs were high for all trustworthiness factors (overall, benevolence, integrity, and competence), indicating a strong consensus among patients of a single doctor. Higher values pinpoint high consistency in patient ratings of one physician – the between-physician variation prevails over within-physician variation. Thus, there was less variability in patient ratings from one patient to another of the same physician than between patients of different physicians. In other words, the data suggest that patients of a particular physician shared similar views regarding whether they found that physician trustworthy (in general, benevolent, honest, or competent). The right part of Figure 7 reflects a strong consensus among many patients of one physician.

In case of interactional variables, the values of patient ICCs were distinctly smaller (Table 6). Those results indicate that there was weak (or almost a lack of) consensus among patients of a single physician on all tested interactional variables (see the left part of Figure 7). In all those cases, the majority of the variance could be attributed to the relationship (+error) components. From the patients' perspective, there was little evidence that certain physicians generally were more trusted, demonstrated better communication skills, or developed better relationships with patients than others. Patients' views of satisfaction with the visit were also inconsistent regarding the same physician. Finally, the findings suggest that there were no physicians whose patients were typically more willing to engage in the treatment.

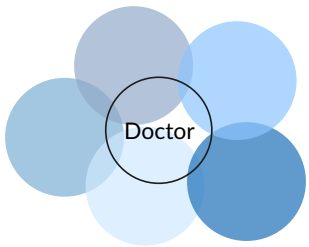
Table 6

Results of MLM: Variance partitioning (N=221)

		ICC (proportion of variability)		
Construct	Rater	Actor (Doctor)	Partner (Patient)	Total variance
Doctor's Trustworthiness	Doctor		–	.947
	Patient	–	.90	.05
Doctor's Benevolence	Doctor		–	.967
	Patient	–	.71	.031
Doctor's Integrity	Doctor		–	1.142
	Patient	–	.94	.082
Doctor's Competence	Doctor		–	1.334
	Patient	–	.93	.044
Trust	Doctor	.29	–	.271
	Patient	–	.06	.406
Communication	Doctor	.44	–	.418
	Patient	–	.15	.143
Satisfaction with the visit	Doctor	.37	–	.566
	Patient	–	.05	.383
Evaluation of a d-p relationship	Doctor	.14	–	.337
	Patient	–	.04	.627
Patient's Involvement	Doctor	.06	–	.346
	Patient	–	.05	.868

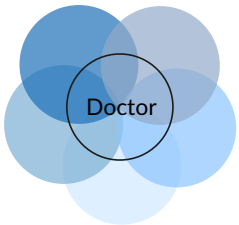
Figure 7

Consensus - scheme



weak/lack of consensus:

Trust in Physician
Communication
Satisfaction with the visit
Evaluation of a D-P Relationship
Patient Engagement



strong consensus

Trustworthiness
Benevolence
Integrity
Competence

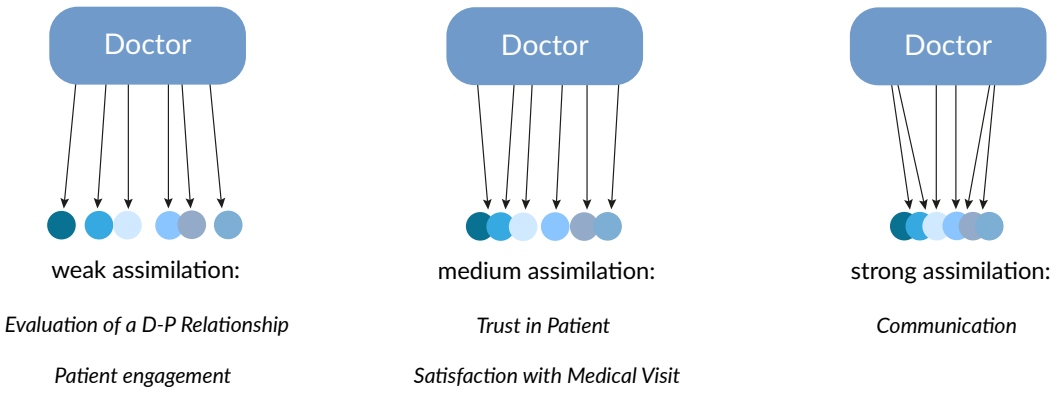
Exploring Question 2.: *Assimilation in physicians ratings of trust in patients, communication skills, satisfaction with medical visits, evaluation of doctor-patient relationship, and patients' willingness to engage in treatment across patients.*

The ICCs for physicians were estimated to address the second research question (Table 6; Rater: Doctor, ICC for Actor). They represent the proportion of the variance due to physicians' ratings. Considering trust in patient, the physician ICC was moderate. This result suggests that some physicians consistently reported higher levels of trust toward their patients than other physicians (assimilation). Further analysis demonstrates that, regarding communication, the physician ICC attained a higher value, indicating more variability between different physicians than between different ratings of one physician. It revealed the presence of an assimilation effect, which means that physicians, to some extent, tended to perceive their communication with all of their patients similarly.

The physician ICC for satisfaction yielded a moderate value. Thus, more than one-third of the physician variance implied that some physicians consistently reported greater satisfaction from contact with all their patients (assimilation). Further statistical tests revealed that the physician ICC for evaluation of a doctor-patient relationship was relatively small. This finding demonstrates only a modest assimilation effect. Additionally, there was scant evidence that some physicians predominantly view their relationships with all patients more favorably than others. The last tested construct was the patient's willingness to engage in treatment. Table 6 shows that the physician ICC accounted for very small proportion of variance. It suggests a weak assimilation effect, indicating that physicians distinctly vary in their perceptions of patients' willingness to engage in treatment from one patient to another. Figure 8 represents the scheme of the assimilation effect.

Figure 8

Assimilation - scheme



Note. D-P – doctor-patient

Exploring Question 3: *Physicians and patients' congruence on physicians' trustworthiness (benevolence, integrity, competence), physicians' communication skills, trust, satisfaction with the visit, evaluation of a doctor-patient relationship, and the patient's willingness to engage in the treatment.*

To examine the congruence between physicians and patients, the reciprocity correlations (dyadic reciprocity and generalized reciprocity) were estimated. The dyadic reciprocity, as presented in Table 7, refers to the within-dyad level of measurement – the correlation between two relationship effects rated by both doctor and patient. The obtained reciprocity correlations were statistically significant and positive in all interactional evaluated constructs. The dyadic reciprocity yielded a relatively weak correlation for trust, moderate correlations for satisfaction with the visit and patient willingness to engage in treatment, and distinctly stronger correlations for evaluation of the doctor-patient relationship and communication according to effect size guidelines for individual differences criterion (Gignac & Szodorai, 2016).

Table 7

Results of MLM: Reciprocity

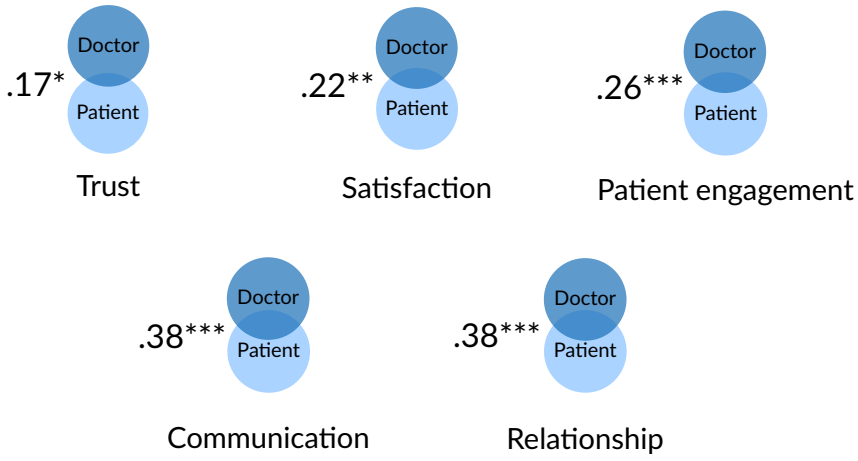
Construct	Level of analysis	*p*		*p*
	Within Dyad – Dyadic reciprocity correlation		Between Dyad – Generalized reciprocity correlation	
Doctor's Trustworthiness	.006	.937	Not applicable	–
Doctor's Benevolence	.048	.513	Not applicable	–
Doctor's Integrity	.004	.959	Not applicable	–
Doctor's Competence	-.025	.731	Not applicable	–
Trust	.17*	.017	.137	.725
Communication	.38***	<.001	.058	.872
Satisfaction	.22**	.002	.414	.318
Relationship	.38***	<.001	.356	.439
Patient's Involvement	.26***	<.001	Not computable	–

Note. *p < .05, **p < .01, ***p <.001

Thus, when some physicians reported higher levels of trust in patients, their patients also reported higher levels of trust in those physicians. Furthermore, the findings indicate that patients of physicians who expressed greater satisfaction with their contact also reported greater satisfaction with their interactions with those physicians. Additionally, there was modest congruence between physicians' and patients' views on patient willingness to engage in treatment. One of the strongest agreements between doctors' and patients' perspectives, somewhat surprisingly, pertained to physicians' communication skills with patients. Moreover, equally strong agreement was noted regarding the evaluation of the doctor-patient relationship. If physicians reported better relationships with certain patients, a significant portion of those patients reciprocally reported having good relationships with those physicians. Figure 9 presents the scheme of agreements between physicians and patients within dyad – dyadic reciprocity.

Figure 9

Dyadic reciprocity – within dyad agreements



Note. *p < .05, **p < .01, ***p <.001

To evaluate the congruence at the between-dyad level, generalized reciprocity—the correlation between actor (doctor) and partner (patient) effects—was estimated (Table 7). These were calculated for all five interactional constructs: trust, communication, satisfaction, relationship, and patient engagement; however, none reached statistical significance. Collectively, these trends suggest that neither physicians who perceive relational constructs consistently across all patients are viewed the same by each patient, nor patients who perceive their physicians similarly are seen in the same way by those physicians.

Testing hypotheses

The next section of the results focuses on testing hypotheses regarding the associations and outcomes of selected constructs.

Verification of Hypothesis 1.: *Positive association between physicians' perceived trustworthiness (benevolence, integrity, competence) and trust in physician at individual and dyadic levels.*
The predictors in this analysis are dispositional variables pertaining to physicians' characteristics. Therefore, the doctor's effects cannot be considered as they rated themselves only once, regardless of interactions with patients. Table 8 reveals four significant fixed effects – at both between-dyad and within-dyad levels – obtained for all variables (general trustworthiness, benevolence, integrity, and competence). The hypothesis was confirmed at the individual level in all four cases. Patient between-dyad effects indicate that patients of physicians, whose perceived trustworthiness factors – benevolence (H1.1a), integrity (H1.2a), and competence (H1.3a) – were higher than average, reported greater trust in the physician. At the individual level, trustworthiness in general and competence had a more substantial impact on trust in physicians than benevolence and integrity.

The hypothesis was also positively verified at the dyadic level for all tested predictors. Patient within-dyad effects show that patients who perceived their particular physician's trustworthiness factors to be higher fostered greater trust towards this specific physician. Comparing results for physicians' perceived trustworthiness (in general) and separate factors – benevolence, integrity, and competence – suggests a higher influence of physician's general trustworthiness on the extent to which patients trusted that physician. The results also indicate that in predicting trust in a physician, a slight advantage exists for physicians' individual differences over dyadic effects. Figure 10 reflects the tested associations and the size of the effects for Hypothesis 1.

Table 8

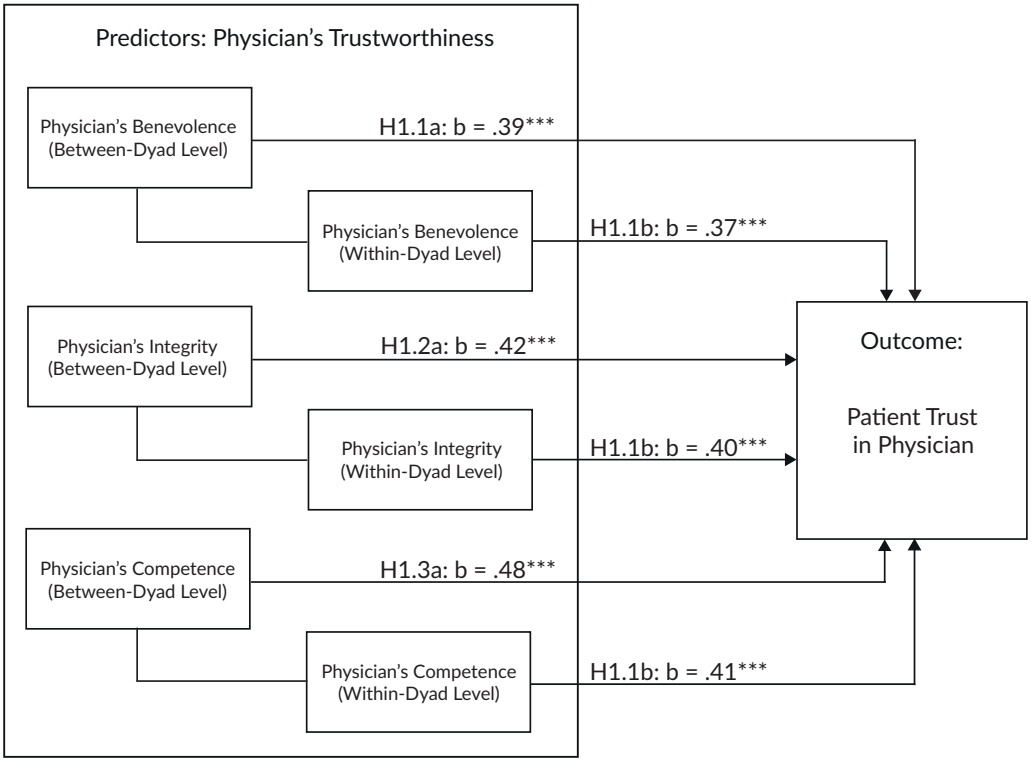
Parameter estimates for trust as a function of physician's trustworthiness (benevolence, integrity, competence)

Parameter estimates for trust as a function of physician's trustworthiness						
Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	3.82	.11	35.54	<.001	3.59	4.04
Patient intercept	3.98	.03	120.96	<.001	3.91	4.05
Patient between-dyad trustworthiness[1]	.53	.09	5.78	<.001	.34	.71
Patient within-dyad trustworthiness[1]	.49	.05	10.96	<.001	.40	.58
Parameter estimates for trust as a function of physician's benevolence						
Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	3.86	.09	43.99	<.001	3.68	4.05
Patient intercept	4.06	.04	108.35	<.001	3.98	4.14
Patient between-dyad benevolence[2]	.39	.10	3.80	<.001	.18	.60
Patient within-dyad benevolence[2]	.37	.05	8.27	<.001	.29	.46
Parameter estimates for trust as a function of physician's integrity						
Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	3.92	.08	50.34	<.001	3.75	4.09
Patient intercept	4.11	.03	125.34	<.001	4.04	4.18
Patient between-dyad integrity[3]	.42	.10	4.45	<.001	.23	.62
Patient within-dyad integrity[3]	.40	.04	9.87	<.001	.32	.49
Parameter estimates for trust as a function of physician's competence						
Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	3.81	.21	17.93	<.001	3.37	4.25
Patient intercept	3.87	.04	100.26	<.001	3.79	3.94
Patient between-dyad competence[4]	.48	.07	7.18	<.001	.35	.61
Patient within-dyad competence[4]	.41	.04	9.60	<.001	.32	.49

Note. [1]patient reported physician's trustworthiness, [2]patient reported physician's benevolence, [3]patient-reported physician's integrity, [4]patient-reported physician's competence

Figure 10

Hypothesis 1 – tested associations



Note. Physician's Benevolence, Integrity, and Competence were patient-reported. *p < .05, **p < .01, ***p <.001

Verification of Hypothesis 2.: *Positive association between physicians' communication skills and trust in the doctor-patient relationship at the individual and dyadic levels.*

In the next step, the association between patient- and physician-reported trust and physicians' communication skills was tested. Both variables (independent and dependent) met all the reciprocal dyadic criteria for this design; therefore, all effects were considered. The results revealed five significant fixed effects (Table 9). Therefore, the hypothesis was corroborated for patients at the individual level (H2a), as well as for patients and physicians at the dyadic level (H2b). The estimates suggest that physicians, who were, on average, more trusted by their patients (as reported by patients), obtained better patients' ratings of their communication skills (patient between-dyad effect). The between-dyad effect was nonsignificant for physicians. The within-dyad effects reached statistical significance in both physicians' and patients' ratings of communication skills. Physicians

who fostered greater trust with a particular patient tended to perceive their communication with that patient as more effective (dyadic level). Similarly, greater patient trust in the physician (relative to other patients of this physician) contributed to higher ratings of their communication skills. However, for patients, higher values of estimated effects are attributed to the individual level of analysis. Therefore, physicians' individual differences contributed to the level of trust in a physician more strongly than dyadic aspects. Figure 11 shows the tested associations and the effect size for Hypothesis 2.

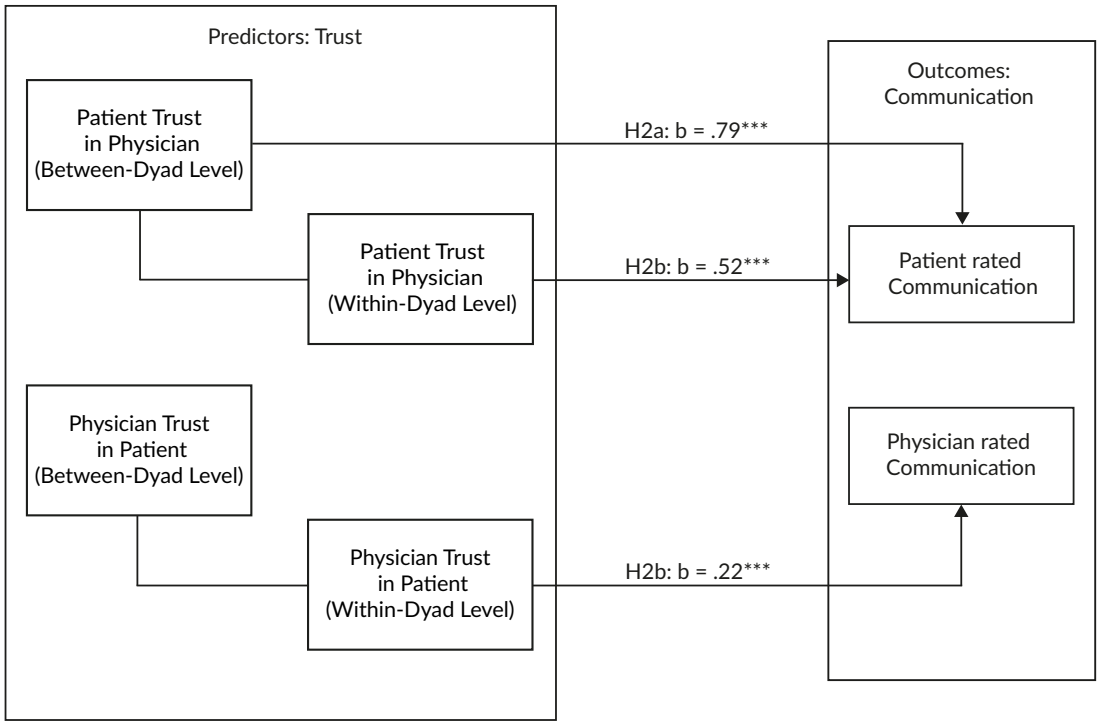
Table 9

Parameter estimates for association between trust and communication skills

Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	4.21	.10	41.54	<.001	4.00	4.43
Patient intercept	4.36	.04	123.96	<.001	4.29	4.44
Doctor between-dyad trust	.67	.45	1.48	.157	-.29	1.63
Patient between-dyad trust	.79	.17	4.59	<.001	.42	1.16
Doctor within-dyad trust	.22	.04	6.16	<.001	.15	.30
Patient within-dyad trust	.52	.06	8.20	<.001	.40	.65

Figure 11

Hypothesis 2 – tested associations



Note. **p* < .05, ***p* < .01, ****p* <.001

Since the direction of the link between trust and communication is not established, an alternative, exploratory model using the physician's communication skills as a statistical predictor of trust in the doctor-patient relationship was also calculated. However, after comparing the size of the OWM design effects and the goodness-of-fit indices for both models, it became clear that the model with trust as a predictor of communication fits significantly better. Table 10 shows the comparison of goodness-of-fit indices for both tested models.

Table 10

Goodness-of-fit indices for tested association between trust and communication within doctor-patient relationship

Information Criteria	DV: Trust	DV: Communication
-2 Restricted Log Likelihood	562.08	379.89
Akaike's Information Criterion (AIC)	574.08	391.89
Hurvich and Tsai's Criterion (AICC)	574.30	392.11
Bozdogan's Criterion (CAIC)	604.03	421.84
Schwarz's Bayesian Criterion (BIC)	598.03	415.84

Note. The information criteria are displayed in a smaller-is-better form. ***DV*** – Dependent Variable

Verification of Hypothesis 3.: *Positive association between trust in the doctor-patient relationship and satisfaction with the medical visit at the individual and dyadic levels.*

Table 11 provides parameter estimates for the association between trust in the doctor-patient relationship and satisfaction with the medical visit. Again, five out of six fixed effects were found to be significant. The hypothesis was supported for patients at the individual level (H3a) and for both patients and physicians at the dyadic level (H3b). The significant between-dyad effect suggests that patients treated by physicians who, on average, were more trusted reported higher satisfaction with the medical visit. The statistical significance of both within-dyad effects confirmed that physician's or patient's better ratings of trust in their interaction partner were associated with higher satisfaction with their medical visit, independently of individual differences. However, in patients' ratings, individual differences dominate in explaining the association between trust and satisfaction. In

physicians' ratings, the tested association proved to be relationship-dependent. Figure 12 presents the tested associations and the strength of the effects for Hypothesis 3.

