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**The Process of Trusting a Healthcare System:
Theory and Evidence from Italy and
the United States**

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Acknowledgments

This thesis is about health systems and trust. Still, most of all, it is about how I think about the world and the enormous importance that human relationships play for me in making sense of reality and building systems where trust and care become components of value creation. Every page of this research tells that story. It tells of all the moments when someone, consciously or unconsciously, enabled me to learn more about myself or the world. But it also tells of the moments when I could trust those who cared about me or my scientific and professional growth and helped me build something good—or at least something decent!

Completing this PhD has been an experience full of ups and downs (and downs and downs). I cannot forget the feeling of insecurity that has characterized this trip from the first day to the last one. The fact that I was able to achieve this goal is undoubtedly due to my curiosity, my perseverance and my tenacity (after all, I am Sardinian), but also and above all to all the people who accompanied me on this journey, who spurred me on and encouraged me to have confidence in my resources. Without these people, I would never have made it, so, at this point, I can only express my gratitude.

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Introduction

Now more than ever, the study of public trust is of crucial importance due to the complexities and uncertainties that individuals face on a daily basis. In particular, trust in public administration as well as in service provision is particularly relevant as it helps to “foster an effective and performance driven public sector, delivering better public services more efficiently” (OECD, 2011, p. 7). According to Bouckaert (2012), citizens’ trust of their public-sector organizations or specific policies, or their public sector as such, at the micro level

“creates a willingness to use the system, to follow regulations. [...] to choose *ceteris paribus* for public education, security, health, and to allocate budgets to these policy fields, rather than opting for private education, security or health. [...] to support policies at the meso level.” (p. 13).

Moreover, trust lowers transaction costs and has a positive impact on cooperation and compliance. Two aspects that are of crucial importance in the provision of healthcare services. Indeed, although the information asymmetry between patients and healthcare providers exposes patients to uncertainty and risk (M. Calnan & Rowe, 2006), the production of health and healthcare is only possible if there exist a cooperation between patients and health system agents (Gilson, 2003), which implies the disclosure of personal information and the compliance to providers’ prescriptions.

Due to the salience of trust in the healthcare setting, over years scholars have devoted great attention to the examination of the factors that foster patients’ trust in health professionals (Dinç & Gastmans, 2013; Kim et al., 2018; Pearson & Raeke, 2000; Thom et al., 2004). However, the importance of trust in the system of healthcare has been quite overlooked. On the theoretical side, existing conceptualizations have tended to neglect the multidimensionality of the construct and such a problem has had consequences on how the concept has been measured in empirical studies. In most of the published studies, predominantly carried out in the United States, measures of public trust in the system of healthcare are either totally lacking (Ozawa & Sripad, 2013), or limited to one or two items in a questionnaire. Furthermore, current scholarship has not adequately taken into account the social nature of public trust, omitting to consider that most of the people have little or no direct experience of the healthcare system and that their evaluations of the system’s trustworthiness could be based on information deriving from experiences of acquaintances (or unknown people) in their networks (or community).

This research project aims at fulfilling these gaps. It will be therefore structured in three sub-projects. The first sub-project (SP1) intends to build a theoretical framework of public trust in the healthcare system able to overcome the weaknesses of existing models. The framework will be firmly grounded in theory on trust and will try to account for the complexity and dynamism of trust as a process. In an innovative way, it will differentiate between direct and indirect interactions with the system. Also,

it will allow the multiple actors and institutions that make up the systems to exert different weight in the trust building-process, depending on the individual, emotional and contextual circumstances at stake, and on the professional or non-professional relationship that each subject has with each specific component of the system. The second sub-project (SP2) proposes to develop and validate in Italy a scale to measure public trust in the healthcare system. The scale will try to capture the multidimensionality of the studied construct and will have a focus on the institutional dimension of public trust. Finally, in the third sub-project (SP3), using a 2x2 between subject survey experiment it will be tested the extent to which and the ways in which indirect experiences shape public trust in the healthcare system. In particular, the experiment will be aimed at exploring whether and to what extent public trust in the healthcare system of individuals who are members of two racial/ethnicity groups of the U.S. population—whites and blacks, respectively, is affected by the exposure to predominantly positive (vs. predominantly negative) indirect experiences from communicators who belong to their ingroup (vs. to an outgroup).

The development of this research project is expected not only to contribute to the scholarly debate on trust in the public sector, but also to provide the non-academic community with a measurement tool that can be used to periodically assess the level of public trust in the healthcare system and eventually implement specific interventions aimed at restoring trust. Of course, apart from measurement exercises, it is of crucial importance to shed light on the channels through which public trust is produced or destroyed. On the one hand, I hope that the theoretical framework that I am going to build will represent the starting point of multiple empirical analysis that will help to uncover the dynamics behind the phenomenon studied. On the other hand, I am strongly convinced that examining the social component of the trust-building process is absolutely necessary in order to have an understanding of a complex phenomenon such as the one under analysis.

CHAPTER 1

Trusting the Healthcare System: A Conceptual Framework

Abstract

Over the years, the concept of trust has become of significant interest in the medical and health service literature. However, most of the research in the field (mainly carried out in the U.S.) has been concentrated on patients' trust in health professionals. The importance and relevance of trust in other system actors and, more generally, in healthcare institutions have been greatly overlooked. Moreover, the social nature of public trust has not been adequately considered. It is insensitive to the fact that most individuals have little or no direct experience of the healthcare system and that their evaluations of the system's trustworthiness could be based on information deriving from acquaintances' (or strangers') experiences in their social networks (or community). This essay develops a conceptual framework for public trust in the healthcare system that enhances the dynamism and multidimensionality of the trusting process in two ways. First, it differentiates between direct and indirect interactions with the system. Second, it allows the multiple actors and institutions that make up the systems to exert different weight in the trust building-process, depending on the individual, emotional and contextual circumstances at stake, and on the professional or non-professional relationship that each subject has with each specific component of the system.

Introduction

Trust is one of the most complex and multidimensional concepts in the social sciences. Its importance as a "lubricant of a social system" (Arrow, 1974, p. 23) is widely recognized. This is one of the reasons why it has received increasing attention in recent decades. Particularly, trust has proven in the production of health and healthcare, which is only possible with a level of trust sufficient to establish cooperation between individuals and healthcare system agents (Gilson, 2003). Due to the importance of trust in healthcare, researchers over the years have devoted considerable attention to the study of factors that promote patient trust in healthcare professionals (M. Calnan et al., 2006). However, despite its fundamental role (Gille et al., 2017), relatively little attention has been paid to the importance of trust in the healthcare system as a whole (Gille et al., 2014). The aim of this study is to conceptually explore how public trust in the healthcare system operates.

Underlying this essay is the recognition that there are some major gaps in current research. Firstly, to date, research has been overly physician-centered, focusing primarily on interpersonal relationships between patients and health professionals. The few studies that have looked at trust in other actors in the system or in the healthcare

system as a whole have been based on direct experience of the system. However, the fact that most people have little or no direct experience with the system is not considered, nor is the question of how people use indirect experiences to build trust in the system. Secondly, the literature does not view trust as a process. It tends to treat trust as a purely cognitive phenomenon, and the ways in which direct and indirect experiences are filtered through feelings are left entirely in the background.

This study aims to fill these gaps. It does so by outlining a conceptual framework for public trust in the healthcare system that is as multidimensional and process-oriented as possible. From the standpoint of multidimensionality, the framework is innovative in at least three ways. First, the healthcare system is described as consisting of multiple actors that have different effects on trust. In addition, the individuals of the public are distinguished according to whether or not they work with the health system, and they differ in how they predominantly interact with one other: face-to-face or online. Finally, the interaction between the public and the health system is conceptualized in two modalities: direct and indirect experience. From a process perspective, trusting is thought of as information processing and is expected to develop and change across the entire lifespan. Depending on the quality and quantity of prior direct experiences with the system, the stage of life the individual is in, his or her health status, or other circumstances, trustworthiness cues are allowed to exert a different influence on trust. Finally, it is recognized that people do not carefully process all the trustworthiness cues to which they are exposed in an objective and detailed manner, and the model highlights some of the possible obstacles.

Building on the published trust research, in the second paragraph, I briefly lay out the conceptual basis for the theoretical framework. I then explain what I believe are the strengths and weaknesses of existing conceptualizations. Finally, I present the details of the framework: which actors constitute it, how they interact, and what are the important aspects of the process of trusting that should be considered. Through the proposed conceptualization of trust in healthcare, I believe it will be possible to ask new empirical questions, some of which are raised in the paper, but also to resolve old questions that remain unanswered, such as the relationship between interpersonal and public trust in the context of healthcare. It is hoped that the model will also serve as a starting point for a better understanding of the process of trusting institutions more generally, beyond the realm of health context.