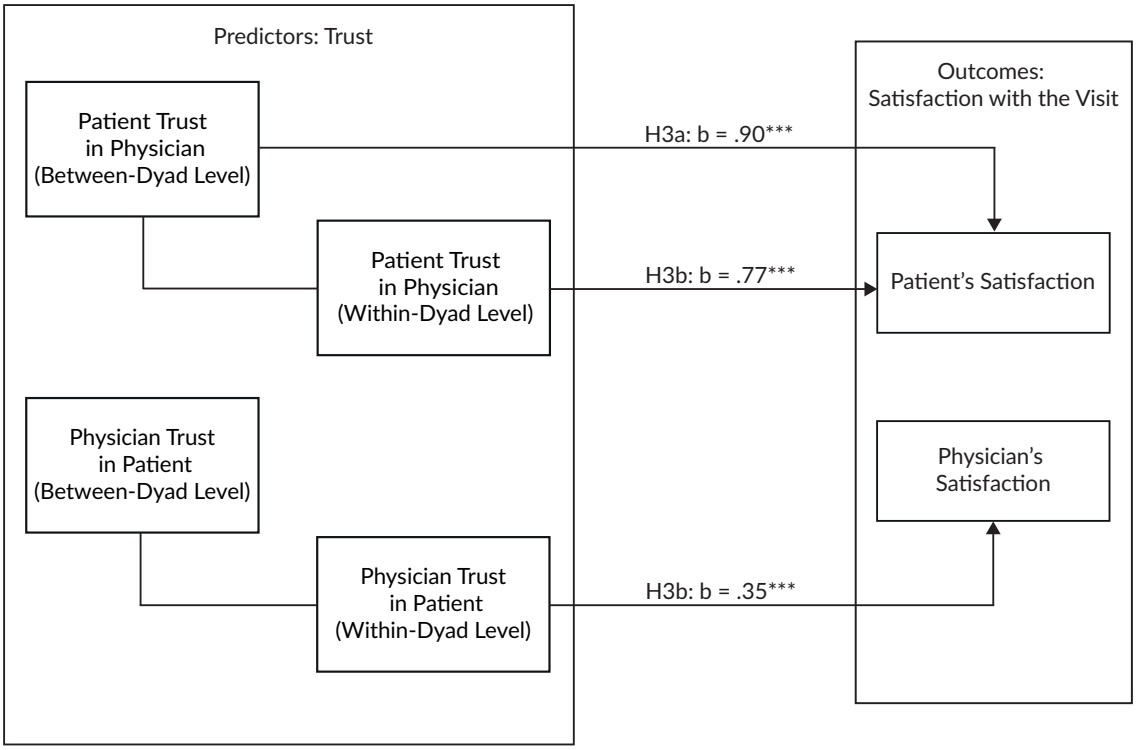
Table 11

Parameter estimates for satisfaction as a function of trust in the doctor-patient relationship

Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	4.18	.11	37.05	<.001	3.94	4.42
Patient intercept	4.59	.04	130.31	<.001	4.52	4.66
Doctor between-dyad trust	.94	.51	1.85	.083	-.14	2.02
Patient between-dyad trust	.90	.18	5.15	<.001	.56	1.25
Doctor within-dyad trust	.35	.07	5.33	<.001	.22	.48
Patient within-dyad trust	.77	.08	10.01	<.001	.62	.92

Figure 12

Hypothesis 3 – tested associations



Note. **p* < .05, ***p* < .01, ****p* <.001

Verification of Hypothesis 4.: *Positive association between trust in the doctor-patient relationship and the evaluation of a doctor-patient relationship at the individual and dyadic levels.*

Table 12 presents the estimates for fixed effects calculated to test the association between trust in the doctor-patient relationship and the evaluation of that relationship. The doctor between-dyad effect was nonsignificant; therefore, Hypothesis 4a was confirmed only for patients. The significance of the patient between-dyad effect suggests that patients of physicians, who, on average, obtained a higher level of trust, were more likely to better evaluate their relationships with the attending physician. The dyadic level effects further confirmed the positive association between trust and the evaluation of the doctor-patient relationship for both physicians and patients (H4b). In simpler terms, physicians who fostered greater trust in a specific patient reported a better relationship with that patient. Similar findings were observed for patients – those who trusted their physician more (compared to other patients of that physician), evaluated the relationship with that physician more positively. In patient ratings, physicians' individual differences influenced the strength of the tested association more than within-dyad effects, although both were statistically significant. Figure 13 shows the tested associations and the strength of the effects for Hypothesis 4.

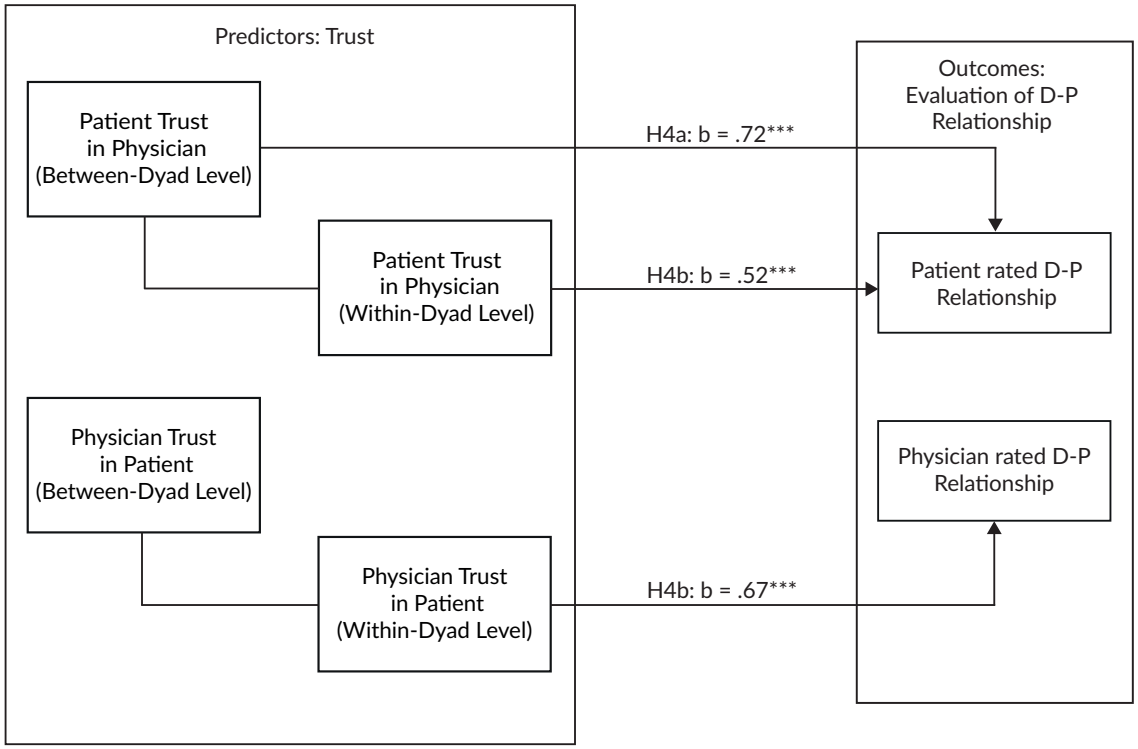
Table 12

Parameter estimates for evaluation of doctor-patient relationship as a function of trust in doctor-patient relationship

Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	4.29	.07	58.91	<.001	4.14	4.45
Patient intercept	4.66	.03	135.16	<.001	4.59	4.72
Doctor between-dyad trust	.68	.34	1.98	.060	-.03	1.39
Patient between-dyad trust	.72	.17	4.22	<.001	.39	1.06
Doctor within-dyad trust	.67	.07	9.32	<.001	.53	.81
Patient within-dyad trust	.52	.07	7.09	<.001	.38	.66

Figure 13

Hypothesis 4 – tested associations



Note. *p < .05, **p < .01, ***p <.001

Verification of Hypothesis 5.: *Positive association between trust in the doctor-patient relationship and patient's willingness to engage in the treatment at the individual and dyadic levels.*

In the next step of the analysis, a positive association between trust in the doctor-patient relationship and patients' willingness to engage in treatment was evaluated (Table 13). The significant between-dyad effect for physicians indicates that those who reported, on average (across all their patients), higher levels of trust in patients also perceived those patients' willingness to engage in treatment more positively. The between-dyad effect did not attain statistical significance for patients. Thus, patients' higher-than-average levels of trust in physicians were not associated with their greater willingness to engage in treatment. Those results corroborated the hypothesis only for physicians at the individual level (H5a). Nevertheless, significant within-person effects were noted for both physicians and patients. These results supported the hypothesis at the dyadic level (H5b)

and provided evidence that greater trust in a specific patient or physician is positively associated with improved willingness among those patients to engage in the treatment process (both perceived by physicians and declared by patients). Figure 14 reflects the tested associations and the size of the effects for Hypothesis 5. The strongest effect was noted for physicians at dyadic level.

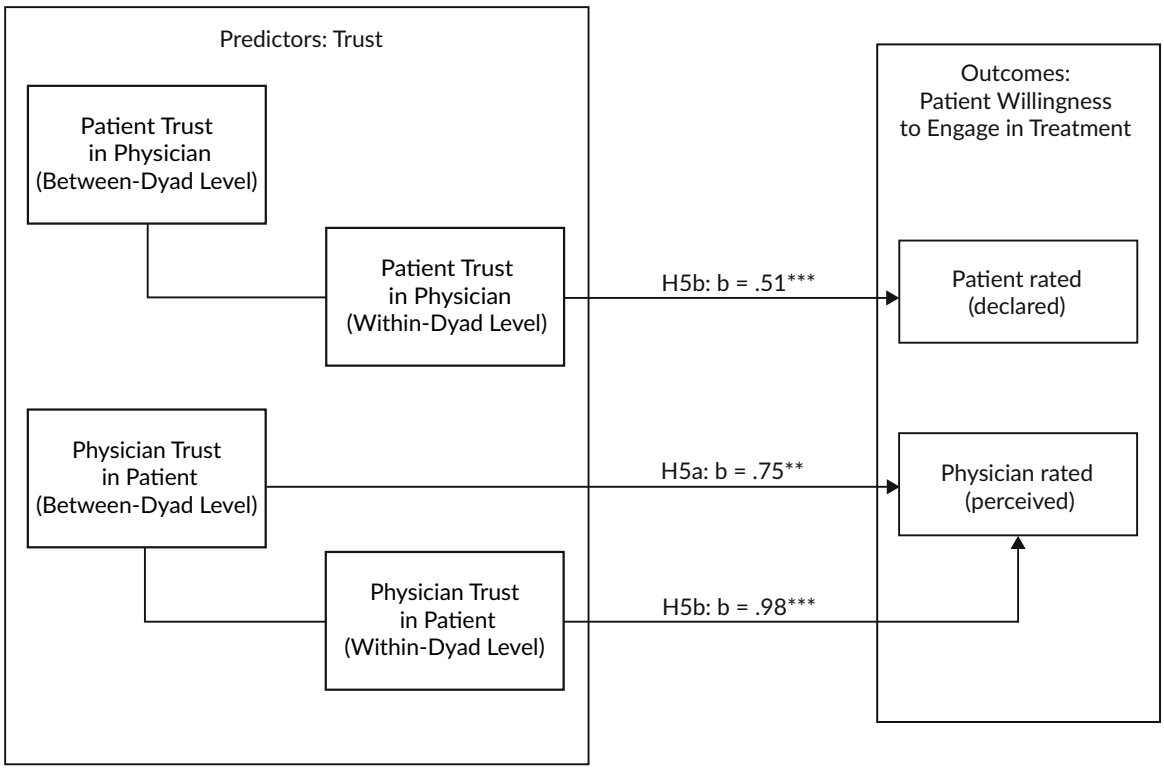
Table 13

Parameter estimates for the patient's willingness to be involved in the treatment as a function of trust in the doctor-patient relationship

Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	3.94	.05	84.08	<.001	3.84	4.03
Patient intercept	4.64	.05	86.86	.048	.29	8.98
Doctor between-dyad trust	.75	.23	3.22	.002	.29	1.21
Patient between-dyad trust	1.04	.26	4.06	.218	-6.61	8.68
Doctor within-dyad trust	.98	.07	13.30	<.001	.84	1.13
Patient within-dyad trust	.51	.08	6.09	<.001	.34	.68

Figure 14

Hypothesis 5 – tested associations



Note. *p < .05, **p < .01, ***p <.001

Verification of Hypothesis 6.: *Positive association between physicians' communication skills and satisfaction with the medical visit at the individual and dyadic levels.*

A subsequent multilevel model was conducted to assess the association between physicians' communication skills and satisfaction with the medical visit (Table 14). The doctor between-dyad effect was nonsignificant (H6a). The significant patient between-dyad effect indicated that patients of physicians, whose communication skills were rated higher than average, were more satisfied with the medical visit (H6a). At the dyadic level (within-dyad effects), better ratings of communication skills demonstrated by particular physician during a given visit (doctor-rated and patient-rated) were associated with greater satisfaction with the medical visit for both patients and physicians. From the physicians' perspective, dyadic fluctuations influenced the association between communication skills and satisfaction with the medical visit more strongly than individual differences. For patients, physicians' individual differences had a slightly greater impact on the examined association than dyadic fluctuations. Hypothesis 6 was corroborated at the individual level for patients and at the dyadic level for both patients and physicians. Figure 15 represents the tested associations and the size of the effects for Hypothesis 6.

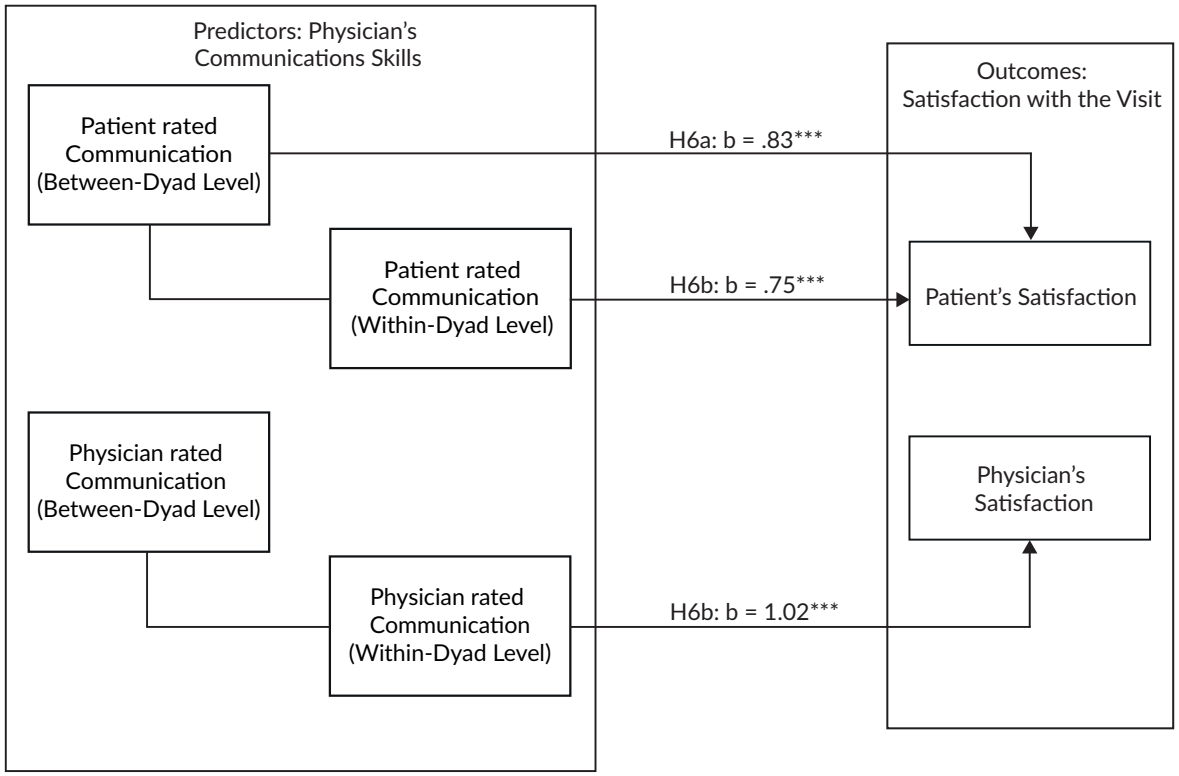
Table 14

Parameter estimates for the association between physician's communication skills and satisfaction

Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	4.23	.10	43.22	<.001	4.02	4.43
Patient intercept	4.55	.04	128.56	<.001	4.48	4.62
Doctor between-dyad communication	.79	.39	2.06	.056	-.02	1.61
Patient between-dyad communication	.83	.15	5.55	<.001	.54	1.13
Doctor within-dyad communication	1.02	.10	5.33	<.001	.82	1.22
Patient within-dyad communication	.75	.07	11.02	<.001	.62	.89

Figure 15

Hypothesis 6 – tested associations



Note. **p* < .05, ***p* < .01, ****p* <.001

Verification of Hypothesis 7.: *Positive association between physician's communication skills and the evaluation of a doctor-patient relationship at the individual and dyadic levels.*

Table 15 presents estimates of verifying whether physicians' communication skills were positively associated with the evaluation of the doctor-patient relationship. The nonsignificant doctor between-dyad result indicates that, in general, physicians who perceived their communication skills as higher than average did not necessarily evaluate their relationships with patients more favorably. However, patients who, on average (all patients treated by the same physician), rated physicians' communication skills as higher tended to perceive their relationships with physicians more positively (a significant between-dyad effect – H7a). Therefore, at the individual level, the hypothesis was supported only for patients. Nevertheless, the hypothesis was confirmed at the dyadic level for both physicians and patients (within-dyad effects). Physicians who demonstrated better communication

with a specific patient also reported a better relationship with that patient. Accordingly, patients who perceived their physician's communication skills as superior also rated relationship with that physician more favorably compared to other patients of the same physician. Therefore, the uniqueness of the relationship played an important role in explaining this tested association for both patients and physicians. Figure 16 reflects the tested associations and the strength of the effects for Hypothesis 7.

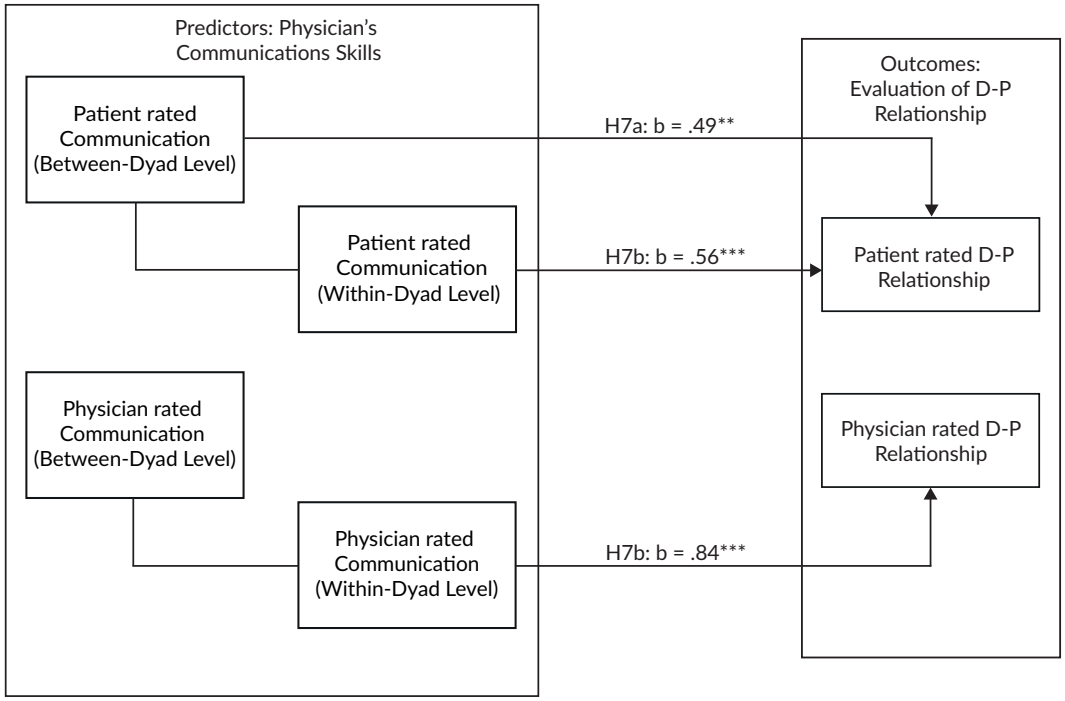
Table 15

Parameter estimates for the association between evaluation of doctor-patient relationship and physician's communication skills

Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	4.30	.08	56.26	<.001	4.14	4.46
Patient intercept	4.62	.04	116.54	<.001	4.54	4.70
Doctor between-dyad communication	.19	.31	.62	.542	-.46	.84
Patient between-dyad communication	.49	.16	2.98	.004	.16	.82
Doctor within-dyad communication	.84	.13	6.31	<.001	.58	1.10
Patient within-dyad communication	.56	.06	8.71	<.001	.43	.68

Figure 16

Hypothesis 7 – tested associations



Note. **p* < .05, ***p* < .01, ****p* <.001

Verification of Hypothesis 8.: *Positive association between physicians' communication skills and patients' willingness to engage in the treatment at the individual and dyadic levels.*

The final stage of analysis focuses on estimating the positive association between physicians' communication skills and patients' willingness to engage in treatment. Table 16 provides all parameter estimates for Hypothesis 8. This hypothesis was confirmed for patients at individual and dyadic levels, and for physicians only at the dyadic level. Physicians who rated their communication skills as higher-than-average (among all their treated patients) did not perceive patients' willingness to engage in treatment more positively (H8a). Conversely, physicians' communication skills which, on average, were reported as better than typical (patients' ratings) were linked to patients' higher-than-average declared willingness to engage in treatment (H8a). Additionally, both doctor-rated and patient-rated within-dyad effects reached statistical significance. These findings reveal a pattern where physicians who believed they had better communication with a given patient tended to perceive this patient's willingness to engage in treatment as higher (H8b). Similarly, patients who regarded their attending physician's communication skills as uniquely good were more willing to engage in treatment (H8b). For physicians, the impact of communication skills on patients' willingness to engage in treatment was pronounced in the context of particular relationship with patient. Individual differences had a greater effect on the hypothesized association in patients' cases. Figure 17 illustrates the tested associations and the size of the effects for Hypothesis 8.