What is trust?

Over the years, scholars from various disciplines have attempted to define trust, with the result that “a good deal of conceptual confusion” (Lewis & Weigert, 1985, p. 975) currently prevails. This owes to a lack of integration among the various schools of thought and the fact that most definitions of trust have been determined primarily by empirical research on the topic (Mcknight & Chervany, 2000).

This lack of conceptual clarity has not saved research on trust in healthcare, which has been more concerned with assessing levels of trust rather than understanding the nature of trust relationships (M. Calnan & Rowe, 2008). To take a step forward in studying the complex dynamics and interactions that explain the process of trusting the healthcare system, this essay first takes a step back and recovers the foundations of the concept of trust. In doing so, it integrates disciplinary perspectives that allow to abandon the almost exclusive focus on the interpersonal trust perspective.

Among the various definitions of trust currently available (see, for instance, Gambetta, 1988; Mayer et al., 1995; Nooteboom, 2002; Rousseau et al., 1998), a compelling one was offered by the OECD (2017), according to which trust is “a person’s belief that another person or institution will act consistently with the expectations of positive behavior” (p. 44). This definition “captur[es] both behavioral and attitudinal aspects” (OECD, 2018, p. 11). It is also “clear and intuitive” and can therefore “serve as a basis for breaking down the broader notion of trust into more specific categories” (OECD, 2017, p. 44).

The complexity created by the existence of multiple definitions of trust¹ is complicated even more by the various subcategories into which trust has been divided (Bigley & Pearce, 1998). For example, scholars often distinguish between public and relational trust based on the object of trust (Cook & Schilke, 2010). To illustrate this categorization, the context of healthcare is very helpful. While patients' trust in their own GPs can be considered a form of relational (interpersonal²) trust, trust in the healthcare system as a whole is an example of public trust. This juxtaposition is not purely formal. Unlike relational (interpersonal) trust, which is primarily based on personal experience and individual personality, public trust in “healthcare institutions, occupational groups working in healthcare, or the healthcare system as a whole” (van der Schee, 2016, p. 10) is also strongly influenced by “professional institutions, legal and regulatory protections, and media portrayals” (Hall et al., 2001, p. 620). Although these dimensions are likely interrelated (Lewis & Weigert, 1985; Mechanic, 1996), in the sense that public

¹ For a sampling of trust definitions, look at PytlikZillig & Kimbrough (2016, pp. 20–23) and at Watson (2005, pp. 21–22).

² In this paper, relational and interpersonal trust are often used as synonyms. Indeed, interpersonal trust is a form of trust that is embedded within a relationship.

trust both influences and is influenced by interpersonal trust, my research will focus primarily on the public dimension of trust in the healthcare system. This term is used to refer to a “generalized [trust] attitude” (van der Schee et al., 2006, p. 469) placed by (a group or) an individual in the healthcare system (van der Schee et al., 2007, p. 57).

How is trust formed, maintained, or lost?

Despite the variety of conceptualizations offered, trust scholars seem to agree on the idea that trust always involves uncertainty and vulnerability. On the one hand, the trustor's³ decision to trust leads to their willingness to be “vulnerable to the actions of another party [...], irrespective of the ability to monitor and control that other party” (Mayer et al., 1995, p. 712). On the other hand, the risk of “acting on trust” (Hardin, 2001, p. 10) is that the trustor cannot predict with certainty whether the trustee will honor or break the trust (Möllering, 2006). Often the trustor does not know the actual likelihood that the trustee will honor the trust and is thus exposed to the risk of suffering material and emotional losses (Möllering, 2013).

How is trust generated, then? According to Luhmann (1979), the “precondition for trust” (p. 19) is *familiarity*, that is, trustor's “detailed information concerning those sectors of everyday's life with which [they] must frequently deal” (Berger & Luckmann, 1966, p. 57). Based on the information obtained from the past, familiarity helps to reduce complexity by containing the elements of risk. However, “rather than being just an inference from the past”, trust “risks defining the future” (p. 20): “[i]n trusting, one engages in action as though there were only certain possibilities in the future” (p. 20). This is what Möllering (2006) describes as the fiction behind trust; a fiction that leads the trustor to act as if “certain rationally possible futures will not occur” (Lewis & Weigert, 1985, p. 969). Trust is a leap of faith in which emotions play a fundamental role (Möllering, 2006).