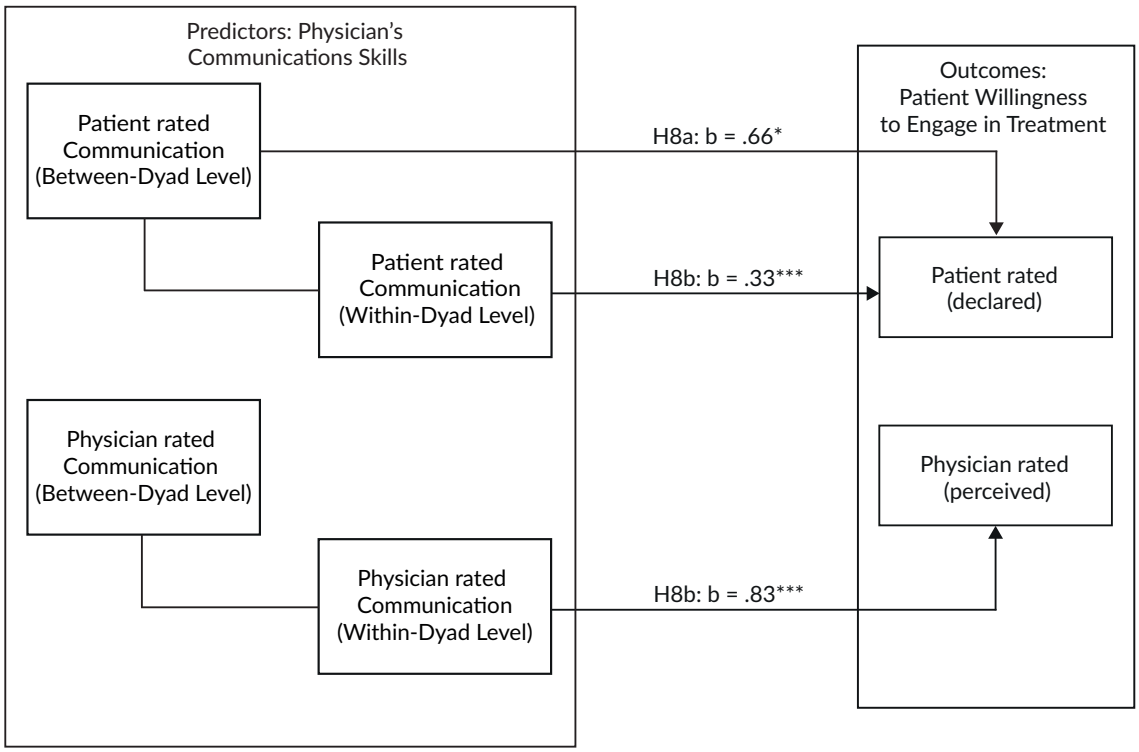
Table 16

Parameter estimates for the patient's willingness to engage in the treatment as a function of physician's communication skills

Fixed effects	Estimate	*SE*	*t*	*p*	95% CI	
					Lower	Upper
Doctor intercept	3.93	.08	52.23	<.001	3.76	4.09
Patient intercept	4.62	.06	84.55	<.001	4.49	4.74
Doctor between-dyad communication	.29	.16	.93	.367	-.38	.97
Patient between-dyad communication	.66	.22	2.95	.013	.17	.1.15
Doctor within-dyad communication	.80	.16	5.04	<.001	.49	1.11
Patient within-dyad communication	.33	.08	4.23	<.001	.18	.49

Figure 17

Hypothesis 8 – tested associations



Note. *p < .05, **p < .01, ***p <.001

In the last step, associations between control variables and trust in the doctor-patient relationship, physicians' communication skills, satisfaction with the medical visit, evaluation of a doctor-patient relationship, and patients' willingness to engage in the treatment were tested. Only five significant effects emerged from these analyses. In doctor ratings, age, professional experience, and level of patient education were positively associated with better physician-reported evaluations of the doctor-patient relationship (physician's age: b = .03, SD = .01, t = 3.75, p <.001; professional experience: b = .03, SD = .01, t = 2.29, p = .043; level of patient education: b = .13, SD = .06, t = 2.08, p <.039). Additionally, the level of patient education and gender were positively correlated with physician-reported trust (education: b = .10, SD = .05, t = 1.98, p = .049; gender: b = -.13, SD = .06, t = -2.00, p = .05).

Subsequently, sensitivity analyses were conducted on models where the evaluation of the doctor-patient relationship and trust served as dependent variables, including all statistically

significant covariates. The results remained statistically significant and robust even after adding control variables. These findings indicate that control variables do not significantly affect the interactional factors in the doctor-patient relationship, and that the effects observed are relatively stable. Additionally, four models were estimated, incorporating propensity to trust as a covariate in the association between trustworthiness factors (general, benevolence, integrity, and competence) and trust. The analysis showed almost no effect of propensity to trust as a covariate in the tested relationships, highlighting the stability of the evaluated trust predictors.

The complete set of statistical reports from SPSS is available in the Zenodo repository (Błaszyk, 2025). The set also includes examples of SPSS syntax for variance partitioning, testing associations, and testing associations with control variables as covariates, which were implemented in the study. Moreover, it provides the process of computing variables (centered on the grand mean, between-dyad level, and within-dyad level) for hierarchical multilevel linear modeling in an OWM design.

Discussion

The dissertation aimed to verify the theoretical *Doctor-Patient Relationship and Outcome Model* in a dyadic approach. In order to do that, the first part focused on exploring three levels of agreement in the evaluations provided by physicians and patients: among several patients treated by a single physician (consensus), the physician's viewpoints concerning numerous patients (assimilation), and within one dyad – between patients and physicians. The second objective was to investigate the associations among the interrelated concepts of clinical communication and trust, along with its antecedents – namely, benevolence, integrity, and competence – as well as their resultant outcomes, which include satisfaction with the medical visit, evaluation of the doctor-patient relationship, and the patient's willingness to engage in treatment within the context of the doctor-patient relationship. The research simultaneously examined the perspectives of both hospitalized patients with chronic internal diseases and their attending physicians within hospital settings. The applied dyadic approach followed an OWM design.

The first research question concerned the ***consensus*** effect (agreement of assessments among patients of one physician) regarding the physician's perceived trustworthiness factors (benevolence, integrity, competence), trust in the physician, physician communication skills, satisfaction with the medical visit, evaluation of the doctor-patient relationship, and reported levels of patient willingness to engage in treatment (Q1). In terms of trustworthiness factors – *benevolence, integrity, competence* – the analysis demonstrated strong consensus among the patients of a single physician. Those trustworthiness factors have not been previously studied in the OWM design, so no comparative data exists. Strong consensus among patients on physicians' trustworthiness and their high ratings may indicate that physicians, in general, are considered a profession of public trust (Lewandowski et al., 2021; Li et al., 2023). This finding is further supported by the observation that

patients' ratings of trustworthiness of others (general population) were lower than those of their attending physicians.

Considering trust in the physician, the physician's communication skills, and the outcome variables (satisfaction with the medical visit, evaluation of a doctor-patient relationship, and patient willingness to engage in treatment), there was little consensus among patients of one physician. The significant relationship effects explained the prevailing parts of the variance. It indicates that certain relational factors significantly influenced patients' perceptions of trust in physicians, communication skills, satisfaction with visits, and their willingness to engage in treatment. The findings for *trust in physician* are contrary to those of Petrocchi et al. (2019), who found a much stronger consensus among patients treated by the same physician. Those differences can arise from distinct study settings (an outpatient clinic in cited research versus a hospital in this study). During primary care visits, physicians typically have relatively short interactions with patients (10-15 minutes) and treat many patients each day, every hour. As a result, their behaviors and attitudes toward patients may become somewhat automatic. In hospital settings, physicians care for only a few patients throughout the day (4-7), seeing each of them multiple times, which allows for the development of more personalized relationships with those patients. The consensus effect depends on the physician's manners, behaviors, and consistency (Kenny et al., 2010). The lack of it implies that patient care is considerably more tailored and individualized within hospital environments. Another potential explanation for this could be that during hospitalization, patients can gather more information about a physician's trustworthiness and determine whether to trust them based on their observations (McCullough et al., 2020; Tomlinson et al., 2020; Van Den Assem & Dulewicz, 2015).

The observation concerning the absence of consensus among patients regarding physicians' *communication skills* corroborates prior research (Hagiwara et al., 2014; Kenny et al., 2010). This phenomenon may again be linked to the increased individuality and specificity of patient cases within hospital environments, where patients exhibit different health issues, varying levels of knowledge, distinct understandings of their conditions, and deal with a wide array of medical conditions. In

hospital settings, patients talk to their physicians more frequently than in outpatient clinics, allowing physicians to become familiar with patients and assess their communication styles. As a result, it becomes more instinctive for physicians to adjust their communication to these evolving circumstances. This outcome contrasts with that reported by Kwissa-Gajewska & Kroemeke (2022), who identified a consensus among patients treated by the same physicians. However, their findings may lend support to the explanation pertaining to divergent settings and the nature of medical visits, as the participants in their study were more homogeneous, consisting of dermatologists and their patients within an outpatient care framework. Furthermore, the severity and complexities of the medical conditions experienced by those patients were notably different from those associated with hospitalized chronically ill patients.

The lack of consensus regarding *satisfaction with the medical visit* and the *evaluation of the doctor-patient relationship* may be attributed to similar factors related to trust and communication. The existing literature suggests that patient satisfaction is closely tied to the evaluation of the doctor-patient relationship, and also encompasses the aspect of being satisfied with the care received (Goodrich & Lazenby, 2023). Furthermore, it is significantly influenced by patients' expectations and experiences during the medical service (Ferreira et al., 2023). Taking into account the influence of patient expectations and experiences on shaping the satisfaction levels associated with medical visits, it is reasonable to assume that a consensus among patients should not be anticipated, as these factors are highly individual and vary significantly from one person to another. The vast proportion of variance attributed to the relationship component in the evaluation of the doctor-patient relationship is not unexpected. This finding substantiates the notion that the doctor-patient relationship constitutes an interaction between two individuals who influence each other's behaviors in a unique manner (Kaba & Sooriakumaran, 2007; Kenny et al., 2020; Oh Nelson, 2021).

The last consensus effect was assessed in terms of *patient willingness to engage in treatment.* Once more, the lack of consensus was observed. While patient willingness to engage in treatment is solely declarative, it should be regarded as a crucial predictor of future adherence to

medical recommendations (Johnson et al., 2019). The lack of consensus among patients treated by the same physician implies that there exists no distinction between better or less effective physicians regarding patients' declared involvement in treatment. From the patient's perspective, this result may be explained by the observation that certain patients could experience a lack of empowerment, perceive their knowledge as insufficient, or view themselves as incapable of actively participating in their treatment process (Gelkopf et al., 2022). An alternative potential explanation for this might be patients' unmet needs or the burden associated with the disease (Rieckmann et al., 2018). The OWM framework does not permit the evaluation of the patient actor effect (where one patient is assessed by many physicians); hence, a more precise interpretation of this phenomenon necessitates further research. Factors associated with the doctor-patient relationship and its inherent uniqueness accounted for the majority of the variance, thereby underscoring the significance of personalized medical care in fostering patient willingness to engage in treatment (Janamian et al., 2022; Schneider-Kamp et al., 2023; Tringale et al., 2022). If the doctor-patient relationship constitutes such an influential aspect of a patient's engagement in treatment and adherence to medical recommendations, it should be consistently nurtured and developed.

The second research inquiry focused on the **assimilation** effects (agreements of the physician's perceptions across all their patients) in physicians' ratings concerning trust, communication skills, satisfaction with the medical visit, evaluation of the doctor-patient relationship, and patient willingness to engage in treatment (Q2). In terms of *trust in the patient*, nearly one-third of the variance was attributed to the doctor effect (assimilation), indicating that certain physicians exhibited consistent levels of trust toward their patients. A similar observation was reported by Petrocchi et al. (2019), who contend that there exist physicians who generally perceive their relationships with patients as being characterized by greater trust, while others perceive their relationships as less trustful. The remaining portion of the significant variance was ascribed to the relationship effect, suggesting that the uniqueness of the doctor-patient relationship is pivotal in cultivating trust between physicians and patients during their interactions. A possible explanation for

this might be that in hospital settings, physicians have the opportunity to observe how patients react to treatment (current and previous), to what extent they are interested in their medical condition, how trusting and compliant they are, and how respectful they are toward the physician. Consequently, comprehending the dyadic elements that contribute to the development of interpersonal trust within the context of a doctor-patient relationship is of considerable importance (Elwood, 2023; Taylor et al., 2023).

The assimilation effect was found to be notably stronger in relation to physicians' ratings of their *communication skills*. This finding indicates that, to a certain degree, physicians tend to perceive their communication competencies similarly across all treated patients. In three other OWM design studies examining doctor-patient communication, the findings differed: in two of these studies, the assimilation effects were less than half the magnitude (Hagiwara et al., 2014; Kwissa-Gajewska & Kroemeke, 2022), while in the third study, this effect was more than double (Kenny et al., 2010). Such discrepancies warrant further and more comprehensive investigations or a meta-analysis to enhance understanding of the diverse medical contexts that influence communication between physicians and patients, as well as to identify more specific factors associated with the various communication practices of physicians. The results of the current study, situated somewhat between those of previous research, may indicate that certain physicians perceive their communication similarly, while others tailor it to the distinct needs, comprehension of medical conditions, age, education levels, and emotional states of their patients. The evidence of a more substantial relationship effect suggests that the latter approach is prevailing, which aligns with prior studies demonstrating the influence of communication reciprocity (Siminoff et al., 2006; Street et al., 2007). These observations provide encouragement, as the individualization of clinical communication can exert a favorable influence on various facets of medical care, including patients’ health education, participation in shared decision-making, and engagement in treatment (Callender et al., 2021; Ricci et al., 2022; Stivers & Tate, 2023).

The ratings provided by physicians regarding *satisfaction with patient visits* exhibit a notable similarity among all treated patients, more so than among patients under the care of the same physician. The assimilation effect accounts for more than one-third of the variance observed. Particularly striking is the significant disparity in *evaluations of the doctor-patient relationship*, which appears markedly distinct from the levels of satisfaction reflected in physicians' ratings. Patients' assessments reveal an apparent convergence between these two constructs, whereas it is likely that different factors influence physicians' levels of satisfaction. These results can be interpreted as indicating that certain physicians consistently report similar levels of satisfaction with medical visits among their patients, thereby perceiving their care as relatively stable. One plausible explanation for these findings may be that administering treatment to patients within a hospital setting allows for the observation of therapeutic effects and enhanced patient cooperation. This, coupled with a reduced time constraint during medical visits, may constitute a crucial aspect of physicians' overall satisfaction. However, when evaluating the doctor-patient relationships, physicians acknowledge the uniqueness of these interactions and are able to differentiate between stronger and weaker relationships. Similar yet lower relationship effects were noted in the studies regarding therapeutic alliances (the construct somewhat similar to the doctor-patient relationship) (Altena et al., 2017; Marcus et al., 2009, 2011; Uckelstam et al., 2020).

The absence of an assimilation effect was observed concerning the *patients' perceived willingness to engage in treatment*. A vast majority of the significant variance was attributed to the relationship effect. This finding suggests that physicians do not necessarily presume that patients will actively participate in their treatment and adhere to medical recommendations. This dimension of the medical care process appears to be contingent upon physicians' beliefs about individual patients, alongside their observations and interactions. Physicians' perceptions of patients' educational background regarding their medical conditions, their motivation to pursue healing, their efforts in recovery, and their health self-management capabilities may hold substantial significance in determining patients' perceived willingness to engage in treatment (Beichler et al., 2022; Clavel et

al., 2021; Georgopoulou et al., 2020; Sapir et al., 2017). Another vital aspect that possibly shapes physicians' perspectives on this matter is the way patients communicate with them, their interest in receiving additional information regarding their condition or proposed treatment plan, as well as their seriousness about their health (Ricci et al., 2022; Street et al., 2007). This finding is reassuring since it illustrates that physicians perceive patients in a more personal manner rather than merely an objective one.

The subsequent research inquiry pertains to the assessments of agreements in physicians' and patients' ratings of the physician's trustworthiness, the physician's communication skills, trust in a doctor-patient relationship, satisfaction with the visit, evaluation of a doctor-patient relationship, and patient willingness to engage in treatment (Q3). The study revealed no significant correlations of **generalized reciprocity** (individual level). With respect to the factors influencing *physician trustworthines*s, namely benevolence, integrity, and competence, there was a lack of agreement in the ratings provided by physicians and patients. This phenomenon can be explained by the fact that physicians conducted self-assessments only once, irrespective of the specific dyad, whereas each treated patient evaluated the physicians independently in this regard. Consequently, there was a diversity of data derived from patients' ratings, and always the same result was reported by physicians. Nonetheless, the collated findings indicated that patients perceived physicians' trustworthiness more favorably than the physicians themselves. The most significant discrepancy in perceptions pertained to physicians' competence, suggesting that patients regard physicians as highly competent, not solely based on direct observations but also due to a general belief in the competence of medical professionals. From the perspective of physicians, lower levels of self-assessment regarding competence may be attributed to a relatively young age and limited duration of professional experience in the study group. Notably, the notion of competence holds particular significance for physicians themselves in relation to their patients, whereas, for patients, it represents merely one aspect among several, including empathy and interpersonal skills (Berger et al., 2020). Additionally, patients' perceptions of physicians' competence are frequently associated

with their communication skills, while physicians' perceptions are linked with their instrumental skills (McCullough et al., 2020; Strokes et al., 2025). Hence, these discordances may originate from distinct comprehensions of this construct (Coran et al., 2013).

Another construct tested for agreement between physicians and their patients was *trust* in the doctor-patient relationship. Physicians rated the extent to which they trusted particular patients, and patients rated their level of trust toward their attending physicians. The resulting **dyadic reciprocity** was rather weak but significant. This finding indicates that while mutual trust in the doctor-patient relationship is crucial for both health and relationship outcomes (Elwood, 2023; Petrocchi et al., 2019; T.-S. Rotaru et al., 2016), developing it within the framework of a few medical visits is challenging. Similar results were observed by Petrocchi et al. (2019), suggesting that unique factors in the doctor-patient relationship, rather than just the characteristics of the physician or patient, are linked to the fostering of trust. The observed reciprocity correlation infers that trust is a reciprocal phenomenon, although not in all cases. In other words, some patients trusted their physicians more than the physicians trusted them, and vice versa. These discrepancies may stem from differing foundations of trust for physicians and patients. Physicians establish their trust in patients based on their past history and adherence to treatment, open disclosure regarding their medical conditions, respect for physicians' personal boundaries, and commitment to maintaining appointments (Q. He et al., 2022; Sousa-Duarte et al., 2020; Thom et al., 2011; Wilk & Platt, 2016). Within hospital environments, assessing whether a patient will attend follow-up visits presents significant challenges, potentially rendering it impossible. Patients, in turn, place their trust in physicians based on perceptions of honesty, transparency, expertise, and competence, alongside their prior experiences with healthcare providers (L. A. Anderson & Dedrick, 1990; Colombo et al., 2023; Montgomery et al., 2020; Suzuki et al., 2022). Albeit the foundations of trust for both physicians and patients are based on different factors, fostering mutual trust remains a complex endeavor, yet it is imperative to pursue, as the resulting benefits notably surpass the efforts invested (Grob et al., 2019; Lerch et al., 2024; Taylor et al., 2023).

Considering physicians' *communication skills*, the observed **dyadic reciprocity** correlation was found to be strong. This finding contradicts previous studies that utilized the same questionnaire (MPI), which have suggested either a lack of agreement or very low agreement between physicians and patients (C. Campbell et al., 2007; Kenny et al., 2010; Kwissa-Gajewska & Kroemeke, 2022). One possible explanation for this discrepancy may be attributable to the fact that, within hospital environments, physicians attend to a smaller number of patients in comparison to outpatient clinics (averaging five patients per day versus more than twenty patients per day) and provide care for them for several days or weeks in a row. As a result, they may be better equipped to assess their own communication with each patient more precisely. Another intertwined possibility is that in hospital settings, physicians might paradoxically have more time to complete the questionnaires, as the time constraints tend to be less rigorous, allowing them the opportunity to reflect on the specifics of their communication elements. Furthermore, in hospital contexts, physicians and patients engage in daily conversations, which may lead to adjusting their communication styles and behaviors. As a consequence, their communication is likely to be more open, effective, and thus easier to evaluate for both interacting parties. Given that achieving consensus among raters within the scope of clinical communication has proven to be challenging (Röttele et al., 2020, 2021), hospital environments may represent a valuable source of information and warrant further investigation. Nevertheless, this finding is encouraging, as such congruence between physicians and their patients may also lead to the development of stronger relationships and improved health outcomes, including enhanced patient engagement in treatment and adherence (Noble, 2020).

The subsequent analysis pertains to the agreement between physicians and patients regarding *satisfaction with medical visits*. The observation of a medium significant correlation in **dyadic reciprocity** suggests that, to a certain extent, a higher level of satisfaction by one dyad member is associated with a comparable level of satisfaction in the other party. This finding corroborates previous research addressing internal medicine specialists and their patients (Haas et al., 2000). Consequently, further studies are warranted to investigate the intrinsic reciprocal and

dyadic nature of satisfaction within the doctor-patient relationship. Numerous factors contribute to the satisfaction experienced by either party during medical visits; while some commonalities exist, notable differences also prevail. Patient satisfaction is contingent upon the physician's communication abilities, expertise, and technical skills, as well as the quality of the doctor-patient relationship, trust, and the physician's attributes, including an empathetic approach and humility (Batbaatar et al., 2017; Boquiren et al., 2015; Huynh & Dicke-Bohmann, 2020). One of the primary factors that adversely impacts physician satisfaction is the time constraints associated with medical visits (Solomon, 2008). This issue appears to be more pronounced in outpatient clinics than in hospitals, where greater flexibility in scheduling is available. Additional indicators of physician satisfaction may encompass perceived therapeutic success, the cultivation of meaningful relationships with patients, and contentment with the care provided. The number of studies examining patient satisfaction with visits surpasses that of those analyzing the factors related to physician satisfaction. Given that satisfaction serves as one of the few mitigators of burnout (Anagnostopoulos et al., 2012; Pejtersen et al., 2010; Slavin, 2019), it should be prioritized in future analyses.

In the *evaluation of the doctor-patient relationship*, a notable correlation was observed, indicating strong **dyadic reciprocity**. This finding clearly suggests the existence of an agreement between the perspectives of physicians and patients. Consequently, it can be inferred that when one member of the dyad feels positive about this relationship, the counterpart reciprocates that feeling. These results are consistent with findings from prior studies on therapeutic alliances (Marcus et al., 2009, 2011; Uckelstam et al., 2020). It leads to the conclusion that despite any differences in indicators and perspectives regarding what constitutes a satisfactory doctor-patient relationship, the overall evaluations are congruent. This mutuality holds great significance – physicians who are able to identify patients with whom they maintain positive relationships can better predict health outcomes, continuity of care, and future adherence to treatment (X. Chen et al., 2020; Decety, 2020; Nowak et al., 2021). Conversely, physicians who recognize that certain relationships with patients

may be unsatisfactory can anticipate potential issues concerning these aspects (R. Baker et al., 2020; Horne, 2020) and may seek to address them through the implementation of targeted strategies (Colombel et al., 2020; Murali & Lonergan, 2020; Vallis et al., 2023).

The last physician-patient agreement analysis aimed to assess the *patient willingness to engage in treatment*. **The dyadic reciprocity** exhibited a modest yet significant correlation. High values reported by patients are not unexpected and can be attributed to various factors, including the Hawthorne effect (Berkhout et al., 2022), an overestimation of willingness and self-management capabilities (Courtet et al., 2022; Pistilli et al., 2020), fear of disease (Jamieson et al., 2016), or extrinsic motivation instigated by the physician (Morris et al., 2022). Physicians' perceptions of patient willingness to engage in treatment were generally lower than those expressed by patients, indicating that physicians tend to be more critical and possibly more experienced in estimating this construct (Schildmeijer et al., 2018). Their experience in treating and observing numerous patients equips them with tools to recognize characteristics linked to treatment engagement and adherence. Given the study population – patients diagnosed with chronic diseases – physicians may form their beliefs based on the patients' medical history. However, this does not necessarily imply that physicians are more accurate in their assessments, as they, like patients, may also overestimate or underestimate patient willingness to engage in treatment. An additional potential explanation for the discrepancy between the perspectives of physicians and patients may stem from varying levels of awareness regarding existing engagement barriers (Sapir et al., 2017).

The concluding segment of the analysis pertains to the verification of the *Doctor-Patient Relationship and Outcome Model* constructs' associations and outcomes. The initial hypothesis investigates **trust within the doctor-patient relationship** as a function of **physicians' perceived trustworthiness** at individual and dyadic levels (H1). Although factors influencing trustworthiness were not previously analyzed within the OWM framework, the results obtained from the study provided substantial support for the proposed hypothesis. Given that trustworthiness factors represent dispositional variables, physicians completed the necessary questionnaires only once,

regardless of the dyads formed with patients. Consequently, not all effects of the OWM design could be thoroughly evaluated. Nonetheless, the findings confirmed that patients exhibited greater trust in physicians who were either, on average, regarded as more trustworthy (benevolent, honest, and competent) or perceived in such a way within a particular doctor-patient relationship. Notably, the most significant effect was observed for the association between perceived competence and trust in physicians at the individual (between-dyad) level. Mayer et al. (1995) explained that gaining knowledge about an individual's competence necessitates more time than about their integrity. This may suggest that during hospitalization, patients are likely to experience the effects of treatment more rapidly than in outpatient settings. Consequently, they may attribute positive changes in their health and well-being to the physician's competence. The more substantial between-dyad effect indicates that physicians' competence is a predictor of trust based on individual differences and traits, aligning with findings from other studies (Greene & Ramos, 2021; Martin, 2020). Alarcon and colleagues emphasized that in dyadic interactions, the behaviors exhibited by the trustee significantly influence the trustor's perceptions of trustworthiness (2018). Therefore, it may be relatively easier for patients to recognize physicians' competence rather than to evaluate their integrity or benevolence. Research examining the impact of specific trustworthiness factors on healthcare systems has demonstrated that competence exerts a greater influence on trust than benevolence (Cantarutti & Pothos, 2023).

Nonetheless, it is essential to acknowledge that all three trustworthiness factors—integrity, benevolence, and competence—are imperative in fostering trust within the doctor-patient relationship (Leonard et al., 2022; McCullough et al., 2020; Nong, 2023). The results of this study confirmed this at both dyadic and individual levels. Moreover, the association between the trustworthiness factors and trust was remarkably stable, even when controlled for variables such as propensity to trust. Previous studies have identified the propensity to trust as a crucial psychological factor contributing to trust in physicians (A. Anderson & Griffith, 2022; Lerch et al., 2024; H. Zhang et al., 2020). The scarce literature pertaining to the scope of physician trust in patients contributes to a

lack of information concerning whether the same factors serve as antecedents of trust for physicians (Taylor et al., 2023; Thom et al., 2011; Wilk & Platt, 2016). The lack of substantial differences in effect sizes for the propensity to trust in associations between trustworthiness factors and trust in physicians may stem from patients having sufficient information about a physician's trustworthiness, allowing them to base their trust on that assessment. Other researchers noticed that the propensity to trust effect fades when the trustworthiness information becomes available to the trustor (Alarcon et al., 2018; A. Anderson & Griffith, 2022).

The subsequent hypothesis explored the association between **trust within the doctor-patient relationship** and **physicians' communication skills** at both individual and dyadic levels (H2). Numerous studies have investigated physicians' communication skills as a factor influencing trust in physicians (Cantarutti & Pothos, 2023; Chandra et al., 2018; Liu et al., 2024; Wei et al., 2020). However, the role of trust as a possible determinant in the communication dynamics between physicians and patients is infrequently discussed. Consequently, trust as a predictor of communication in the doctor-patient relationship was also empirically tested. The results supported this hypothesis, revealing five significant effects at both the individual and dyadic levels. The model fit the data significantly better when predicting communication based on trust. Physicians who trusted certain patients more perceived their communication with those patients as better. This finding has not been reported before. Similarly, greater patient trust in the physician (compared to other patients of the same physician) was linked with higher ratings of that physician's communication skills. Therefore, it can be inferred that the relationship between these two variables is complex and strong; higher levels of trust are associated with better ratings of the physician's communication skills by both patients and physicians. Trust-based communication may be more effective, or at least, trust appears to be an essential prerequisite for fostering open and honest dialogue between physicians and patients (Elwood, 2023). Patients who trust their physicians are generally more inclined to share their symptoms, express concerns, and provide honest responses regarding their health and treatment (Campos-Castillo & Anthony, 2019; Katz et al., 2023; Lerch et

al., 2024). In turn, trusting physicians can involve patients in shared decision-making processes (Taylor et al., 2023; Thom et al., 2011; Wilk & Platt, 2016). The most substantial effect was observed between patient trust in the physician and communication at the individual level, which might suggest that some individual characteristics of physicians influence this association. For physicians, the association was nonsignificant at the individual level. Yet, it was significant at the dyadic level for both interacting partners. Therefore, the uniqueness of the relationship between patients and their physicians seems to play a crucial role in shaping communication based on mutual trust.

It was also hypothesized that **trust within the doctor-patient relationship** forecasts both patient and physician **satisfaction with medical visits** (at individual and dyadic levels) (H3). The results of the study fully support the proposed hypothesis at the dyadic level. Trust in the interacting partner was relevantly linked to patient and physician satisfaction with medical visits. However, at the individual level, significance was observed exclusively among patients' ratings. Consequently, it can be concluded that even in instances where physicians do not necessarily cultivate greater trust across all their patients, in dyadic interactions, physicians who established greater trust in the specific patient were more satisfied with the medical visits (with that patient). The most substantial effect was identified in the association between trust in the physician and patient satisfaction with the visit at the individual level, indicating the role of physicians' individual differences in establishing patient satisfaction. The correlation between trust in physicians and patient satisfaction with medical services has been extensively examined and corroborated in prior research (Akaydin & Baltaci, 2024; Blödt et al., 2021; Orrange et al., 2021; Suzuki et al., 2022). Nonetheless, the dyadic design provides additional insight by highlighting the uniqueness of the relationship as a vital aspect. Regarding physicians, the correlation between trust in patients and their satisfaction with medical consultations is less frequently addressed (Berger et al., 2020; Grob et al., 2019); however, it remains vital for preventing burnout. Therefore, identifying factors that positively influence physicians' satisfaction is imperative. Reduced levels of physician trust in patients may hinder the development of more

meaningful relationships, leading to diminished satisfaction and, ultimately, higher burnout rates (Hiefner et al., 2022; Liang & Wilson, 2022; Linzer et al., 2019).

Furthermore, the association between **trust** in both patients and physicians and more positive **evaluations of the doctor-patient relationship** was examined (H4). The results closely aligned with those noted for the link between trust and satisfaction with the medical visit. The hypothesis was also supported at the dyadic level for both parties and at the individual level for patients (although it was marginally significant for physicians as well). The findings showed that trust is a crucial factor influencing the quality of the doctor-patient relationship for both sides. Once again, the unique nature of each relationship played a vital role in explaining this connection. It suggests that building better doctor-patient relationships based on trust is a reciprocal process. Mutual trust between physician and patient is linked to more favorable perceptions of the relationship, which can lead to improved health outcomes (Drossman & Ruddy, 2020; Oh Nelson, 2021; Petrocchi et al., 2019). The fact that this association was not confirmed at the individual level for physicians may be explained by their ability to compare many treated patients and, based on that, identify those they trust more, which ultimately leads to better relationships with such patients (Uckelstam et al., 2020). For patients, such distinctions are more difficult to establish. Yet, patients of physicians who were, on average, more trusted (by all treated patients) reported more positive evaluations of doctor-patient relationships.

It was also hypothesized that **trust in the doctor-patient relationship** relates to **patient willingness to engage in treatment** at both the individual and dyadic levels (H5). The results corroborate this hypothesis for patients and physicians at the dyadic level, and for physicians at the individual level. The fact that this effect for patients was only observed at the dyadic level emphasizes the importance of unique relationships and interactions with physicians in contributing to proactive attitudes. However, it is essential to acknowledge potential self-assessment bias among patients, which may arise due to social desirability, inadequate knowledge about their abilities, a motivation to view themselves more favorably, or underestimation (Brest & Cordonier, 2024;

Ezquerra et al., 2023; Y.-H. Kim et al., 2016). Nonetheless, the effect present within dyads should not be disregarded. Patients who trust their physicians are likely to be more confident about the proposed treatment plans and, consequently, more eager to participate actively in managing their condition, which constitutes the primary goal of healthcare (Savage, 2011; Venechuk et al., 2023). Conversely, the most substantial effect was found at the dyadic level among physicians, suggesting that increased trust in a specific patient was associated with more positive perceptions of that patient's willingness to engage in treatment. Regarding physician ratings, trust in the patient was more relevant than communication skills in perceiving patients' willingness to engage in treatment. This aligns with the fundamental aspects of physician trust, which are mainly based on a patient's prior adherence to medical recommendations or proactive attitude toward managing their condition (Sousa-Duarte et al., 2020; Thom et al., 2011; Wilk & Platt, 2016). This could be an impactful finding, as it indicates physicians' potential to identify patients at risk of non-adherence. Recognizing these patients can serve as a key starting point for implementing psychological interventions or motivational dialogues aimed at encouraging health behavioral changes (ElSayed et al., 2023; Feig et al., 2022; Ntoumanis et al., 2021).

Regarding the hypothesis that **physicians' communication skills** are positively linked to **satisfaction with the medical visit** at both the individual and dyadic levels (H6), statistically significant effects were observed at the individual level for patients (with the effect being marginally significant for physicians) and at the dyadic level for both patients and physicians. Physicians' better communication with specific patients resulted in greater satisfaction for both parties. The most notable effect was seen for physicians at the dyadic level, meaning that when physicians positively evaluated their communication with a given patient, they also perceived that visit as more satisfying. The positive association between physician communication skills and satisfaction with medical services within the OWM framework was also reported by Kwissa-Gajewska & Kroemeke (2022). These findings show that effective communication with patients is crucial not only for patients' perceptions but also for physicians, which is perhaps the most important insight, as this is a relatively

understudied area (Baum, 2023). Conversely, many previous studies support the results related to patients' perspectives (Akaydin & Baltaci, 2024; Drossman et al., 2021; Fino et al., 2023; Konda et al., 2023). Each factor that improves physician satisfaction should be highlighted and emphasized due to its potential to prevent burnout (Anagnostopoulos et al., 2012; Hiefner et al., 2022; Liang & Wilson, 2022). Given that the uniqueness of the doctor-patient relationship plays a substantial role in the tested association, it should be noted that communication—and, consequently, satisfaction with the visit—depends not only on physicians' performance but also on patients' attitudes and behaviors. Physicians should be trained to inquire about patients' individual needs and expectations, while patients should also develop awareness of how to communicate these needs to their healthcare providers.

It leads to the following hypothesis: **physicians' communication skills** are positively associated with the **evaluation of the doctor-patient relationship** at both individual and dyadic levels (H7). The hypothesis was fully supported at the dyadic level, and for patients at the individual level (with a marginally significant effect for physicians). Perhaps the most compelling finding is that the most substantial effect observed in the study relates to the dyadic level for physicians. A similar pattern was found with the previous hypothesis, which suggests that communication performance plays a key role in fostering satisfaction with the medical visit as well as better doctor-patient relationships—not only for patients but also for physicians. This is a very important finding, as this area is often overlooked in research. Building meaningful relationships with patients can also help prevent burnout and emotional detachment (which may distort communication and create a vicious cycle), as well as help provide tailored patient-centered care (Hiefner et al., 2022; Shanafelt, 2009). A strong doctor-patient relationship, based on effective communication, is particularly significant in the context of chronic diseases, wherein patients need to be empowered and their health literacy should be enhanced by physicians. Since a key part of treatment involves patients' self-management, education, and responsibility (Claramita et al., 2020; Heijmans et al., 2015; Vainauskienė & Vaitkienė, 2021), good communication can ensure better continuity of care, improved health outcomes, and

higher adherence to treatment—all of which can reduce mortality (Kajaria-Montag et al., 2024; Nowak et al., 2021; Pereira Gray et al., 2018). The fact that physicians highly value skilled communication in interactions with chronically ill patients, alongside the recognition of its importance, is truly encouraging.

The final hypothesis aimed to verify the association between **physician communication skills** and **patient willingness to engage in treatment** at both individual and dyadic levels (H8). The hypothesis was fully corroborated at the dyadic level for both physicians and patients, with the greatest effect observed among physicians. However, at the individual level, it was confirmed solely for physicians. Notably, the findings underscore differing perspectives between physicians and patients. The absence of associations between patient trust in the physician, as well as the physician's communication skills, and patient willingness to engage in treatment at the individual level, suggests that physicians' individual differences do not impact this association. Therefore, it can be concluded that facilitating patient engagement through effective communication or trust-building relies heavily on specific interactions within the dyad. Conversely, physicians tend to associate their better communication with patients' more proactive attitudes not only within a specific dyadic context (where this effect is predominant) but also generally. This suggests that physicians either believe or are convinced that their communication style may influence patient engagement and active participation in treatment or decision-making processes. Such a phenomenon may be attributed to the motivational role of communication within the doctor-patient relationship (W. R. Miller & Rollnick, 2023) or the facilitation of shared decision-making (Elwyn et al., 2012; Strokes et al., 2025), which potentially empowers patients to assume greater responsibility for their health management. These findings are highly reassuring, as knowing the factors that can enhance patients' willingness or readiness to engage in treatment is crucial for ensuring adherence, improving health outcomes, and fostering better self-management (Haskard Zolnierek & Dimatteo, 2009; Tavakoly Sany et al., 2020; Timmermans, 2020). Another significant role of doctor-patient communication, particularly in the context of chronic diseases, is patient education (Carvajal et al., 2021; Rooney et

al., 2021; Thakur et al., 2021). Effective patient education forms a fundamental component of adherence to treatment regimens. Without a clear understanding of their conditions or the objectives of medical care, patients' self-efficacy (Farley, 2020; Foroumandi et al., 2020) and self-management (Coster et al., 2020) are likely to be compromised, and autonomous motivation (Yeom & Lee, 2022) may not develop optimally.

Limitations

This research has several limitations. First, the sample exhibited heterogeneity with respect to the patients' diagnoses. The determination to investigate the hospital environments in an OWM design, which is relatively uncommon, necessitated certain compromises, particularly regarding the broadening of inclusion criteria concerning patients' diagnoses. Additionally, the aspect of chronic internal diseases within the selected settings further influenced the expansion of these criteria. In hospitals, physicians typically care for 4-5 patients daily, the majority of whom remain hospitalized for approximately one week or more. Given that not all hospitalized patients were diagnosed with chronic internal diseases, and recognizing that not all were mentally capable of completing the psychological questionnaires, the inclusion criteria relating to patients' diagnoses had to be somewhat more flexible. This strategy rendered the project feasible and facilitated an exploration of doctor-patient relationships from an understudied perspective.

Another limitation may stem from the physicians who consented to participate in the study. Although the precise objectives of the study were not disclosed to either the patients or the physicians, they were informed in general terms. This may have resulted in recruiting physicians who perceived themselves to possess effective interpersonal relationships with patients. Furthermore, the physicians selected their patients, which may have led to the exclusion of individuals with whom they did not feel comfortable (selection bias). Consequently, the study's findings may overstate the actual level of agreement observed in clinical circumstances. Nevertheless, the relevance of the

study's outcomes remains intact, as it was still possible to empirically test the research hypotheses and questions. The overall conclusions provide valuable insights to the field; however, the mean values obtained in the study may not reflect those within a larger population. Therefore, future research may benefit from a thorough classification of the investigative objectives.

The potential for well-documented self-assessment bias identified in the literature warrants consideration, as the study relied on self-reported indices (Karpen, 2018; Kastorff et al., 2023; Y.-H. Kim et al., 2016). However, no consensus exists regarding the gold standard in evaluating doctor-patient interactions (Eveleigh et al., 2012; Röttele et al., 2020; Saba, 2006), as external peer raters' assessments are often discordant (Burt et al., 2018). Furthermore, the presence of external raters may undermine the authenticity of these interactions, introducing an additional layer of bias. Recording doctor-patient interactions within hospital environments is inaccessible. Moreover, conducting the study in simulated conditions may facilitate more objective measurements (Van Scoy et al., 2022); however, such an approach would fail to reflect the unique nature of real doctor-patient interactions adequately. The predominant role of both physicians' and patients' perceptions in determining their satisfaction with communication and the overall visit, as well as their confidence in the relationship and motivation to engage in treatment, should be emphasized. Consequently, it appears warranted to designate them as raters in order to comprehend the interdependencies among the studied constructs.

Another major limitation linked to the study design is the relatively low number of recruited physicians (18). The OWM estimates the doctor-level effects based on the number of participating physicians. This limited number might affect the interpretation of the absence of statistical significance. In such cases, it becomes challenging to ascertain whether this absence is attributable to the low statistical power of the test or to nonexistent effects. The number of physicians enrolled in the study was primarily influenced by the hospital environments and the consistent profile of treated patients. Although small sample sizes provide accurate variance components, estimates, and standard errors of regression coefficients, they do not adequately address the second-level standard

errors (biased estimates associated with small samples) (Maas & Hox, 2005; Tabachnick & Fidell, 2014). Future studies may attempt to mitigate this limitation by implementing simulation-based methods, such as bootstrapping or Monte Carlo techniques (Goldstein, 2011; Hox et al., 2017).

The last limitation to consider is the nature of the tested associations. Although most studies based on the OWM design interpret the effects of multilevel models as causal relationships, referring to variables as predictors and outcomes, the actual nature of such analysis is inherently correlational. Multilevel models within an OWM framework are primarily designed to handle data non-independence, to separate between-dyad and within-dyad effects accurately, and to test cross-level interactions. Across all these instances, the model demonstrates that a shift in one variable's level is associated with a shift in the level of another variable. However, it does not, by itself, establish causality between the two. Therefore, the results of all tested associations should be interpreted accordingly. Nevertheless, the terms ‘predictors’ and ‘outcomes’ are employed throughout this thesis; however, their meanings are solely statistical. To better understand the causal relationships between the investigated constructs, longitudinal studies should be considered (as experiments do not seem feasible in such a delicate context).

Conclusions

The project illustrates the complexities associated with the intertwined concepts of trust and clinical communication, along with their antecedents and outcomes, within the framework of the doctor-patient relationship. Implementing the OWM design facilitated the examination of a wide range of measures and provided an exceptional opportunity to utilize extensive data and pose unique research questions.

The study has identified a lack of consensus among patients treated by the same physicians, indicating the prevalence of tailored and individualized hospital care alongside differentiated patient needs and expectations. Although the assimilation effects among physicians were evident in terms of trust in patients, communication skills, and overall satisfaction, the results regarding the absence of

these effects in the evaluation of relationships with patients or their perceived willingness to engage in treatment confirmed that physicians' approaches to specific patients are versatile. Providing consistent care to a certain extent and adjusting it to address patients' needs appears to be a sound strategy, reflected in relatively high average satisfaction levels and relationship evaluations rated by both patients and physicians. This also highlights that patient-centered care may be beneficial for both providers and recipients.

The evidence from this study supports all tested hypotheses at the dyadic level, which have the potential to enhance the field by incorporating insights from often-neglected physician perspectives. More importantly, it contributes interactional data. It enabled verification of the *Doctor-Patient Relationship Outcomes Model* within an entirely new dyadic framework. Certain associations and effects were explored within this context for the first time, representing a notable strength of the research. Furthermore, although the viewpoints of patients and physicians may vary, they exhibit a degree of congruence. Establishing reciprocal trust and fostering open communication that aims at establishing mutual goals and needs may serve to reconcile these disparities effectively. Yet, the differences in associations tested at the individual level between physicians and patients provide valuable insights into factors that are positively linked to satisfaction with medical visits, evaluations of doctor-patient relationships, or patient willingness to engage in treatment. Additionally, both physicians and patients could greatly benefit from educational initiatives that underscore the importance of effective communication and trust in cultivating robust doctor-patient relationships.

The most essential finding to emerge from this study is the undeniable relevance of relationship uniqueness and reciprocity in the context of doctor-patient interactions. It highlights the underestimated power of these interactions to contribute to a wide range of outcomes, including higher satisfaction, the development of more meaningful doctor-patient relationships, and a greater willingness to engage in treatment and adhere to it. These factors are, in turn, frequently referred to as possessing properties that prevent burnout and reduce mortality rates. Moreover, this research

strongly emphasizes the need for applying dyadic designs within medical contexts, as many interdependencies must be clarified and understood. Overall, the dissertation reinforces the idea that the doctor-patient relationship constitutes the foundation of healthcare.