The process of trusting cannot be considered a purely cognitive process (Möllering, 2006, p. 50). Instead, it encompasses the emotional, psychological, and personality spheres (Castelfranchi & Falcone, 2000; Freitag & Ackermann, 2016; Lahno, 2001; Mooradian et al., 2006; Myers & Tingley, 2017). These are all areas of concern in healthcare, where the intense psychological distress of illness may explain both increases in trust as a “coping mechanism” (Hall et al., 2001, p. 617) and decreases in trust as a result of negative emotions affecting perceptions

³The concept of trust is understood here “à la Hardin” as a relationship in which a subject A (the trustor) trusts B (the trustee, a person or institution) to do X (Hardin, 2001). Following Möllering (2013), I will refer to the process by which the trust relationship between the trustor and the trustee develops over time as the *process of trusting* or simply as *trusting*.

of trustworthiness (in relation to interpersonal trust, see, for example, Dunn & Schweitzer, 2005) independent of objective evidence.

As a final important aspect, trust has a temporal dimension; it is unfinished and changes over time (Möllering, 2013). In the words of Nooteboom (2002), “trust is, or should be, subject to development, to learning” (p. 38). For this reason, Möllering (2013) argues that instead of trust, we should speak of trusting as the process by which “people generate, maintain, apply, and possibly lose” (p. 286) their willingness to be vulnerable to another party. A process view of trust means that one is more concerned with the ways in which people trust at different times or in the context of critical events than with the extent to which they actually trust.

Among the possible mechanisms of trusting, I will focus on what Möllering (2013) calls “trusting as processing”, which is based on the idea, now established in the literature, that trusting involves the processing of information. This idea will be at the core of my conceptual framework. According to Möllering (2013), the perception of trustworthiness cues is by definition subjective. This implies that the importance that certain categories of cues have toward others may change over time and as the number of encounters with the object of trust increases (i.e., as the relationship evolves). Moreover, “information processing that is relevant for trust does not happen solely within individual mind of course, but also in all kinds of social processes of communicating and sense-making, and is shaped by organizational and institutional contexts as well as social networks” (Möllering, 2013, p. 290).

In a few paragraphs, I explain how these theoretical arguments and the existing empirical evidence on trust are incorporated into the framework. Before doing so, I believe it is essential to review existing conceptualizations of trust in the healthcare system, as they will serve as building blocks for this framework.

How has public trust in the healthcare system been conceptualized?

Although the negative consequences of a lack of trust in the healthcare system are not obscure (Gille et al., 2014; H. J. Larson, 2016; Heidi J Larson et al., 2011), the majority of studies in this area have been conducted in the United States and have focused on patient trust in healthcare professionals (Dinç & Gastmans, 2013; Kane & Calnan, 2016; Kim et al., 2018; Pearson & Raeke, 2000; Thom et al., 2004). Instead, the importance and relevance of trust in other system actors (Gille et al., 2020) and, more generally, in healthcare institutions (Straten et al., 2002) has been severely neglected (M. Calnan et al., 2006; M. Calnan & Rowe, 2006).

This paucity of research attention and the fact that data (mostly cross-sectional) have often driven theory more than the opposite is reflected, first, in the scant number of conceptual elaborations on what is meant by public trust and what processes are likely to foster, sustain, or destroy it. It is in this under-researched area that this essay is situated, aimed at bringing order to the existing inductive confusion.

Among the few existing contributions, those by Van der Schee et al. (2007) and Gille et al. (2017) should be considered with attention. In the former, the conceptualized attitude is influenced by at least five elements: a) people's experiences experience in contacts with health system representatives; b) the actual availability of *good quality care*⁴; c) *institutional guarantees*, such as government regulations for healthcare providers training, protection of patients' rights, and independent inspectorates of healthcare quality; d) *images* of the healthcare system conveyed by the *media*; e) *cultural differences* across countries in people's overall disposition to trust. The authors also refer to *network knowledge*, but the meaning and role attributed to this element are not elaborated.

In comparison to Van der Schee and coauthors' (2007) model, Gille et al. (2017) (Figure 1) conceptualize public trust in the healthcare system as “trust developed in the public sphere as a consequence of discourse in public about people’s experiences and perceptions of the healthcare system, as well as a broader discourse shaping trust, grounded in the common health values and health norms of a society” (p. 34).

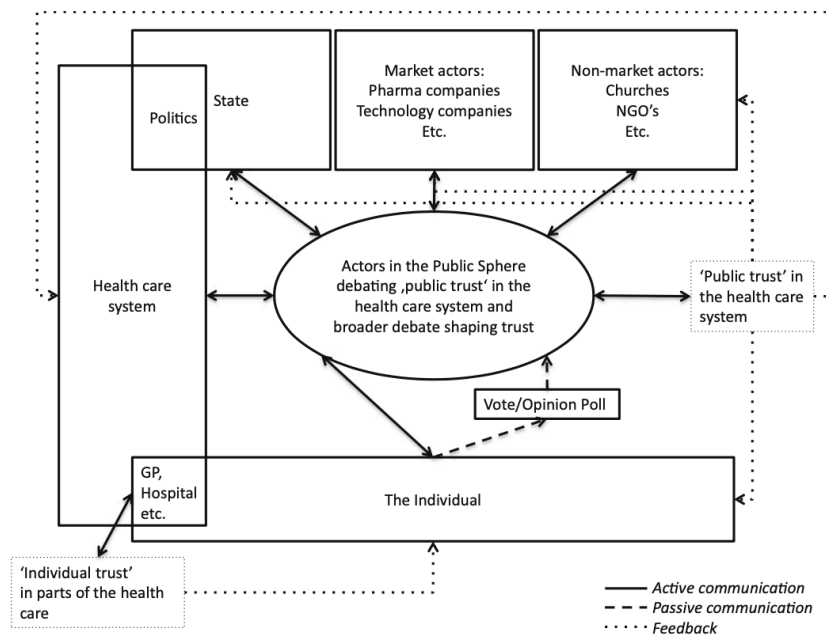


Figure 1. Revised conceptualization of public trust in the healthcare system (Gille et al., 2017, p. 33)

⁴ According to the authors, “a restricted supply of healthcare facilities, long waiting lists and other forms of rationing, will be mirrored in lower levels of public trust in healthcare” (van der Schee et al., 2007, p. 58).

In my view, this model has at least two merits. First, it goes beyond a conceptualization of trust that focuses solely on individuals' experiences with the healthcare system by including the possibility that “individuals, forming the public, discuss and exchange their experiences and perceptions of trust in the healthcare system, and their perceptions of what forms public trust” (Gille et al., 2017, p. 31). In this way, it overcomes one of the main weaknesses of the work of Van der Schee and coauthors (2007). Second, the model recognizes that, in addition to the actors (individual and organizational) exclusively involved in the provision of healthcare, there are likely other actors (governmental, market, and nonmarket) that can influence the process of trusting the healthcare system.

This conceptualization is a good reference point for scholars concerned with public trust in the healthcare system. However, it still leaves room for improvement. Drawing on the work of Habermas and Arendt on the public and the public sphere, Gille and coauthors (2017) first place great emphasis on where the influence of active and passive communication takes place. It is the public sphere, which is described as a dynamic and physically not very limited space, located between the individual, the health system, the state and other social institutions. What is not yet clear is how social communication can be processed based on the channels through which it is exchanged and how it can be combined with the information that individuals already have based on their personal experiences with the system. For example, as Möllering's (2013) *trusting as processing* mechanism suggests, one can imagine the informational cues of others (or at least some trustworthiness categories) becoming less influential as individuals increase their knowledge of the system (i.e., gain direct experience with its components).

The idea that “public trust is a construct influenced from all sides of society” (Gille et al., 2017, p. 38) is noteworthy. However, I believe that we should keep firm to a concept of public trust as an attitude held (in different ways) by *individuals* in the public. When the individual(s) and the information exchange through which informational cues⁵ are shared are at the center of the discussion, everything becomes clearer: the need to distinguish the different channels through which experiences and social communication are shared, and to clarify how the characteristics of the source(s), the message(s), and the audience affect the process of trusting.