References

Akaydin, H., & Baltaci, A. (2024). The Effect of Physician-Patient Communicatıon on Patient Satisfaction in Family Medicine Services. *Alanya Academic Review Journal*, *8*(1), 15–33. https://doi.org/10.29023/alanyaakademik.1185604

Akbolat, M., Amarat, M., Ünal, Ö., & Sütlü, E. S. (2019). Benevolence or Competence Which is More Important for Patient Loyalty? In *Journal of International Health Sciences and Management 5*(9). https://orcid.org/0000-0002-0405-3623

Alarcon, G. M., & Jessup, S. A. (2023). Propensity to trust and risk aversion: Differential roles in the trust process. *Journal of Research in Personality*, *103*, 104349. https://doi.org/10.1016/J.JRP.2023.104349

Alarcon, G. M., Lyons, J. B., Christensen, J. C., Klosterman, S. L., Bowers, M. A., Ryan, T. J., Jessup, S. A., & Wynne, K. T. (2018). The effect of propensity to trust and perceptions of trustworthiness on trust behaviors in dyads. *Behavior Research Methods*, *50*(5), 1906–1920. https://doi.org/10.3758/S13428-017-0959-6/TABLES/3

Alkhamees, M., & Alasqah, I. (2023). Patient-physician communication in intercultural settings: An integrative review. *Heliyon*, *9*(12), e22667. https://doi.org/10.1016/j.heliyon.2023.e22667

Altena, A. M., Krabbenborg, M. A. M., Boersma, S. N., Beijersbergen, M. D., van den Berg, Y. H. M., Vollebergh, W. A. M., & Wolf, J. R. L. M. (2017). The working alliance between homeless young adults and workers: A dyadic approach. *Children and Youth Services Review*, *73*, 368–374. https://doi.org/10.1016/j.childyouth.2017.01.015

Ammentorp, J., Chiswell, M., & Martin, P. (2022). Translating knowledge into practice for communication skills training for health care professionals. *Patient Education and Counseling*, *105*(11), 3334–3338. https://doi.org/10.1016/j.pec.2022.08.004

Anagnostopoulos, F., Liolios, E., Persefonis, G., Slater, J., Kafetsios, K., & Niakas, D. (2012). Physician burnout and patient satisfaction with consultation in primary health care settings: Evidence of relationships from a one-with-many design. *Journal of Clinical Psychology in Medical Settings*, *19*(4), 401–410. https://doi.org/10.1007/s10880-011-9278-8

Anderson, A., & Griffith, D. M. (2022). Measuring the Trustworthiness of Health Care Organizations and Systems. *The Milbank Quarterly*, *100*(2), 345. https://doi.org/10.1111/1468-0009.12564

Anderson, L. A., & Dedrick, R. F. (1990). Development of the Trust in Physician Scale: A measure to assess interpersonal trust in patient-physician relationships. *Psychological Reports*, *67*, 1091–1100.

Baker, R., Bankart, M. J., Freeman, G. K., Haggerty, J. L., & Nockels, K. H. (2020a). Primary medical care continuity and patient mortality: *British Journal of General Practice*, *70*(698), E600–E611. https://doi.org/10.3399/bjgp20X712289

Banerjee, A., & Sanyal, D. (2012). Dynamics of doctor-patient relationship: A cross-sectional study on concordance, trust, and patient enablement. *Journal of Family and Community Medicine*, *19*(1), 12–19. https://doi.org/10.4103/2230-8229.94006

Barki, H., Robert, J., & Dulipovici, A. (2015). Reconceptualizing trust: A non-linear Boolean model. *Information and Management*, *52*(4), 483–495. https://doi.org/10.1016/j.im.2015.02.001

Batbaatar, E., Dorjdagva, J., Luvsannyam, A., Savino, M. M., & Amenta, P. (2017). Determinants of patient satisfaction: a systematic review. *Perspectives in Public Health*, *137*(2), 89–101. https://doi.org/10.1177/1757913916634136

Baum, N. (2023). Enhancing Doctors' Communication for Enhanced Patient Care. *Physician Leadership Journal*, *May/June*, 34–36.

Beck, R. S., Daughtridge, R., & Sloane, P. D. (2002). Physician-Patient Communication in the Primary Care Office: A Systematic Review. *Journal of the American Board of Family Practice*, *15*, 25–38.

Beichler, H., Grabovac, I., Leichsenring, B., & Dorner, T. E. (2022). Involvement, Perception, and Understanding as Determinants for Patient–Physician Relationship and Their Association with Adherence: A Questionnaire Survey among People Living with HIV and Antiretroviral Therapy in

Austria. *International Journal of Environmental Research and Public Health*, *19*(16), 10314. https://doi.org/10.3390/ijerph191610314

Beldad, A., De Jong, M., & Steehouder, M. (2010). How shall I trust the faceless and the intangible? A literature review on the antecedents of online trust. *Computers in Human Behavior*, *26*(5), 857–869. https://doi.org/10.1016/J.CHB.2010.03.013

Berger, R., Bulmash, B., Drori, N., Ben-Assuli, O., & Herstein, R. (2020). The patient-physician relationship: an account of the physician's perspective. *Israel Journal of Health Policy Research*, *9*(33), 1–16.

Biglu, M.-H., Nateq, F., Ghojazadeh, M., & Asgharzadeh, A. (2017). Communication skills of physicians and patients' satisfaction. *Materia Socio-Medica*, *29*(3), 192.

Birkhäuer, J., Gaab, J., Kossowsky, J., Hasler, S., Krummenacher, P., Werner, C., & Gerger, H. (2017). Trust in the health care professional and health outcome: A meta-analysis. *PLoS ONE*, *12*(2). https://doi.org/10.1371/journal.pone.0170988

Błaszyk, M. A., & Kroemeke, A. (2024). Polish adaptation, psychometric properties and validation of Physician's Trust in the Patient Scale (PTPS). *Scientific Reports*, *14*(1), 18457. https://doi.org/10.1038/s41598-024-69351-1

Błaszyk, M. A. (2025). A dyadic analysis of agreements, predictors, and outcomes of trust and communication in a doctor-patient relationship within the context of hospital internal units. Set of outputs with exemplary SPSS Syntax codes. Zenodo. https://doi.org/10.5281/zenodo.17113881

Blödt, S., Müller-Nordhorn, J., Seifert, G., & Holmberg, C. (2021). Trust, medical expertise and humaneness: A qualitative study on people with cancer' satisfaction with medical care. *Health Expectations*, *24*(2), 317–326. https://doi.org/10.1111/hex.13171

Bolger, N., & Laurenceau, J.-P. (2013). *Intensive longitudinal methods: An introduction to diary and experience sampling research*. Guilford press.

Bond Jr, C. F., & Kenny, D. A. (2002). The triangle of interpersonal models. *Journal of Personality and Social Psychology*, *83*(2), 355.

Boquiren, V. M., Hack, T. F., Beaver, K., & Williamson, S. (2015). What do measures of patient satisfaction with the doctor tell us? *Patient Education and Counseling, 98*(12), 1465–1473. https://doi.org/10.1016/j.pec.2015.05.020

Boucher, V. G., Gemme, C., Dragomir, A. I., Bacon, S. L., Larue, F., & Lavoie, K. L. (2020). Evaluation of Communication Skills among Physicians: A Systematic Review of Existing Assessment Tools. *Psychosomatic Medicine*, *82*(4), 440–451. https://doi.org/10.1097/PSY.0000000000000794

Bowlby, J. (1982). *Attachment and loss: Vol. I* (2nd ed.). Basic Books.

Brennan, N., Barnes, R., Calnan, M., Corrigan, O., Dieppe, P., & Entwistle, V. (2013). Trust in the health-care provider-patient relationship: a systematic mapping review of the evidence base. *International Journal for Quality in Health Care*, *25*(6), 682–688. https://doi.org/10.1093/intqhc/mzt063

Brinberg, M., Ram, N., Conroy, D. E., Pincus, A. L., & Gerstorf, D. (2021). Dyadic analysis and the reciprocal one-with-many model: Extending the study of interpersonal processes with intensive longitudinal data. *Psychological Methods*. *27*(1), 65–81. https://doi.org/10.1037/met0000380

Burt, J., Abel, G., Elliott, M. N., Elmore, N., Newbould, J., Davey, A., Llanwarne, N., Maramba, I., Paddison, C., Campbell, J., & Roland, M. (2018). The Evaluation of Physicians' Communication Skills From Multiple Perspectives. *The Annals of Family Medicine*, *16*(4), 330–337. https://doi.org/10.1370/afm.2241

Callender, L. F., Johnson, A. L., & Pignataro, R. M. (2021). Patient-Centered Education in Wound Management: Improving Outcomes and Adherence. *Advances in Skin & Wound Care*, *34*(8), 403–410. https://doi.org/10.1097/01.ASW.0000753256.29578.6c

Calnan, M., & Rowe, R. (2008). *Trust Matters in Health Care*. Open University Press.

Campbell, C., Lockyer, J., Laidlaw, T., & MacLeod, H. (2007). Assessment of a matched-pair instrument to examine doctor-patient communication skills in practising doctors. *Medical Education*, *41*(2), 123–129. https://doi.org/10.1111/j.1365-2929.2006.02657.x

Campbell, L., & Kashy, D. A. (2002). Estimating Actor, Partner, and Interaction Effects for Dyadic Data Using PROC MIXED and HLM: A User–Friendly Guide. *Personal Relationships*, *9*(3), 327–342. https://doi.org/10.1111/1475-6811.00023

Campos-Castillo, C., & Anthony, D. (2019). Situated Trust in a Physician: Patient Health Characteristics and Trust in Physician Confidentiality. *Sociological Quarterly*, *60*(4), 559–582. https://doi.org/10.1080/00380253.2018.1547174

Cantarutti, S., & Pothos, E. M. (2023). How healthcare structures and communication delivery influence trust: a parallel-group randomized controlled trial. *Journal of Public Health (Germany)*, *31*(6), 831–836. https://doi.org/10.1007/s10389-021-01620-z

Carvajal, D. N., Klyushnenkova, E., & Barnet, B. (2021). Latina contraceptive decision-making and use: The importance of provider communication and shared decision-making for patient-centered care. *Patient Education and Counseling*, *104*(9), 2159–2164. https://doi.org/10.1016/j.pec.2021.03.006

Chandra, S., Mohammadnezhad, M., & Ward, P. (2018). Trust and Communication in a Doctor- Patient Relationship: A Literature Review. *Journal of Healthcare Communications*, *03*(03). https://doi.org/10.4172/2472-1654.100146

Chen, L., Tang, H., & Guo, Y. (2022). Effect of Patient-Centered Communication on Physician-Patient Conflicts from the Physicians' Perspective: A Moderated Mediation Model. *Journal of Health Communication*, *27*(3), 164–172. https://doi.org/10.1080/10810730.2022.2071505

Chen, X., Du, L., Wu, R., Xu, J., Ji, H., Zhang, Y., Zhu, X., & Zhou, L. (2020). The effects of family, society and national policy support on treatment adherence among newly diagnosed tuberculosis patients: A cross-sectional study. *BMC Infectious Diseases*, *20*(1). https://doi.org/10.1186/s12879-020-05354-3

Clavel, N., Paquette, J., Dumez, V., Del Grande, C., Ghadiri, D. P. (Sacha), Pomey, M., & Normandin, L. (2021). Patient engagement in care: A scoping review of recently validated tools assessing patients' and healthcare professionals' preferences and experience. *Health Expectations*, *24*(6), 1924–1935. https://doi.org/10.1111/hex.13344

Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, *94*, 95–120. https://doi.org/10.1086/228943

Colombel, J.-F., D'haens, G., Lee, W.-J., Petersson, J., & Panaccione, R. (2020). Outcomes and strategies to support a treat-to-target approach in inflammatory bowel disease: a systematic review. *Journal of Crohn's and Colitis*, *14*(2), 254–266.

Colombo, B., Aurelio, B., Wallace, H. J., & Heath, J. L. (2023). Exploring Patients' Trust from a New Perspective. A Text-Analysis Study. *Health Communication*, *38*(13), 3040–3050. https://doi.org/10.1080/10410236.2022.2131973

Colquitt, J. A., & Rodell, J. B. (2011). Justice, trust, and trustworthiness: A longitudinal analysis integrating three theoretical perspectives. *Academy of Management Journal, 54*(6), 1183–1206. https://doi.org/10.5465/amj.2007.0572

Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, Trustworthiness, and Trust Propensity: A Meta-Analytic Test of Their Unique Relationships With Risk Taking and Job Performance. *Journal of Applied Psychology*, *92*(4), 909–927. https://doi.org/10.1037/0021-9010.92.4.909

Coran, J. J., Koropeckyj-Cox, T., & Arnold, C. L. (2013). Are Physicians and Patients in Agreement? Exploring Dyadic Concordance. *Health Education and Behavior*, *40*(5), 603–611. https://doi.org/10.1177/1090198112473102

Coster, S., Li, Y., & Norman, I. J. (2020). Cochrane reviews of educational and self-management interventions to guide nursing practice: A review. *International Journal of Nursing Studies*, *110*, 103698. https://doi.org/10.1016/j.ijnurstu.2020.103698

Couch, L. L., Adams, J. M., & Jones, W. H. (1996). The Assessment of Trust Orientation. *Journal of Personality Assessment*, *67*(2), 305–323. https://doi.org/10.1207/S15327752JPA6702_7

Croker, J. E., Swancutt, D. R., Roberts, M. J., Abel, G. A., Roland, M., & Campbell, J. L. (2013). Factors affecting patients' trust and confidence in GPs: evidence from the English national GP patient survey. *BMJ Open*, *3*(5), e002762. https://doi.org/10.1136/BMJOPEN-2013-002762

Cummings, L. L., & Bromiley, P. (1996). The Organizational Trust Inventory (OTI): Development and Validation. In R. Kramer & T. Tyler (Eds.), *Trust in Organizations: Frontiers of Theory and Research* (pp. 302–330). SAGE Publications, Inc. https://doi.org/10.4135/9781452243610.n15

De Raeve, L., & Ba, R. (2002). Trust and trustworthiness in nurse-patient relationships. *Nursing Philosophy 3*. 152–162

Decety, J. (2020). Empathy in Medicine: What It Is, and How Much We Really Need It. *American Journal of Medicine 133*(5), 561–566. https://doi.org/10.1016/j.amjmed.2019.12.012

Delbon, P. (2018). The protection of health in the care and trust relationship between doctor and patient: Competence, professional autonomy and responsibility of the doctor and decision-making autonomy of the patient. *Journal of Public Health Research 7,* 97-100.

DeSteno, D. (2015). *The truth about trust* (1st ed.). Penguin Random House LLC.

Di Battista, S., Pivetti, M., & Berti, C. (2020). Competence and benevolence as dimensions of trust: Lecturers' trustworthiness in the words of italian students. *Behavioral Sciences*, *10*(9). https://doi.org/10.3390/bs10090143

Di Battista, S., Smith, H. J., Berti, C., Pivetti, M., Battista, D., Silvia, H. J., Smith, C., & Berti, M. P. (2021). Trustworthiness in Higher Education: The Role of Professor Benevolence and Competence Citation. *Social Sciences 10*(18). https://doi.org/10.3390/socsci

Dinç, L., & Gastmans, C. (2012). Trust and trustworthiness in nursing: An argument-based literature review. *Nursing Inquiry 19*(3), 223–237. https://doi.org/10.1111/j.1440-1800.2011.00582.x

Doekhie, K. D., Strating, M. M. H., Buljac-Samardzic, M., & Paauwe, J. (2019). Trust in older persons: A quantitative analysis of alignment in triads of older persons, informal carers and home care nurses. *Health and Social Care in the Community*, *27*(6), 1490–1506. https://doi.org/10.1111/hsc.12820

Douglass, T., & Calnan, M. (2016). Trust matters for doctors? Towards an agenda for research. *Social Theory and Health*, *14*(4), 393–413. https://doi.org/10.1057/s41285-016-0010-5

Drossman, D. A., Chang, L., Deutsch, J. K., Ford, A. C., Halpert, A., Kroenke, K., Nurko, S., Ruddy, J., Snyder, J., & Sperber, A. (2021). A Review of the Evidence and Recommendations on Communication Skills and the Patient–Provider Relationship: A Rome Foundation Working Team Report. *Gastroenterology*, *161*(5), 1670-1688.e7. https://doi.org/10.1053/j.gastro.2021.07.037

Drossman, D. A., & Ruddy, J. (2020). Improving patient-provider relationships to improve health care. *Clinical Gastroenterology and Hepatology*, *18*(7), 1417–1426.

Drummond, D. (2021). Between competence and warmth: the remaining place of the physician in the era of artificial intelligence. *Digital Medicine*, *85*, 1–4. https://doi.org/10.1038/s41746-021-00457-w

Edgar, A., & Pattison, S. (2011). Integrity and the moral complexity of professional practice. *Nursing Philosophy 12,* 94-106.

Elendu, C., Amaechi, D. C., Okatta, A. U., Amaechi, E. C., Elendu, T. C., Ezeh, C. P., & Elendu, I. D. (2024). The impact of simulation-based training in medical education: A review. *Medicine*, *103*(27), e38813. https://doi.org/10.1097/MD.0000000000038813

ElSayed, N. A., Aleppo, G., Aroda, V. R., Bannuru, R. R., Brown, F. M., Bruemmer, D., Collins, B. S., Hilliard, M. E., Isaacs, D., Johnson, E. L., Kahan, S., Khunti, K., Leon, J., Lyons, S. K., Perry, M. Lou, Prahalad, P., Pratley, R. E., Seley, J. J., Stanton, R. C., … Gabbay, R. A. (2023). 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2023*. *Diabetes Care*, *46*(Supplement_1), S68–S96. https://doi.org/10.2337/dc23-S005

Elwood, W. N. (2023). Trust as a dyadic mechanism of action: a call to explore patient-provider relationships in the twenty-first century. *Journal of Communication in Healthcare 16* (4), 370–374. https://doi.org/10.1080/17538068.2023.2267830

Elwyn, G., Frosch, D., Thomson, R., Joseph-Williams, N., Lloyd, A., Kinnersley, P., Cording, E., Tomson, D., Dodd, C., Rollnick, S., Edwards, A., & Barry, M. (2012). Shared Decision Making: A Model for Clinical Practice. *Journal of General Internal Medicine*, *27*(10), 1361–1367. https://doi.org/10.1007/s11606-012-2077-6

Engle, R. L., Mohr, D. C., Holmes, S. K., Seibert, M. N., Afable, M., Leyson, J., & Meterko, M. (2021). Evidence-based practice and patient-centered care: doing both well. *Health Care Management Review*, *46*(3), 174–184.

Epstein, R. M., Franks, P., Shields, C. G., Meldrum, S. C., Miller, K. N., Campbell, T. L., & Fiscella, K. (2005). Patient-centered communication and diagnostic testing. *Annals of Family Medicine*, *3*(5), 415–421. https://doi.org/10.1370/afm.348

Erikson, E. H. (1963). *Childhood and society* (Vol. 2). Norton.

Eveleigh, R. M., Muskens, E., Van Ravesteijn, H., Van Dijk, I., Van Rijswijk, E., & Lucassen, P. (2012). An overview of 19 instruments assessing the doctor-patient relationship: Different models or concepts are used. *Journal of Clinical Epidemiology 65* (1), 10–15. https://doi.org/10.1016/j.jclinepi.2011.05.011

Farley, H. (2020). Promoting self-efficacy in patients with chronic disease beyond traditional education: A literature review. *Nursing Open*, *7*(1), 30–41. https://doi.org/10.1002/nop2.382

Feig, E. H., Madva, E. N., Millstein, R. A., Zambrano, J., Amonoo, H. L., Longley, R. M., Okoro, F., Huffman, J. C., Celano, C. M., & Hoeppner, B. (2022). Can positive psychological interventions improve health behaviors? A systematic review of the literature. *Preventive Medicine*, *163*, 107214. https://doi.org/10.1016/j.ypmed.2022.107214

Ferreira, D. C., Vieira, I., Pedro, M. I., Caldas, P., & Varela, M. (2023). Patient Satisfaction with Healthcare Services and the Techniques Used for its Assessment: A Systematic Literature Review and a Bibliometric Analysis. *Healthcare*, *11*(5), 639. https://doi.org/10.3390/healthcare11050639

Field, A. (2024). *Discovering statistics using IBM SPSS Statistics* (6th ed.). Sage.

Fino, E., Chessa, M. A., Starace, M., Piraccini, B. M., & Mazzetti, M. (2023). Soothing with one's words: Positive doctor–patient communication modulates post-surgery pain and quality of physical activity in patients undergoing nail surgery. *Journal of the European Academy of Dermatology and Venereology*, *37*(3), e322–e324. https://doi.org/10.1111/jdv.18544

Firdous, J., & Hiba, S. (2019). Good Communication between Doctor-Patient Improves Health Outcome. *European Journal of Medical and Health Sciences*, *1*(4), 1–5. https://doi.org/10.24018/ejmed.2019.1.4.84

Fiscella, K., Meldrum, S., Franks, P., Shields, C. G., Duberstein, P., McDaniel, S. H., & Epstein, R. M. (2004). Patient Trust Is It Related to Patient-Centered Behavior of Primary Care Physicians? *Medical Care, 42*(11), 1049-1055.

Flanagan, O. L., & Cummings, K. M. (2023). Standardized Patients in Medical Education: A Review of the Literature. *Cureus, 15*(7), e42027. https://doi.org/10.7759/cureus.42027

Foroumandi, E., Kheirouri, S., & Alizadeh, M. (2020). The potency of education programs for management of blood pressure through increasing self-efficacy of hypertensive patients: A systematic review and meta-analysis. *Patient Education and Counseling*, *103*(3), 451–461. https://doi.org/10.1016/j.pec.2019.09.018

Frazier, M. L., Johnson, P. D., & Fainshmidt, S. (2013). Development and validation of a propensity to trust scale. *Journal of Trust Research*, *3*(2), 76–97. https://doi.org/10.1080/21515581.2013.820026

Freitag, M., & Bauer, P. C. (2016). Personality traits and the propensity to trust friends and strangers. *Social Science Journal*, *53*(4), 467–476. https://doi.org/10.1016/j.soscij.2015.12.002

Fulmer, A. C., & Gelfand, M. J. (2012). At What Level (and in Whom) We Trust: Trust Across Multiple Organizational Levels. *Journal of Management*, *38*(4), 1167–1230. https://doi.org/10.1177/0149206312439327

Gabay, G. (2019). Patient self-worth and communication barriers to Trust of Israeli Patients in acute-care physicians at public general hospitals. *Qualitative Health Research*, *29*(13), 1954–1966.

Gabay, G., & Bokek-Cohen, Y. (2019). Infringement of the right to surgical informed consent: Negligent disclosure and its impact on patient trust in surgeons at public general hospitals - The voice of the patient. *BMC Medical Ethics*, *20*(1). https://doi.org/10.1186/s12910-019-0407-5

Gelhaus, P. (2013). The desired moral attitude of the physician: (III) care. *Medicine, Health Care and Philosophy*, *16*(2), 125–139. https://doi.org/10.1007/s11019-012-9380-1

Gelkopf, M. J., McAllister, L., Gilani, K., & Sundaram, A. N. E. (2022). Idiopathic Intracranial Hypertension: A Case Study of Patient Engagement in the Treatment of a Chronic Disease. *Journal of Patient Experience*, *9*. https://doi.org/10.1177/23743735221094088

Georgopoulou, S., Nel, L., Sangle, S. R., & D'Cruz, D. P. (2020). Physician–patient interaction and medication adherence in lupus nephritis. *Lupus*, *29*(10), 1168–1178. https://doi.org/10.1177/0961203320935977

Gessesse, A. G., Haile, J. M., & Woldearegay, A. G. (2022). The Nexus Between Physician-Patient Communication and Health Outcomes: Level of Patient Communication Satisfaction and Its Impact on

Adherence in Ethiopian Comprehensive Specialized Hospitals. *Patient Preference and Adherence*, *16*, 2509–2519. https://doi.org/10.2147/PPA.S381937

Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, *102*, 74–78. https://doi.org/10.1016/j.paid.2016.06.069

Gill, H., Boies, K., Finegan, J. E., & McNally, J. (2005). Antecedents of trust: Establishing a boundary condition for the relation between propensity to trust and intention to trust. *Journal of Business and Psychology*, *19*(3), 287–302. https://doi.org/10.1007/s10869-004-2229-8

Gilson, L. (2003). Trust and the development of health care as a social institution. *Social Science & Medicine 56*, 1453–1468.

Goebel-Stengel, M., Paulsen, U., Bennerscheidt, P., Zipfel, S., & Stengel, A. (2023). Patients with functional gastrointestinal disorders—importance of communication between physician and patient assessed in a cross-sectional cohort study. *Frontiers in Psychiatry*, *14*, 1252268. https://doi.org/10.3389/fpsyt.2023.1252268

Goldstein, H. (2011). *Multilevel Statistical Models* (4th ed.). Wiley.

Goodrich, G. W., & Lazenby, J. M. (2023). Elements of patient satisfaction: An integrative review. *Nursing Open*, *10*(3), 1258–1269. https://doi.org/10.1002/nop2.1437

Gregoriadis, A., Vatou, A., Tsigilis, N., & Grammatikopoulos, V. (2022). Examining the Reciprocity in Dyadic Teacher-Child Relationships: One-With-Many Multilevel Design. *Frontiers in Education*, *6*. https://doi.org/10.3389/feduc.2021.811934

Griffith, D. M., Bergner, E. M., Fair, A. S., & Wilkins, C. H. (2021). Using Mistrust, Distrust, and Low Trust Precisely in Medical Care and Medical Research Advances Health Equity. *American Journal of Preventive Medicine*, *60*(3), 442–445. https://doi.org/10.1016/j.amepre.2020.08.019

Grob, R., Darien, G., & Meyers, D. (2019). Why Physicians Should Trust in Patients. *JAMA, 321*(14), 1347–1348. https://doi.org/10.1001/jama.2019.1500

Hagiwara, N., Kashy, D. A., & Penner, L. A. (2014). A novel analytical strategy for patient-physician communication research: The one-with-many design. *Patient Education and Counseling*, *95*(3), 325–331. https://doi.org/10.1016/j.pec.2014.03.017

Hall, M. A., Dugan, E., Zheng, B., & Mishra, A. K. (2001). Trust in Physicians and Medical Institutions: What Is It, Can It Be Measured, and Does It Matter? *The Milbank Quaterly*, *79*(4), 613–639.

Hall, M. A., Zheng, B., Dugan, E., Camacho, F., Kidd, K. E., Mishra, A., & Balkrishnan, R. (2002). Measuring Patients' Trust in Their Primary Care Providers. *Measuring Trust in Physicians Medical Care Research and Review, 59*(3).

Hall, S., Goddard, C., Opio, D., Speck, P. W., Martin, P., & Higginson, I. J. (2011). A novel approach to enhancing hope in patients with advanced cancer: a randomised phase II trial of dignity therapy. *BMJ Supportive & Palliative Care*, *1*(3), 315–321.

Haskard-Zolnierek, K. B., & Dimatteo, M. R. (2009). Physician Communication and Patient Adherence to Treatment A Meta-Analysis. *Medical Care, 47*(8), 826-834.

He, Q., Li, Y., Wu, Z., & Su, J. (2022). Explicating the Cognitive Process of a Physician's Trust in Patients: A Moderated Mediation Model. *International Journal of Environmental Research and Public Health*, *19*(21). https://doi.org/10.3390/ijerph192114446

He, S., Sultana, R., Anantham, D., Loh, H. P., Zhou, J. X., Tang, J. Y., Sim, M., Ayre, T. C., Fong, K. Y., Tan, K. H., He, S., Sultana, R., Anantham, D., Loh, H. P., Zhou, J. X., Tang, J. Y., Sim, M., Ayre, T. C., Fong, K. Y., & Tan, K. H. (2024). Empathy Levels Among Healthcare Professionals: An Asian Multi-professional Cross-Sectional Study. *Cureus*, *16*(2). https://doi.org/10.7759/CUREUS.53750

Heck, R. H., Thomas, S. L., & Tabata, L. N. (2013). *Multilevel and longitudinal modeling with IBM SPSS*. Routledge.

Heisler, M., Cole, I., Weir, D., Kerr, E. A., & Hayward, R. A. (2007). Does Physician Communication Influence Older Patients' Diabetes Self-Management and Glycemic Control? Results From the Health and Retirement Study (HRS). *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, *62*(12), 1435–1442. https://doi.org/10.1093/gerona/62.12.1435

Hemberg, J., & Hemberg, H. (2020). Ethical competence in a profession: Healthcare professionals' views. *Nursing Open*, *7*(4), 1249–1259. https://doi.org/10.1002/nop2.501

Heszen-Celińska, I., & Sęk, H. (2020). *Psychologia zdrowia* (1st ed.). Wydawnictwo Naukowe PWN SA.

Hiefner, A. R., Constable, P., Ross, K., Sepdham, D., & Ventimiglia, J. B. (2022). Protecting Family Physicians from Burnout: Meaningful Patient-Physician Relationships Are "More than Just Medicine." *The Journal of the American Board of Family Medicine*, *35*(4), 716–723. https://doi.org/10.3122/jabfm.2022.04.210441

Hillen, M. A., De Haes, H. C. J. M., & Smets, E. M. A. (2011). Cancer patients' trust in their physician - A review. *Psycho-Oncology 20*(3), 227–241. https://doi.org/10.1002/pon.1745

Hogekamp, Z., Blomster, J. K., Bursalioglu, A., Calin, M. C., çetinçelik, M., Haastrup, L., & van den Berg, Y. H. M. (2016). Examining the Importance of the Teachers' Emotional Support for Students' Social Inclusion Using the One-with-Many Design. *Frontiers in Psychology*, *7*(JUN). https://doi.org/10.3389/fpsyg.2016.01014

Hojat, M., Louis, D. Z., Maxwell, K., Markham, F., Wender, R., & Gonnella, J. S. (2010). Patient perceptions of physician empathy, satisfaction with physician, interpersonal trust, and compliance. *International Journal of Medical Education*, *1*, 83. https://doi.org/10.5116/IJME.4D00.B701

Hojat, M., Maio, V., Pohl, C. A., & Gonnella, J. S. (2023). Clinical empathy: definition, measurement, correlates, group differences, erosion, enhancement, and healthcare outcomes. *Discover Health Systems*, *2*(1). https://doi.org/10.1007/s44250-023-00020-2

Hong, H., & Oh, H. J. (2020). The Effects of Patient-Centered Communication: Exploring the Mediating Role of Trust in Healthcare Providers. *Health Communication*, *35*(4), 502–511. https://doi.org/10.1080/10410236.2019.1570427

Hoppenot, C., Hlubocky, F. J., Chor, J., Yamada, S. D., & Lee, N. (2022). Gaps in patient-physician communication at the time of malignant bowel obstruction from recurrent gynecologic cancer: a qualitative study. *Supportive Care in Cancer*, *30*, 367–376. https://doi.org/10.21203/rs.3.rs-298194/v1

Horne, R. (2020). Adherence to medication: a review of existing research. *Adherence to Treatment in Medical Conditions*, 285–310.

Hox, J. J., Moerbeek, M., & van de Schoot, R. (2017). *Multilevel Analysis*. Routledge. https://doi.org/10.4324/9781315650982

Hsieh, E., Ju, H., & Kong, H. (2010). Dimensions of Trust: The Tensions and Challenges in Provider—Interpreter Trust. *Qualitative Health Research*, *20*(2), 170–181. https://doi.org/10.1177/1049732309349935

Huynh, H. P., & Dicke-Bohmann, A. (2020). Humble doctors, healthy patients? Exploring the relationships between clinician humility and patient satisfaction, trust, and health status. *Patient Education and Counseling*, *103*(1), 173–179. https://doi.org/10.1016/j.pec.2019.07.022

Iacono, M. V. (2019). Nursing Integrity: A Moral Imperative. *Journal of Perianesthesia Nursing 34*(1), 220–222. https://doi.org/10.1016/j.jopan.2018.12.002

Istanbulluoglu, D., & Sakman, E. (2024). Successful complaint handling on social media predicts increased repurchase intention: The roles of trust in company and propensity to trust. *European Management Journal*, *42*(1), 11–22. https://doi.org/10.1016/j.emj.2022.06.004

Iversen, E. D., Wolderslund, M., Kofoed, P.-E., Gulbrandsen, P., Poulsen, H., Cold, S., & Ammentorp, J. (2021). Communication Skills Training: A Means to Promote Time-Efficient Patient-Centered Communication in Clinical Practice. *Journal of Patient-Centered Research and Reviews*, *8*(4), 307–314. https://doi.org/10.17294/2330-0698.1782

Iversen, E. D., Wolderslund, M. O., Kofoed, P. E., Gulbrandsen, P., Poulsen, H., Cold, S., & Ammentorp, J. (2020). Codebook for rating clinical communication skills based on the Calgary-Cambridge Guide. *BMC Medical Education*, *20*(1), 140. https://doi.org/10.1186/s12909-020-02050-3

Janamian, T., Greco, M., Cosgriff, D., Baker, L., & Dawda, P. (2022). Activating people to partner in health and self-care: use of the Patient Activation Measure. *Medical Journal of Australia*, *216*(S10). https://doi.org/10.5694/mja2.51535

Kaba, R., & Sooriakumaran, P. (2007). The evolution of the doctor-patient relationship. *International Journal of Surgery*, *5*(1), 57–65. https://doi.org/10.1016/j.ijsu.2006.01.005

Karpen, S. C. (2018). The Social Psychology of Biased Self-Assessment. *American Journal of Pharmaceutical Education*, *82*(5), 6299. https://doi.org/10.5688/ajpe6299

Kastorff, T., Sailer, M., Vejvoda, J., Schultz-Pernice, F., Hartmann, V., Hertl, A., Berger, S., & Stegmann, K. (2023). Context-specificity to reduce bias in self-assessments: Comparing teachers' scenario-based self-assessment and objective assessment of technological knowledge. *Journal of Research on Technology in Education*, *55*(6), 917–930. https://doi.org/10.1080/15391523.2022.2062498

Keitz, S. A., Stechuchak, K. M., Grambow, S. C., Koropchak, C. M., & Tulsky, J. A. (2007). Behind closed doors: management of patient expectations in primary care practices. *Archives of Internal Medicine*, *167*(5), 445–452.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2020). *Dyadic data analysis*. Guilford Press.

Kenny, D. A., Veldhuijzen, W., Weijden, T. van der, LeBlanc, A., Lockyer, J., Légaré, F., & Campbell, C. (2010). Interpersonal perception in the context of doctor-patient relationships: A dyadic analysis of doctor-patient communication. *Social Science and Medicine*, *70*(5), 763–768. https://doi.org/10.1016/j.socscimed.2009.10.065

Khana, R., Singh, M. M., Damanhoori, F., & Mustaffa, N. (2020). The Relationship of Trustworthiness and Ethical Value in the Healthcare System. *International Journal of Advanced Computer Science and Applications, 11*(11).

Kim, E.-J., Koo, Y.-R., & Nam, I.-C. (2024). Patients and Healthcare Providers' Perspectives on Patient Experience Factors and a Model of Patient-Centered Care Communication: A Systematic Review. *Healthcare*, *12*(11), 1090. https://doi.org/10.3390/healthcare12111090

Kim, Y.-H., Kwon, H., Lee, J., & Chiu, C.-Y. (2016). Why Do People Overestimate or Underestimate Their Abilities? A Cross-Culturally Valid Model of Cognitive and Motivational Processes in Self-Assessment Biases. *Journal of Cross-Cultural Psychology*, *47*(9), 1201–1216. https://doi.org/10.1177/0022022116661243

Konda, M., Gould, M., Mangal, R., Daniel, A., Stead, T., & Ganti, L. (2023). The Doctor-Patient relationship: A bibliometric analysis. *Health Psychology Research*, *11*, 1–8. https://doi.org/10.52965/001c.90429

Kors, J. M., Paternotte, E., Martin, L., Verhoeven, C. J., Schoonmade, L., Peerdeman, S. M., & Kusurkar, R. A. (2020). Factors influencing autonomy supportive consultation: A realist review. *Patient Education and Counseling*, *103*(10), 2069–2077. https://doi.org/10.1016/j.pec.2020.04.019

Krajewska-Kułak, E. (2018). Validation Polish version Anderson and Dedrick scale. *Progress in Health Sciences*, *8*(1), 2018–2045. https://doi.org/10.5604/01.3001.0012.1127

Kwissa-Gajewska, Z., & Kroemeke, A. (2022). Physician-patient agreement on physicians' communication skills and visit satisfaction in dermatology clinics: A one-with-many design. *Health Psychology Report*, *10*(1), 68–81. https://doi.org/10.5114/hpr.2021.110574

Lakens, D. (2022). Sample Size Justification. *Collabra: Psychology*, *8*(1). https://doi.org/10.1525/collabra.33267

Langewitz, W., Denz, M., Keller, A., Kiss, A., Rütimann, S., & Wössmer, B. (2002). Spontaneous talking time at start of consultation in outpatient clinic: cohort study. *Bmj*, *325*(7366), 682–683.

Lazcano-Ponce, E., Angeles-Llerenas, A., Rodríguez-Valentín, R., Salvador-Carulla, L., Domínguez-Esponda, R., Astudillo-García, C. I., Madrigal-de León, E., & Katz, G. (2020). Communication patterns in the doctor–patient relationship: evaluating determinants associated with low paternalism in Mexico. *BMC Medical Ethics*, *21*(1), 125. https://doi.org/10.1186/s12910-020-00566-3

Lee, Y.-Y., & Lin, J. L. (2009). The effects of trust in physician on self-efficacy, adherence and diabetes outcomes. *Social Science & Medicine*, *68*(6), 1060–1068.

Lee, Y.-Y., & Lin, J. L. (2011). How much does trust really matter? A study of the longitudinal effects of trust and decision-making preferences on diabetic patient outcomes. *Patient Education and Counseling*, *85*(3), 406–412. https://doi.org/10.1016/j.pec.2010.12.005

Lemmers, A. L., & van der Voort, P. H. J. (2021). Trust in Intensive Care Patients, Family, and Healthcare Professionals: The Development of a Conceptual Framework Followed by a Case Study. *Healthcare, 9*(2), 208. https://doi.org/10.3390/HEALTHCARE9020208

Lenth, R. V. (2001). Some Practical Guidelines for Effective Sample Size Determination. *The American Statistician*, *55*(3), 187–193. https://doi.org/10.1198/000313001317098149

Leonard, M. B., Pursley, D. W. M., Robinson, L. A., Abman, S. H., & Davis, J. M. (2022). The importance of trustworthiness: lessons from the COVID-19 pandemic. *Pediatric Research, 91*(3), 482–485. https://doi.org/10.1038/s41390-021-01866-z

Lerch, S. P., Hänggi, R., Bussmann, Y., & Lörwald, A. (2024). A model of contributors to a trusting patient-physician relationship: a critical review using a systematic search strategy. *BMC Primary Care*, *25*(1), 1–21. https://doi.org/10.1186/S12875-024-02435-Z/FIGURES/2

Lewandowski, R., Goncharuk, A. G., & Cirella, G. T. (2021). Restoring patient trust in healthcare: medical information impact case study in Poland. *BMC Health Services Research*, *21*(1), 865. https://doi.org/10.1186/s12913-021-06879-2

Li, C., Khan, M. M., & Chen, Z. (2023). Public trust of physicians in China improved since the COVID-19 pandemic Began. *Social Science & Medicine*, *320*, 115704. https://doi.org/10.1016/j.socscimed.2023.115704

Liang, F., & Wilson, S. F. (2022). Returning to the core practices of being a doctor to avoid physician burnout. *BMJ*, o2437. https://doi.org/10.1136/bmj.o2437

Linzer, M., Poplau, S., Prasad, K., Khullar, D., Brown, R., Varkey, A., Yale, S., Grossman, E., Williams, E., & Sinsky, C. (2019). Characteristics of Health Care Organizations Associated With Clinician Trust. *JAMA Network Open*, *2*(6), e196201. https://doi.org/10.1001/jamanetworkopen.2019.6201

Liu, X., Zeng, J., Li, L., Wang, Q., Chen, J., & Ding, L. (2024). The Influence of Doctor-Patient Communication on Patients' Trust: The Role of Patient-Physician Consistency and Perceived Threat of Disease. *Psychology Research and Behavior Management*, *17*, 2727–2737. https://doi.org/10.2147/PRBM.S460689

Loban, K., Milland, T., Hales, L., Lam, N. N., Dipchand, C., & Sandal, S. (2025). Understanding the Healthcare Needs of Living Kidney Donors Using the Picker Principles of Patient-centered Care: A Scoping Review. *Transplantation*, *109*(1), 110–122. https://doi.org/10.1097/TP.0000000000005080

LoCurto, J., & Berg, G. M. (2016). Trust in healthcare settings: Scale development, methods, and preliminary determinants. S*AGE Open Medicine, 4*. https://doi.org/10.1177/2050312116664224

Luhmann, N. (2000). Familiarity, Confidence, Trust: Problems and Alternatives. In D. Gambetta (Ed.), *Trust: Making and Breaking Cooperative Relations* (pp. 94–107). University of Oxford.

Luhmann, N. (2018). *Trust and Power*. John Wiley & Sons.

Maas, C. J. M., & Hox, J. J. (2005). Sufficient Sample Sizes for Multilevel Modeling. *Methodology*, *1*(3), 86–92. https://doi.org/10.1027/1614-2241.1.3.86

Mainous III, A. G., Kern, D., Hainer, B., Kneuper-Hall, R., Stephens, J., & Geesey, M. E. (2004). The relationship between continuity of care and trust with stage of cancer at diagnosis. *Cancer*, *13*, 14.

Makara-Studzińska, M. (2017). Modele komunikacji w relacji lekarz-pacjent. In *Komunikacja w opiece medycznej* (pp. 23–32). Medical Education.

Makoul, G., Krupat, E., & Chang, C. H. (2007). Measuring patient views of physician communication skills: Development and testing of the Communication Assessment Tool. *Patient Education and Counseling*, *67*(3), 333–342. https://doi.org/10.1016/j.pec.2007.05.005

Marcus, D. K. (2015). One-with-Many Design. In *The Encyclopedia of Clinical Psychology* (pp. 1–5). Wiley. https://doi.org/10.1002/9781118625392.wbecp027

Marcus, D. K., Kashy, D. A., & Baldwin, S. A. (2009). Studying Psychotherapy Using the One-With-Many Design: The Therapeutic Alliance as an Exemplar. *Journal of Counseling Psychology*, *56*(4), 537–548. https://doi.org/10.1037/a0017291

Marcus, D. K., Kashy, D. A., Wintersteen, M. B., & Diamond, G. S. (2011). The therapeutic alliance in adolescent substance abuse treatment: A one-with-many analysis. *Journal of Counseling Psychology*, *58*(3), 449–455. https://doi.org/10.1037/a0023196

Marlow, N. M., Samuels, S. K., Jo, A., & Mainous, A. G. (2019). Patient-provider communication quality for persons with disabilities: A cross-sectional analysis of the Health Information National Trends Survey. *Disability and Health Journal*, *12*(4), 732–737. https://doi.org/10.1016/j.dhjo.2019.03.010

Mathis, S. M., Hagaman, A., Hagemeier, N., Baker, K., & Pack, R. P. (2020). Provider–patient communication about prescription drug abuse: A qualitative analysis of the perspective of prescribers. *Substance Abuse*, *41*(1), 121–131. https://doi.org/10.1080/08897077.2019.1635956

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust. *The Academy of Management Review, 20*(3).

McCullough, L. B., Coverdale, J. H., & Chervenak, F. A. (2020). Trustworthiness and Professionalism in Academic Medicine. *Academic Medicine*, *95*(6), 828–832. https://doi.org/10.1097/ACM.0000000000003248

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research*, *13*(3), 334–359. https://doi.org/10.1287/isre.13.3.334.81

Mechanic, D., & Schlesinger, M. (1996). The Impact of Managed Care on Patients' Trust in Medical Care and Their Physicians. *JAMA*, *275*(21), 1693–1697.

Messerotti, A., Banchelli, F., Ferrari, S., Barbieri, E., Bettelli, F., Bandieri, E., Giusti, D., Catellani, H., Borelli, E., & Colaci, E. (2020). Investigating the association between physicians self-efficacy regarding communication skills and risk of "burnout." *Health and Quality of Life Outcomes*, *18*, 1–12.

Miller, W. R., & Rollnick, S. (2023). *Motivational Interviewing: Helping People Change and Grow* (4th ed.). Guilford Press.