This way, a new space for relevant questions opens up. For example, one can ask whether, all else being equal, (a) information about (or experience with) some actors in the healthcare system (general practitioners, hospitals, etc.) has a greater impact on the process of trusting than experience with (or information about) other

⁵ I am referring to the informational cues on the trustworthiness of the healthcare system.

actors; (b) all actors (governmental, market, and non-market) who are in principle capable of influencing the process of trusting have the same weight on it. With this restructuring, albeit theoretical, the public debate takes a form that is less abstract and less difficult to measure and study. It is a set of informational stimuli (most of which are mediated) on the basis of which the public arrives at a judgment about how things are going in the healthcare system, how they should go, or how they might go. In other words, on the basis of shared information, citizens succeed in judging the extent to which they can *expect*⁶ (Davies, 1999) that the healthcare system will function effectively and that they will receive appropriate care when needed.

By focusing on the individuals, the conceptual framework reconciles the necessary presence of a variety of actors potentially able to influence the process of trusting with the possibility of using individual level data to examine it more deeply. As conceived, the model should allow us to explore, among other things, what the antecedents and determinants of public trust in the healthcare system are, how changes over time can be explained, and whether some populations are more influenced by certain types of (sources or channels or message characteristics of) informative cues compared with others.

I now turn to a detailed explanation of my framework for public trust in the healthcare system. The conceptual framework does not claim to be exhaustive in all its aspects, and it obviously needs empirical testing. Moreover, it was not developed with the expectation that it would fit perfectly all existing types of healthcare systems. Although the model is quite abstract, I cannot completely rule out the possibility that it has not been influenced by the specificities of the system of my country—Italy. However, I hope that the framework will be flexible (but also complete) enough to be easily adapted to other realities.

A new conceptualization of public trust in the healthcare system

In this section, I first clarify which are the actors that compose the model and which characteristics they do have. Then, I define how the actors interact with one another. I then offer some insights into a conceptualization of trust in the healthcare system that is as process-oriented as possible.

The actors

At the heart of this conceptual framework, there are the **individuals** that constitute the public (Figure 3).

⁶ According to Davies (1999), the definition of public trust embodies the notion of expectations (p. 193).

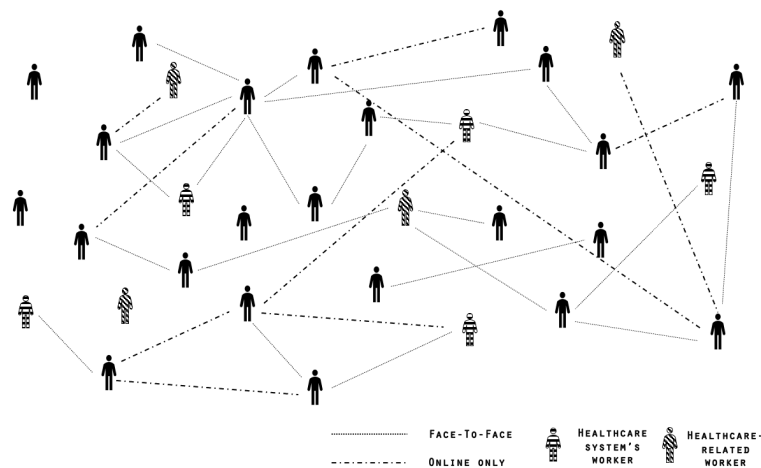


Figure 2. The public

Some of them interact as members of informal social communication networks that have their basis in family, friendship, work, or acquaintance relationships. In addition to face-to-face relationships, members of the public may also be bound by online relationships, which tend to be more impersonal. Although online relationships that develop through computer-mediated communication (CMC) have the potential to grow in quality and become almost comparable to face-to-face relationships in the long run (Chan & Cheng, 2004; Walther, 1992), scholars believe that they are fundamentally different from face-to-face relationships, at least until the first year. This appears to be due to the fact that CMC is typically characterized by the low presence of nonverbal cues such as facial expressions, posture, and gestures (Kiesler et al., 1984), and the absence of cues about social context. These fundamental differences and the potential impact they could have on the process of trusting necessitate the distinction between face-to-face and offline relationships in the model.

Building on previous scholarship (Höglund et al., 2004; van der Schee et al., 2007), individuals are expected to differ on at least eight dimensions: a) **socioeconomic background**⁷; b) level of **health literacy** and **access to health information**⁸; c) **personality traits** and **mood and emotional state**; d) **political** and **religious values** and **attitudes toward health policy**; e) **social** and **neighborhood connectedness**, and **engagement within the community**; f) **prior knowledge** and **beliefs about the healthcare system**; g) **trust in government** and general **disposition to trust**. According to previous research on trust, these dimensions are expected to be individual

⁷ Age, gender, race, ethnicity, income, educational level, parental education, labor force participation, place of residence, immigration status, health status, health-worker.