Montgomery, T., Berns, J. S., & Braddock III, C. H. (2020). Transparency as a Trust-Building Practice in Physician Relationships With Patients. *JAMA: Journal of the American Medical Association*, *324*(23), 2365–2366. https://doi.org/10.1371/journal.pone.0160540

Mooradian, T., Renzl, B., & Matzler, K. (2006). Who trusts? Personality, trust and knowledge sharing. *Management Learning*, *37*(4), 523–540. https://doi.org/10.1177/1350507606073424

Moorman, R. H., Blakely, G. L., & Darnold, T. C. (2018). Understanding How Perceived Leader Integrity Affects Follower Trust: Lessons From the Use of Multidimensional Measures of Integrity and Trust. *Journal of Leadership & Organizational Studies, 25*(3), 277–289. https://doi.org/10.1177/1548051817750544

Moskowitz, D., Thom, D. H., Guzman, D., Penko, J., Miaskowski, C., & Kushel, M. (2011). Is primary care providers' trust in socially marginalized patients affected by race? *Journal of General Internal Medicine*, *26*(8), 846–851. https://doi.org/10.1007/s11606-011-1672-2

Murali, K. M., & Lonergan, M. (2020). Breaking the adherence barriers: Strategies to improve treatment adherence in dialysis patients. *Seminars in Dialysis*, *33*(6), 475–485.

Murphy, J. G., & Dunn, W. F. (2010). Medical errors and poor communication. *Chest*, *138*(6), 1292–1293.

Murphy, M., & Salisbury, C. (2020). Relational continuity and patients' perception of GP trust and respect: a qualitative study. *British Journal of General Practice*, *70*(698), E676–E683. https://doi.org/10.3399/bjgp20X712349

Netemeyer, R. G., Dobolyi, D. G., Abbasi, A., Clifford, G., & Taylor, H. (2020). Health Literacy, Health Numeracy, and Trust in Doctor: Effects on Key Patient Health Outcomes. *Journal of Consumer Affairs*, *54*(1), 3–42. https://doi.org/10.1111/joca.12267

Noble, L. M. (2020). Doctor-patient communication and adherence to treatment. In *Adherence to treatment in medical conditions* (pp. 51–82). CRC Press.

Nong, P. (2023). Demonstrating Trustworthiness to Patients in Data-Driven Health Care. *Hastings Center Report*, *53*(S2), 69–75. https://doi.org/10.1002/hast.1526

Nowak, D. A., Sheikhan, N. Y., Naidu, S. C., Kuluski, K., & Upshur, R. E. G. (2021). Why does continuity of care with family doctors matter? Review and qualitative synthesis of patient and physician perspectives. *Canadian Family Physician*, *67*(9), 679–688.

Ntoumanis, N., Ng, J. Y. Y., Prestwich, A., Quested, E., Hancox, J. E., Thøgersen-Ntoumani, C., Deci, E. L., Ryan, R. M., Lonsdale, C., & Williams, G. C. (2021). A meta-analysis of self-determination theory-informed intervention studies in the health domain: effects on motivation, health behavior, physical, and psychological health. *Health Psychology Review*, *15*(2), 214–244. https://doi.org/10.1080/17437199.2020.1718529

Oh Nelson, H. (2021). Doctor–Patient Relationship. In *The Wiley Blackwell Companion to Medical Sociology* (pp. 495–515). Wiley. https://doi.org/10.1002/9781119633808.ch24

Patel, S., Pelletier-Bui, A., Smith, S., Roberts, M. B., Kilgannon, H., Trzeciak, S., & Roberts, B. W. (2019). Curricula for empathy and compassion training in medical education: A systematic review. *PLoS ONE*, *14*(8). https://doi.org/10.1371/journal.pone.0221412

Patent, V., & Searle, R. H. (2019). Qualitative meta-analysis of propensity to trust measurement. *Journal of Trust Research*, *9*(2), 136–163. https://doi.org/10.1080/21515581.2019.1675074

Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian Journal of Public Health*, *38*(3_suppl), 8–24. https://doi.org/10.1177/1403494809349858

Pérez-Stable, E. J., & El-Toukhy, S. (2018). Communicating with diverse patients: How patient and clinician factors affect disparities. *Patient Education and Counseling*, *101*(12), 2186–2194. https://doi.org/10.1016/j.pec.2018.08.021

Petrocchi, S., Iannello, P., Lecciso, F., Levante, A., Antonietti, A., & Schulz, P. J. (2019). Interpersonal trust in doctor-patient relation: Evidence from dyadic analysis and association with quality of dyadic communication. *Social Science and Medicine*, *235*. https://doi.org/10.1016/j.socscimed.2019.112391

Petrocchi, S., & Rotenberg, K. J. (2024). The Relationships Between Trust Beliefs in Physicians by Children With Asthma, Those by Their Mothers and the Children's Medical Health. *Child: Care, Health and Development*, *50*(6). https://doi.org/10.1111/cch.13334

Piccinini-Vallis, H., Zed, J., & Easley, J. (2023). Comparison of patients' perceptions of family physicians' patient-centeredness between virtual and in-person clinical encounters: A cross-sectional study. *Journal of Family Medicine and Primary Care*, *12*(3), 517–522. https://doi.org/10.4103/jfmpc.jfmpc_1511_22

Pilgrim, D., Tomasini, Floris., & Vassilev, Ivaylo. (2010). Examining trust in healthcare : a multidisciplinary perspective. *Bloomsbury Publishing*, 240.

Raatikainen, E., Savolainen, T., Järvensivu, A., Isacsson, A., Simola-Alha, N., & Heinilä, H. (2023). Trust at work – described by young professionals in the early stages of their careers. *Higher Education, Skills and Work-Based Learning*, *13*(6), 1037–1053. https://doi.org/10.1108/HESWBL-04-2022-0093

Raudenbush, S. W., Brennan, R. T., & Barnett, R. C. (1995). A multivariate hierarchical model for studying psychological change within married couples. *Journal of Family Psychology*, *9*(2), 161–174. https://doi.org/10.1037/0893-3200.9.2.161

Reis, H. T., & Collins, W. A. (2004). Relationships, Human Behavior, and Psychological Science. *Current Directions in Psychological Science*, *13*(6), 233–237. https://doi.org/10.1111/j.0963-7214.2004.00315.x

Rethans, J.-J., Norcini, J. J., Baro´n-Maldonado, M., Blackmore, D., Jolly, B. C., Laduca, T., & Lew, S. (2002). The relationship between competence and performance: implications for assessing practice performance. *Medical Education*, *36*, 901–909.

Ricci, L., Villegente, J., Loyal, D., Ayav, C., Kivits, J., & Rat, A. (2022). Tailored patient therapeutic educational interventions: A patient-centred communication model. *Health Expectations*, *25*(1), 276–289. https://doi.org/10.1111/hex.13377

Rieckmann, P., Centonze, D., Elovaara, I., Giovannoni, G., Havrdová, E., Kesselring, J., Kobelt, G., Langdon, D., Morrow, S. A., Oreja-Guevara, C., Schippling, S., Thalheim, C., Thompson, H., Vermersch, P., Aston, K., Bauer, B., Demory, C., Giambastiani, M. P., Hlavacova, J., … Ben-Amor, A.-F. (2018). Unmet needs, burden of treatment, and patient engagement in multiple sclerosis: A combined perspective from the MS in the 21st Century Steering Group. *Multiple Sclerosis and Related Disorders*, *19*, 153–160. https://doi.org/10.1016/j.msard.2017.11.013

Rooney, M. K., Santiago, G., Perni, S., Horowitz, D. P., McCall, A. R., Einstein, A. J., Jagsi, R., & Golden, D. W. (2021). Readability of Patient Education Materials From High-Impact Medical Journals: A 20-Year Analysis. *Journal of Patient Experience*, *8*. https://doi.org/10.1177/2374373521998847

Rotaru, T.--Ștefan, & Oprea, L. (2015). A patient's trust in their doctor on the framework of Miller's four senses of autonomy. *Studia Ubb Bioethica*, *LX*(1), 41–51.

Roter, D. L., Stewart, M., Putnam, S. M., Lipkin, M., Stiles, W., Inui, T. S., Roter, D., & Hopkins, J. (1997). Communication Patterns of Primary Care Physicians. *Jama*, *277*(4), 350–356.

Röttele, N., Schöpf-Lazzarino, A. C., Becker, S., Körner, M., Boeker, M., & Wirtz, M. A. (2020). Agreement of physician and patient ratings of communication in medical encounters: A systematic review and meta-analysis of interrater agreement. *Patient Education and Counseling, 103*(10), 1873–1882. https://doi.org/10.1016/j.pec.2020.04.002

Rotter, J. B. (1980). Interpersonal trust, trustworthiness, and gullibility. *American Psychologist*, *35*(1), 1–7. https://doi.org/10.1037/0003-066X.35.1.1

Saba, G. W. (2006). Shared Decision Making and the Experience of Partnership in Primary Care. *The Annals of Family Medicine*, *4*(1), 54–62. https://doi.org/10.1370/afm.393

Salmon, P., & Young, B. (2011). Creativity in clinical communication: From communication skills to skilled communication. *Medical Education*, *45*(3), 217–226. https://doi.org/10.1111/j.1365-2923.2010.03801.x

Sapir, T., Moreo, K. F., Greene, L. S., Simone, L. C., Carter, J. D., Mateka, J. J. L., & Hanania, N. A. (2017). Assessing Patient and Provider Perceptions of Factors Associated with Patient Engagement in Asthma Care. *Annals of the American Thoracic Society*, *14*(5), 659–666. https://doi.org/10.1513/AnnalsATS.201608-602OC

Sastrawan, S., Newton, J. M., & Malik, G. (2019). Nurses' integrity and coping strategies: An integrative review. *Journal of Clinical Nursing, 28*(5–6), 733–744. https://doi.org/10.1111/jocn.14702

Savage, S. V. (2011). Patients, Trust, and Patient Participation: Factors Influencing Whether Patients Want to be Active Health Care Participants. In J. Jacobs Kronenfeld (Ed.), *Access to Care and Factors that Impact Access, Patients as Partners in Care and Changing Roles of Health Providers* (Vol. 29, pp. 149–171). Emerald Group Publishing Limited. https://doi.org/10.1108/S0275-4959(2011)0000029009

Schiavo, R., & Chou, W. Y. S. (2023). Reflections and key learnings on the Science of Trust. *Journal of Communication in Healthcare, 16*(4), 315–319. https://doi.org/10.1080/17538068.2023.2281731

Schildmeijer, K., Nilsen, P., Ericsson, C., Broström, A., & Skagerström, J. (2018). Determinants of patient participation for safer care: A qualitative study of physicians' experiences and perceptions. *Health Science Reports*, *1*(10). https://doi.org/10.1002/hsr2.87

Schilke, O., Reimann, M., & Cook, K. S. (2021). Trust in Social Relations. *Annual Review of Sociology*, *47*(1), 239–259. https://doi.org/10.1146/annurev-soc-082120-082850

Schneider-Kamp, A., Nielsen, H. L., & Sodemann, M. (2023). Patientology revisited: Toward tailored care pathways. *Journal of Evaluation in Clinical Practice*, *29*(3), 472–484. https://doi.org/10.1111/jep.13792

Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An Integrative Model Of Organizational Trust: Past, Present, And Future. *Academy of Management Review*, *32*(2), 344-354.

Serrano Archimi, C., Reynaud, E., Yasin, H. M., & Bhatti, Z. A. (2018). How Perceived Corporate Social Responsibility Affects Employee Cynicism: The Mediating Role of Organizational Trust. *Journal of Business Ethics*, *151*, 907–921.

Silverman, J., Kurtz, S., & Draper, J. (2013). *Skills for Communicating with Patients* (3rd ed.). CRC Press.

Siminoff, L. A., Graham, G. C., & Gordon, N. H. (2006). Cancer communication patterns and the influence of patient characteristics: Disparities in information-giving and affective behaviors. *Patient Education and Counseling*, *62*(3), 355–360. https://doi.org/10.1016/j.pec.2006.06.011

Skirbekk, H., Magelssen, M., & Conradsen, S. (2023). Trust in healthcare before and during the COVID-19 pandemic. *BMC Public Health*, *23*(1). https://doi.org/10.1186/s12889-023-15716-6

Skirbekk, H., Middelthon, A. L., Hjortdahl, P., & Finset, A. (2011). Mandates of trust in the doctor-patient relationship. *Qualitative Health Research*, *21*(9), 1182–1190. https://doi.org/10.1177/1049732311405685

Slavin, S. (2019). Preventing physician burnout: satisfaction or something more? *Israel Journal of Health Policy Research*, *8*(1), 34.

Sousa-Duarte, F., Brown, P., & Mendes, A. M. (2020). Healthcare professionals' trust in patients: A review of the empirical and theoretical literatures. *Sociology Compass*, *14*(10), 1–15. https://doi.org/10.1111/soc4.12828

Stewart, M. A. (1995). Effective Physician-Patient Communication And Health Outcomes: A Review. *Canadian Medical Association Journal*, *152*(9), 1423–1433.

Stewart, M., Brown, J. B., Weston, W. W., Freeman, T., Ryan, B. L., McWilliam, C. L., & McWhinney, I. R. (2024). *Patient-centered medicine: transforming the clinical method*. CRC press.

Stiefel, F., Bourquin, C., Salmon, P., Achtari Jeanneret, L., Dauchy, S., Ernstmann, N., Grassi, L., Libert, Y., Vitinius, F., Santini, D., & Ripamonti, C. I. (2024). Communication and support of patients and caregivers in chronic cancer care: ESMO Clinical Practice Guideline. *ESMO Open*, *9*(7). https://doi.org/10.1016/j.esmoop.2024.103496

Stivers, T., & Tate, A. (2023). The Role of Health Care Communication in Treatment Outcomes. *Annual Review of Linguistics, 9*, 233–252. https://doi.org/10.1146/annurev-linguistics-030521-054400

Stivers, T., & Timmermans, S. (2020). Medical Authority under Siege: How Clinicians Transform Patient Resistance into Acceptance. *Journal of Health and Social Behavior*, *61*(1), 60–78. https://doi.org/10.1177/0022146520902740

Street, R. L., Gordon, H., & Haidet, P. (2007). Physicians' communication and perceptions of patients: Is it how they look, how they talk, or is it just the doctor? *Social Science & Medicine*, *65*(3), 586–598. https://doi.org/10.1016/j.socscimed.2007.03.036

Street, R. L., Makoul, G., Arora, N. K., & Epstein, R. M. (2009). How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Education and Counseling*, *74*(3), 295–301. https://doi.org/10.1016/j.pec.2008.11.015

Strokes, N., Lloyd, C., Girardin, A. L., Santana, C. S., Mangus, C. W., Mitchell, K. E., Hughes, A. R., Nelson, B. B., Gunn, B., & Schoenfeld, E. M. (2025). Can shared decision-making interventions increase trust/trustworthiness in the physician-patient encounter? A scoping review. *Patient Education and Counseling*, *135*, 108705. https://doi.org/10.1016/j.pec.2025.108705

Suzuki, R., Yajima, N., Sakurai, K., Oguro, N., Wakita, T., Thom, D. H., & Kurita, N. (2022). Association of Patients' Past Misdiagnosis Experiences with Trust in Their Current Physician Among Japanese Adults. *Journal of General Internal Medicine*, *37*(5), 1115–1121. https://doi.org/10.1007/s11606-021-06950-y

Swenson, S. L., Buell, S., Zettler, P., White, M., Ruston, D. C., & Lo, B. (2004). Patient-centered Communication Do Patients Really Prefer It? *Journal of General Internal Medicine*, *19*, 1069–1079.

Świątoniowska, N., Sarzyńska, K., Szymańska-Chabowska, A., & Jankowska-Polańska, B. (2019). The role of education in type 2 diabetes treatment. *Diabetes Research and Clinical Practice*, *151*, 237–246. https://doi.org/10.1016/j.diabres.2019.04.004

Świątoniowska-Lonc, N., Polański, J., Tański, W., & Jankowska-Polańska, B. (2020). Impact of satisfaction with physician–patient communication on self-care and adherence in patients with hypertension: cross-sectional study. *BMC Health Services Research*, *20*(1). https://doi.org/10.1186/s12913-020-05912-0

Tabachnick, B. G., & Fidell, L. S. (2014). *Using Multivariate Statistics* (6th ed.). Pearson.

Tavakoly Sany, S. B., Behzhad, F., Ferns, G., & Peyman, N. (2020). Communication skills training for physicians improves health literacy and medical outcomes among patients with hypertension: a randomized controlled trial. *BMC Health Services Research*, *20*(1), 60. https://doi.org/10.1186/s12913-020-4901-8

Taylor, L. A., Nong, P., & Platt, J. (2023). Fifty Years of Trust Research in Health Care: A Synthetic Review. *Milbank Quarterly*, *101*(1), 126–178. https://doi.org/10.1111/1468-0009.12598

Thakur, T., Frey, M., & Chewning, B. (2021). Communication between patients and health care professionals about opioid medications. *Exploratory Research in Clinical and Social Pharmacy*, *2*, 100030. https://doi.org/10.1016/j.rcsop.2021.100030

Thom, D. H. (2001). Physician Behaviors that Predict Patient Trust. *The Journal of Family Medicine & Practice, 50*(04), 323-328

Thom, D. H., Ribisl, K. M., Stewart, A. L., Luke, D. A., & Stanford, T. (1999). Further Validation and Reliability Testing of the Trust in Physician Scale. *Trust Study Physicians Source: Medical Care, 37*(5).

Thom, D. H., Wong, S. T., Guzman, D., Wu, A., Penko, J., Miaskowski, C., & Kushel, M. (2011). Physician Trust in the Patient: Development and Validation of a New Measure. *The Annals of Family Medicine*, *9*(2), 148–154. https://doi.org/10.1370/afm.1224

Thompson, L., & McCabe, R. (2012). The effect of clinician-patient alliance and communication on treatment adherence in mental health care: A systematic review. *BMC Psychiatry*, *12*. https://doi.org/10.1186/1471-244X-12-87

Thorne, S. E., & Robinson, C. A. (1988). Reciprocal trust in health care relationships. *Journal of Advanced Nursing*, *13*(6), 782–789.

Timmermans, S. (2020). The Engaged Patient: The Relevance of Patient–Physician Communication for Twenty-First-Century Health. *Journal of Health and Social Behavior*, *61*(3), 259–273. https://doi.org/10.1177/0022146520943514

Tiwary, A., Rimal, A., Paudyal, B., Sigdel, K. R., & Basnyat, B. (2019). Poor communication by health care professionals may lead to life-threatening complications: examples from two case reports. *Wellcome Open Research*, *4*.

Tofan, G., Bodolica, V., & Spraggon, M. (2013). Governance mechanisms in the physician–patient relationship: a literature review and conceptual framework. *Health Expectations*, *16*(1), 14–31. https://doi.org/10.1111/j.1369-7625.2012.00807.x

Tomlinson, E. C., Schnackenberg, A. K., Dawley, D., & Ash, S. R. (2020). Revisiting the trustworthiness–trust relationship: Exploring the differential predictors of cognition- and affect-based trust. *Journal of Organizational Behavior*, *41*(6), 535–550. https://doi.org/10.1002/job.2448

Trachtenberg, F., Dugan, E., & Hall, M. A. (2005). How patients' trust relates to their involvement in medical care. *Journal of Family Practice*, *54*(4), 344–354.

Tringale, M., Stephen, G., Boylan, A.-M., & Heneghan, C. (2022). Integrating patient values and preferences in healthcare: a systematic review of qualitative evidence. *BMJ Open*, *12*(11), e067268. https://doi.org/10.1136/bmjopen-2022-067268

Turabian, J. (2019). Psychology of doctor-patient relationship in general medicine. *Archives of Community Medicine and Public Health*, *5*(2), 062–068. https://doi.org/10.17352/2455-5479.000056

Uckelstam, C. J., Holmqvist, R., Philips, B., & Falkenström, F. (2020). A relational perspective on the association between working alliance and treatment outcome. *Psychotherapy Research*, *30*(1), 13–22. https://doi.org/10.1080/10503307.2018.1516306

Vallis, M., Jin, S., Klimek-Abercrombie, A., Bunko, A., Kukaswadia, A., Neish, C. S., & Ivers, N. M. (2023). Understanding strategies to improve medication adherence among persons with type 2 diabetes: A scoping review. *Diabetic Medicine*, *40*(1), e14941.

van Andel, J., Gómez-Pérez, G. P., Otieno, P., Siteyi, A., Teerling, J., Rinke de Wit, T., & Asiki, G. (2025). Rethinking chronic care: how blended patient-centered care delivery and innovative financing models can contribute to achieving universal health coverage—a case study of an integrated approach in Kenya. *Oxford Open Digital Health*, *3*. https://doi.org/10.1093/oodh/oqaf002

Van Den Assem, B., & Dulewicz, V. (2015). Doctors' trustworthiness, practice orientation, performance and patient satisfaction. *International Journal of Health Care Quality Assurance*, *28*(1), 82–95. https://doi.org/10.1108/IJHCQA-04-2013-0037

Van Scoy, L. J., Scott, A. M., Green, M. J., Witt, P. D., Wasserman, E., Chinchilli, V. M., & Levi, B. H. (2022). Communication Quality Analysis: A User-friendly Observational Measure of Patient–Clinician Communication. *Communication Methods and Measures*, *16*(3), 215–235. https://doi.org/10.1080/19312458.2022.2099819

Vanneste, B. S., Puranam, P., & Kretschmer, T. (2014). Trust over time in exchange relationships: Meta-analysis and theory. *Strategic Management Journal*, *35*(12), 1891–1902. https://doi.org/10.1002/smj.2198

Venechuk, G., Allen, L. A., Thompson, J. S., Morris, M. A., Matlock, D. D., McIlvennan, C. K., Dickert, N. W., & Tietbohl, C. (2023). Trust and activation in defining patient-clinician interactions for chronic disease management. *Patient Education and Counseling*, *106*, 113–119. https://doi.org/10.1016/j.pec.2022.09.012

Waidyaratne, G., Steinbrook, E., Roy, S., Opoku, A., Jaffe, K., & Goold, S. D. (2023). Trust and distrust in low-income Michigan residents during the early COVID-19 pandemic: A qualitative study. *Health Expectations*, *26*(6), 2245–2251. https://doi.org/10.1111/hex.13826

Wei, D., Xu, A., & Wu, X. (2020). The mediating effect of trust on the relationship between doctor–patient communication and patients' risk perception during treatment. *PsyCh Journal*, *9*(3), 383–391. https://doi.org/10.1002/pchj.327

Weiss, A., Burgmer, P., Ockenfels, A., Michels, C., Mussweiler, T., & Hofmann, W. (2021). Trust in Everyday Life. *Journal of Personality and Social Psychology: Interpersonal Relations and Group Processes*, *121*(1), 95–114. https://doi.org/10.1037/pspi0000334.supp

Wilk, A. S., & Platt, J. E. (2016). Measuring physicians' trust: A scoping review with implications for public policy. *Social Science & Medicine*, *165*, 75–81. https://doi.org/10.1016/j.socscimed.2016.07.039

Williams, M. (2001). In Whom We Trust: Group Membership As An Affective Context For Trust Development. *Management Review, 26*(3), 377-396.

Williamson, L. D., Thompson, K. M., & Ledford, C. J. W. (2022). Trust Takes Two... *Journal of the American Board of Family Medicine*, *35*(6), 1179–1182. https://doi.org/10.3122/jabfm.2022.220126R1

Wright, E. B., Holcombe, C., & Salmon, P. (2004). Doctors' communication of trust, care, and respect in breast cancer: Qualitative study. *British Medical Journal*, *328*(7444), 864–867. https://doi.org/10.1136/bmj.38046.771308.7c

Wróblewska, I., & Steciwko, A. (2013). Zaufanie jako jeden z najistotniejszych czynników umożliwiających prawidłowe porozumiewanie się pomiędzy lekarzem a pacjentem. [Trust as one of the most important factors enabling proper communication between doctor and patient.] In *Relacja lekarz-pacjent [Doctor-patient relationship].* (A. Steciwko & J. Barański, Eds.). Elsevier Urban & Partner.

Wu, Q., Jin, Z., & Wang, P. (2022). The Relationship Between the Physician-Patient Relationship, Physician Empathy, and Patient Trust. *Journal of General Internal Medicine*, *37*(6), 1388–1393. https://doi.org/10.1007/S11606-021-07008-9/FIGURES/2

Yamagishi, T., & Yamagishi, M. (1994). Trust and Commitment in the United States and Japan. *Motivation and Emotion, 18*(2), 129-166.

Yeom, H., & Lee, J. (2022). The association of education level with autonomy support, self-efficacy and health behaviour in patients with cardiovascular risk factors. *Journal of Clinical Nursing*, *31*(11–12), 1547–1556. https://doi.org/10.1111/jocn.16008

Zeffane, R. (2020). Gender, individualism-collectivism and individuals' propensity to trust: A comparative exploratory study. *Journal of Management and Organization*, *26*(4), 445–459. https://doi.org/10.1017/jmo.2017.57

Zhang, H., Zhang, R., Lu, X., & Zhu, X. (2020). Impact of Personal Trust Tendency on Patient Compliance Based on Internet Health Information Seeking. *Telemedicine and E-Health*, *26*(3), 294–303. https://doi.org/10.1089/tmj.2018.0296

Zhang, M. (2021). Assessing Two Dimensions of Interpersonal Trust: Other-Focused Trust and Propensity to Trust. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.654735

Appendix

Appendix 1. The patient diagnoses

Diagnosis	Counts	% of Total
Hypertension	72	35.5 %
Bone cancer	1	0.5 %
Chronic obstructive pulmonary disease	6	3.0 %
Chronic renal insufficiency	3	1.5 %
Atherosclerosis	4	2.0 %
Thrombosis	12	5.9 %
Stroke	5	2.5 %
Anemia	14	6.9 %
Pericardial effusion	2	1.0 %
Polycythemia	3	1.5 %
Multiple myeloma	2	1.0 %
Lung cancer	3	1.5 %
Diabetes	10	4.9 %
Rheumatoid arthritis	21	10.3 %
Gastric cancer	3	1.5 %
Osteoarthritis	2	1.0 %
Granulomatosis with polyangiitis	6	3.0 %
Systemic sclerosis	3	1.5 %
Psoriatic arthritis	2	1.0 %
Carcinoid syndrome	1	0.5 %
Colon cancer	1	0.5 %
Sarcoidosis	3	1.5 %
Spondylosis	5	2.5 %
Arrhythmia	3	1.5 %
Subdural abscess	1	0.5 %
Sjogren's syndrome	3	1.5 %
Fasciitis	1	0.5 %
Gout	1	0.5 %
Mixed connective tissue disease	1	0.5 %
Erythema nodosum	1	0.5 %
Nodular arteritis	1	0.5 %
Lupus	4	2.0 %
Heart failure	2	1.0 %
Eosinophilic granulomatosis with polyangiitis	1	0.5 %

Appendix 2. All tools implemented in the study.

2A. Disposition to Trust & Trusting Beliefs Measure

Skala Przekonań o Zaufaniu ŻUK: Życzliwość, Uczciwość i Kompetencje

D. Harrison McKnight, Vivek Choudhury & Charles Kacmar

Polska adaptacja: Marta Błaszyk, Natalie Pośpiech & Aleksandra Kroemeke

Podskala przekonań na temat zaufania:

Wersja dla lekarza

Proszę teraz pomyśleć o sobie, w kontekście wykonywanego zawodu lekarza. Dla każdego stwierdzenia proszę wskazać, w jakim stopniu zgadza się z nim Pani/Pan.

1- Zdecydowanie się nie zgadzam

2- Nie zgadzam się

3- Raczej się nie zgadzam

4- Ani się zgadzam, ani się nie zgadzam

5- Raczej się zgadzam

6- Zgadzam się

7- Zdecydowanie się zgadzam

1. Zawsze działam w najlepszym interesie pacjenta.
2. W razie potrzeby dołożyłbym/dołożyłabym wszelkich starań, aby pomóc pacjentowi.
3. Dbam o zdrowie pacjentów, a nie o własne korzyści.
4. Jestem prawdomówny/prawdomówna w stosunku do pacjentów.
5. Jako lekarza, cechuje mnie szczerość.
6. Dotrzymuję danego pacjentowi słowa.
7. Jestem szczery/szczera i autentyczny/autentyczna w kontakcie z pacjentami.
8. Czuję, że mam wszelkie umiejętności, aby zapewnić pacjentom jak najlepszą pomoc.
9. W mojej ocenie, bardzo dobrze wypełniam swoje obowiązki zawodowe.
10. Wydaje mi się, że sprawnie i efektywnie udzielam porad medycznych.
11. Uważam, że mam rozległą wiedzę medyczną.

Wersja dla pacjenta

Proszę teraz pomyśleć o swoim lekarzu prowadzącym. Dla każdego stwierdzenia proszę wskazać, w jakim stopniu zgadza się z nim Pan/Pani.

1- Zdecydowanie się nie zgadzam
2- Nie zgadzam się
3- Raczej się nie zgadzam
4- Ani się zgadzam, ani się nie zgadzam
5- Raczej się zgadzam
6- Zgadzam się
7- Zdecydowanie się zgadzam

1. Wierzę, że mój lekarz prowadzący działa w moim najlepszym interesie.
2. W razie potrzeby wiem, że mój lekarz prowadzący dołoży wszelkich starań, aby mi pomóc.
3. Mój lekarz prowadzący dba o moje zdrowie, a nie o własne korzyści.
4. Mój lekarz prowadzący jest prawdomówny w stosunku do mnie.
5. Uważam, że mojego lekarza prowadzącego cechuje szczerość.
6. Mój lekarz prowadzący dotrzymałby danego mi słowa.
7. Mój lekarz prowadzący jest szczery i autentyczny.
8. Mój lekarz prowadzący ma wszelkie umiejętności, aby zapewnić mi jak najlepszą pomoc.
9. Mój lekarz prowadzący bardzo dobrze wypełnia swoje obowiązki zawodowe.
10. Mój lekarz prowadzący sprawnie i efektywnie udziela porad medycznych.
11. Mój lekarz prowadzący ma rozległą wiedzę medyczną.

2B. Propensity to Trust Scale

Skala Skłonności do Ufania

M. Lance Frazier, Paul D. Johnson & Stav Fainshmidt

Polska adaptacja: Marta Błaszyk, Natalie Pośpiech & Aleksandra Kroemeke

Proszę wskazać, w jakim stopniu zgadza się Pan/Pani z każdym stwierdzeniem:

1- Zdecydowanie się nie zgadzam
2- Nie zgadzam się
3- Trudno powiedzieć
4- Zgadzam się
5- Zdecydowanie się zgadzam

1. Przeważnie jestem ufny w stosunku do ludzi, dopóki nie zawiodą mojego zaufania.

2. Z łatwością ufam innym ludziom.

3. Zazwyczaj ufam nowopoznanym osobom, dopóki nie zawiodą mojego zaufania.

4. Z natury jestem ufny.

2C. Trust in Physician Scale

Skala Zaufania do Lekarza

Lynda A. Anderson & Robert F. Dendrick

Polska adaptacja: E. Krajewska-Kułak, W. Kułak, C. Łukaszuk, J. Lewko, P. Sengupta, M. Cybulski, A. Guzowski, K. Kowalczuk, B. Jankowiak, B. Kowalewska, D. Kondzior, H. Rolka, A. Baranowska, A. Lankau, K. Klimaszewska, M. Sierakowska, K. Krajewska-Ferishah, A. Szyszko-Perłowska

Poniżej znajdują się stwierdzenia, z którymi możesz się zgadzać lub nie zgadzać. Obok każdej wypowiedzi jest skala, która waha się od zdecydowanie zgadzam się do zdecydowanie nie zgadzam się. Dla każdego elementu skali proszę zaznaczyć liczbę reprezentującą stopień, w jakim się zgadzasz lub nie zgadzasz z danym stwierdzeniem. Upewnij się, że odpowiadasz na każdy element i zaznaczasz tylko jeden numer przy danym problemie skali. Ważne jest, aby odpowiadać tak, jak w rzeczywistości uważasz, a nie w zależności od tego, jak sądzisz, że powinieneś uważać lub jak myśleć, że można zareagować.

1 = Zdecydowanie nie zgadzam się

2 = Nie zgadzam się

3 = Ani tak ani nie

4 = Zgadzam się

5 = Zdecydowanie zgadzam się

1. Wątpię, że mój lekarz naprawdę troszczy się o moją osobę. *
2. Mój lekarz zwykle rozpatruje moje potrzeby i stawia je na pierwszym miejscu.
3. Ufam bardzo mojemu lekarzowi, dlatego zawsze stosuję się do jego rad.
4. Jeżeli mój lekarz coś mówi, zawsze musi być to prawda.
5. Czasami nie ufam mojemu lekarzowi.*
6. Ufam orzeczeniom i opiniom mojego lekarza.
7. Czuję, że mój lekarz nie robi wszystkiego co powinien dla mojej opieki medycznej.*

8. Ufam mojemu lekarzowi co do sposobu leczenia moich schorzeń.
9. Mój lekarz jest prawdziwym ekspertem w leczeniu chorób.
10. Mogę powiedzieć mojemu lekarzowi, jeżeli popełni błąd.
11. Czasami obawiam się, że mój lekarz nie dochowa tajemnicy.*

Note. *Pozycje odwrócone.

2D. Physician Trust in the Patient Scale

Skala Zaufania do Pacjenta

David H. Thom, Sabrina T. Wong, David Guzman, Amery Wu, Joanne Penko, Christine Miaskowski & Margot Kushel

Polska adaptacja: Marta Błaszyk & Aleksandra Kroemeke

Opis: Na ile jest Pan pewien/jest Pani pewna, że ten pacjent/ta pacjentka…

1. Dostarczy Panu/Pani wszystkich informacji medycznych, których Pan/Pani potrzebuje?
2. Poinformuje Pana/Panią, gdy nastąpi poważna zmiana w jego lub jej stanie zdrowia?
3. Powie Panu/Pani o wszystkich stosowanych terapiach?
4. Rozumie, co mu/jej Pan/Pani mówi?
5. Postępuje zgodnie z zalecanym przez Pana/Panią planem leczenia?
6. Będzie aktywnie zaangażowany/zaangażowana w radzenie sobie ze swoim stanem/problemem zdrowotnym?
7. Powiedziałby/powiedziałaby Panu/Pani o nieprzestrzeganiu planu leczenia?
8. Będzie szanował/szanowała Pana/Pani czas?
9. Będzie szanował/szanowała Pana/Pani granice osobiste?
10. Nie będzie stawiał/stawiała nieuzasadnionych żądań?
11. Nie będzie wykorzystywał/wykorzystywała wizyty lekarskiej do uzyskania bezpodstawnych świadczeń medycznych (np. nienależnego orzeczenia o niepełnosprawności lub nieadekwatnej recepty)?
12. Będzie dotrzymywał/dotrzymywała terminów swoich wizyt?

Skala odpowiedzi:

1 = całkowicie niepewny/niepewna

2 = raczej niepewny/niepewna

3 = trudno powiedzieć

4 = raczej pewny/pewna

5 = całkowicie pewny/pewna

2E. Matched-Pair Instrument

Kwestionariusz Umiejętności Komunikacji Lekarza z Pacjentem

Craig Campbell, Jocelyn Lockyer, Toni Laidlaw & Heather MacLeod, 2007

Polska adaptacja: Zuzanna Kwissa-Gajewska, 2022

Wersja dla lekarza:

Poniżej znajdują się stwierdzenia przeznaczone do opisu zachowań lekarza podczas konsultacji. **Proszę pomyśleć o właśnie przeprowadzonej konsultacji.** Proszę opisać swoje zachowanie w tej sytuacji, używając poniższych stwierdzeń. Przy każdym stwierdzeniu proszę zakreślić kółkiem wybraną cyfrę na skali od 1 do 5, która najlepiej określa nasilenie Pana(i) zachowania. Krańcowe wartości oznaczają: **1** - wcale nie, **5** – zdecydowanie tak.

1. Przywitałam/em pacjenta w taki sposób, żeby poczuł się swobodnie.
2. Omówiłam/em z pacjentem powody, dla których się do mnie zgłosił/a.
3. Zachęciłam/em pacjenta, żebym powiedział, co myśli o swoich problemach zdrowotnych.
4. Uważnie słuchałam/em tego, co pacjent miał do powiedzenia.
5. Zrozumiałam/em to, co miał do powiedzenia.
6. Jeśli badanie lekarskie było konieczne z powodu problemów pacjenta ze zdrowiem, dokładnie wyjaśniłam/em, co zrobiono i dlaczego.
7. Objaśniłam/em pacjentowi, jakie badania laboratoryjne są potrzebne (np. badanie krwi, rentgen, ultrasonografia, itd.)
8. Omówiłam/em z pacjentem sposoby leczenia, jakie są do wyboru.
9. Udzieliłam/em pacjentowi tyle informacji, ile chciał.
10. Upewniłam/em się, czy planowane leczenie jest dla pacjenta do przyjęcia.
11. Wyjaśniłam/em pacjentowi, jakie leki będzie przyjmował (jeśli jakieś zalecono), a także jakie mogą być ich skutki uboczne.
12. Zachęcałem/em pacjenta do zadawania pytań.
13. Odpowiadałam/em na pytania i obawy pacjenta.
14. Umożliwiałam/em pacjentowi udział w podejmowaniu decyzji, kiedy tylko tego chciał.
15. Omówiłam/em z pacjentem dalsze etapy postępowania, w tym wszelkie planowane badania kontrolne.
16. Upewniłem/em się, czy pacjent wszystko zrozumiał.

17. Okazałam/em troskę i zainteresowanie pacjentowi.
18. Spędziłam/em z pacjentem tyle czasu, ile trzeba.
19. Ogólnie jestem zadowolona/y z dzisiejszej wizyty.

Wersja dla pacjenta:

Poniżej znajdują się stwierdzenia przeznaczone do opisu zachowań lekarza podczas konsultacji. Proszę pomyśleć o właśnie odbytej konsultacji lekarskiej. Proszę opisać zachowanie lekarza podczas wizyty, używając poniższych stwierdzeń. Przy każdym stwierdzeniu proszę zakreślić kółkiem wybraną cyfrę na skali od 1 do 5, która najlepiej określa nasilenie jej/jego zachowania.

Krańcowe wartości oznaczają: 1 - wcale nie, 5 – zdecydowanie tak.

Ten lekarz:

1. Przywitał się ze mną w taki sposób, że poczułam/em się swobodnie.
2. Omówił ze mną, z jakiego powodu się zgłosiłam/em.
3. Zachęcił mnie, żebym powiedział/a, co myślę o swoich problemach zdrowotnych.
4. Uważnie słuchał, co mam do powiedzenia.
5. Zrozumiał to, co miałam/em do powiedzenia.
6. Jeśli badanie lekarskie było konieczne z powodu Twoich problemów ze zdrowiem, lekarz dokładnie wyjaśnił, co zrobiono i dlaczego.
7. Objaśnił mi, jakie badania laboratoryjne są potrzebne (np. badanie krwi, rentgen, ultrasonografia, itd.)
8. Omówił ze mną sposoby leczenia, jakie są do wyboru.
9. Udzielił mi tyle informacji, ile chciałam/em.
10. Upewnił się, czy planowane leczenie jest dla mnie do przyjęcia.
11. Wyjaśnił mi, jakie leki będę przyjmował/a (jeśli jakieś zalecono), a także jakie mogą być ich skutki uboczne.
12. Zachęcał mnie do zadawania pytań.
13. Odpowiadał na moje pytania i obawy.
14. Umożliwiał mi udział w podejmowaniu decyzji, kiedy tylko chciałam/em.
15. Omówił dalsze etapy postępowania, w tym wszelkie planowane badania kontrolne.
16. Upewnił się, czy wszystko zrozumiałam/em.
17. Okazał troskę i zainteresowanie moją osobą.
18. Spędził ze mną tyle czasu, ile trzeba.
19. Ogólnie jestem zadowolona/y ze swojej dzisiejszej wizyty u lekarza.

2F. Output variables

Zmienne wynikowe – kwestionariusz autorski

Wersja dla lekarza:

1. Na ile jest Pani/Pan pewna/pewien, że ta pacjentka/ten pacjent zastosuje się do zaproponowanego leczenia?

Wcale nie	Raczej nie	Ani tak ani nie	Raczej tak	Zdecydowanie tak

2. Jak ocenia Pani/Pan swoją relację z tą pacjentką/tym pacjentem?

Źle	Raczej źle	Ani źle ani dobrze	Raczej dobrze	Bardzo dobrze

3. Jak ogólnie ocenia Pani/Pan satysfakcję z dzisiejszej wizyty?

Źle	Raczej źle	Ani źle ani dobrze	Raczej dobrze	Bardzo dobrze

4. Jak ocenia Pani/Pan chęć zaangażowania się tej pacjentki/tego pacjenta w zaproponowany dzisiaj plan leczenia?

Źle	Raczej źle	Ani źle ani dobrze	Raczej dobrze	Bardzo dobrze

Wersja dla pacjenta:

Proszę odpowiedzieć na poniższe pytania, zaznaczając odpowiedzi, które najlepiej odzwierciedlają Pani/Pana odczucia:

1. Na ile jest Pani/Pan pewna/pewny, że ten lekarz zaproponował najlepsze dla Pani/Pana leczenie?

Wcale nie	Raczej nie	Ani tak ani nie	Raczej tak	Zdecydowanie tak

2. Jak ocenia Pani/Pan swoją relację z tym lekarzem?

Bardzo źle	Raczej źle	Ani źle ani dobrze	Raczej dobrze	Bardzo dobrze

3. Czy poleciłaby Pani/poleciłby Pan tego specjalistę innym?

Zdecydowanie nie	Raczej nie	Ani tak ani nie	Raczej tak	Zdecydowanie tak

4. Jak ogólnie ocenia Pani/Pan satysfakcję z dzisiejszej wizyty?

Źle	Raczej źle	Ani źle ani dobrze	Raczej dobrze	Bardzo dobrze

5. Na ile planuje się Pani/Pan zaangażować w zaproponowany dzisiaj plan leczenia?

Wcale nie	Raczej nie	Ani tak ani nie	Raczej tak	Zdecydowanie tak

Appendix 3. Polish adaptation and validation of implemented tools.

3A. Disposition to Trust & Trusting Beliefs Measure

Skala Przekonań o Zaufaniu ŻUK: Życzliwość, Uczciwość i Kompetencje

The Polish adaptation of this tool is already prepared for publication, titled: *Medical contextualization of Mayer's Trustworthiness Factors Scale of Organizational Trust – Polish adaptation and validation*

The study sample consisted of 307 physicians (139 men, 168 women). Their professional experience ranged between 1 and 49 years (*M* = 19, *SD* = 13), and age between 25 and 72 years (*M* = 45, *SD* = 13).

The tool comprised two parts: Disposition to Trust (DT) and Trusting Beliefs (TB). DT (9 items) measures general disposition to trust in others, and TB (11 items) measures trusting beliefs in a particular context (originally, the organizational one). The first stage of the adaptation procedure concerned the medical contextualization of original TB items (patients' beliefs about their attending physician). Subsequently, the self-assessment version for physicians was developed. In the next step, the translation and back-translation were prepared. Obtaining a satisfying similarity between translations completed the process of developing the Polish version of the tool.

In the next stage, the psychometric properties of the tool were determined. Three factors were extracted in Exploratory Factor Analysis (EFA). Scales obtained .85 (DT) and .87 (TB) in Kaiser-Meyer-Olkin Measure (KMO) – great according to the referent values. Factor loadings of all items were above .7 in DT, and 10 out of 11 were above .5 in TB. Confirmatory Factor Analysis (CFA) for DT and TB was performed next. Three-factor solutions obtained good or great fit indices (CMIN/DF, CFI, NFI, GFI, RMSEA). Subsequently, internal reliability of all subscales was computed using Cronbach's alphas (α). The αs for DT were .83, .84, and .85 for benevolence, integrity, and competence, respectively. In case of TB, the obtained αs were as follows: .81, .83, and .90 for benevolence, integrity, and competence, respectively. The convergent, discriminant, theoretical, and criterion validity also achieved satisfactory parameters.

After completing the entire validation process, the scale proved to be suitable for use in the main study.

3B. Propensity to Trust Scale

Skala Skłonności do Ufania

M. Lance Frazier, Paul D. Johnson & Stav Fainshmidt

Polska adaptacja: Marta Błaszyk, Natalie Pośpiech & Aleksandra Kroemeke

The same adaptation and validation procedures were performed for the Propensity to Trust Scale (PTS). The scale consists of four items. The study sample was the same as in previous adaptations. According to the original version of the scale, only one factor was extracted in EFA (Principal Axis Factoring). The KMO obtained a great value of .82. All factor loadings were above the cutoff criteria of .7.

In the subsequent step, the CFA was performed. The tested one-factor solution achieved satisfactory values of all estimated fit indices (CMIN/DF = 3.36, CFI = .99, NFI = .99, GFI = 1, RMSEA = .09). The Cronbach's alpha was $\alpha = .88$, indicating excellent internal reliability of the scale. Similarly to the Disposition to Trust & Trusting Beliefs Measure, the Propensity to Trust Scale attained good convergent, discriminant, theoretical, and criterion validity values. Therefore, the tool was implemented in the main study.