⁸ Through library use, Internet access, and Internet use.

determinants of public trust in the healthcare system (see, for instance, Ahern & Hendryx, 2003; Kehoe & Ponting, 2003; Schoon & Cheng, 2011). One of the assumptions on which this framework is built is that public trust develops through interactions: with the healthcare system, but also with other members of the public. These interactions and the way individuals make sense of them cannot be considered randomly assigned. Rather, they are the result of individual factors and factors related to the socioeconomic context in which people are embedded (Hudson, 2006). Furthermore, considering trust as an attitude implies giving relevance to the individual dimensions that affect how attitudes are formed and change over time.

The model distinguishes between individuals who are pure (or potential) beneficiaries of health services, individuals who work in the healthcare system (shown with horizontal lines), and individuals who work in health-related fields (shown with diagonal lines). The reason for this specification is explained in the following paragraph.

The second actor in the model is embodied by the healthcare system (Figure 4), which consists of two distinct parts:

- Its *components*, i.e., the individual and organizational actors that make up the system; and
- Its *attributes*, i.e., the system characteristics that are expected to impact public trust in the system.

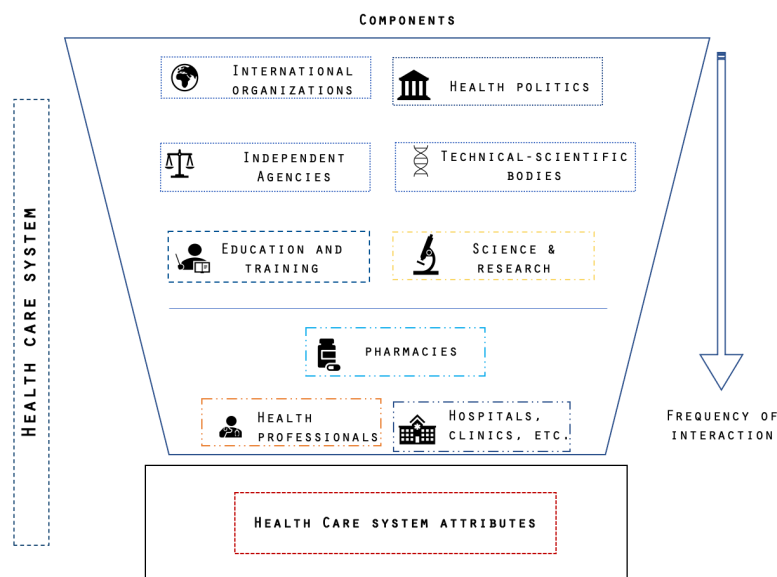


Figure 3. The healthcare system

The components into which the healthcare system is divided have been arranged in an inverted pyramid. At the bottom of the pyramid is what I call "the health system *strictu sensu*". This category includes the "access points" (Giddens, 1990, p. 85) to the system, i.e., health professionals and the various healthcare facilities with which the

public typically interacts (e.g., hospitals, emergency rooms, free clinics, and pharmacies). Because of the greater interaction with these parts of the system, it is reasonable to assume that these are the actors that the public is most likely to intuitively associate with the system. If trust in the healthcare system is, at its core, about receiving adequate care when needed, and if the bottom of the pyramid is the level at which care actually occurs, then events that affect the healthcare system "*strictu sensu*" can be expected to have the greatest impact on citizens' trust in the system.

As one moves from the lowest to the highest part of the pyramid, one encounters actors to whom the public has less and less personal exposure, but who perform functions that are extremely important to the smooth functioning of the system as a whole, even before the care of individual patients. Examples of such functions are: a) oversight and control; b) education and training of health professionals; c) regulatory activities; d) coordination; e) management of resources; f) health and health-related research. I call the upper part of the pyramid "health system *latu sensu*".

Although, as noted earlier, there are good reasons to believe that information about (and experience with) the health system *strictu sensu* may have a greater impact on trust than information about (and experience of) the health system *latu sensu*, in some cases the opposite may be true. Because information about the healthcare system *latu sensu* is less available, less frequent, more difficult to obtain, and (more importantly) may indicate in the abstract a more structural dysfunction of the system, it is conceivable that information (especially if negative) about these components of the system may take on an even greater weight for public trust in the system.

Take, for example, a scandal involving a national Medicines Agency. Suppose that through collusion between its representatives and a pharmaceutical company, over-the-counter drugs that are very harmful to those who take them have been illegally marketed. One might wonder whether this kind of information affects the public's trust in the healthcare system more than information about hospitals and clinics with which people are accustomed to interacting. This is a complex empirical question that is beyond the scope of this article and can only be answered with equally complex methodological architectures. However, I believe that part of this framework is to make clear how the multidimensionality of the healthcare system, consisting of a variety of actors that differ in their accessibility to the public, affects how and how often information about them is obtained and, consequently, the process of trusting.

At the top of the pyramid are the attributes of the health system under study, that is, the mix of system characteristics that make it (if not unique, at least) very peculiar. These attributes determine, among other things,

how the system is organized and functions, what values determine its operation, what type of governance is used, how power is distributed within the system, how healthcare is operated and financed, how healthcare services are commissioned and delivered, how patients are involved in their care, etc. (Rowe & Calnan, 2006). These specifics are expected to signal to the public whether and to what extent their system can be considered trustworthy.

Following the conceptualization of Gille and co-authors (2017), the model also includes other market and nonmarket actors that are not part of the healthcare system but interact with it and perform tasks that are important to its functioning (Figure 5).

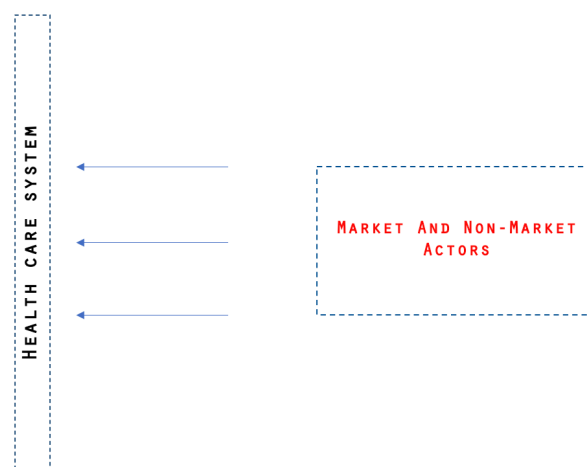


Figure 4. Market and Non-Market Actors

Without claiming to be exhaustive, this category could include pharmaceutical companies, the judicial system, and health technology companies. All actors that defy the governing rules and coordination mechanisms of the healthcare system and whose primary goal is not only to promote and protect human health, but whose performance and dissemination of information about the healthcare system could affect the expectation that the system as a whole is trustworthy.

For example, consider the relationship between the healthcare system and the judicial system when it comes to protecting the right to health. Of course, in terms of mission, guiding principles, and organization, these are two completely autonomous systems. However, if it were found that the judiciary systematically absolves health professionals of responsibility, even in cases of proven culpability, this could create the impression that there are no deterrents in the health system to prevent health professionals from acting without care, prudence, and expertise. Similarly, if healthcare professionals were accused of medical malpractice every time there was an

unfavorable outcome in medical practice—with no consideration of its aleatory nature, it could create a spiral of great distrust in the population.

Finally, I think the inclusion of this category of actors is important in that it takes into account the fact that the people who work there, as well as those who work within the healthcare system, are also exposed to a higher level of information about the healthcare system than usual, with all the consequences that this has not only for their own trust but also for the dissemination of information to the rest of the public and thus for the public's trust in the system.

How these three actors relate to each other is discussed in the following subsection.

The interactions

In the following lines, I explain the ways in which the public interact with the healthcare system (Figure 6) and how, based on these interactions, the process of trusting is fostered.

I have argued so far that the concept of trust would have been understood in its attitudinal⁹ meaning. This clarification justifies why some concepts and theories from social judgment research were used in this study.

It is well known that individuals "combine the results of their experiences" to form judgments about the state of the world (Tyler, 1980, p. 13). Experiences form the information base upon which judgments are built. Of course, not all experiences are identical, nor do they all carry the same weight in the combination process that leads to judgments. Among other aspects, experiences may differ in their modality. In Tyler's (1980) words, "individuals have two basic modalities on which they might rely in making inferences: their **first-hand** experiences and the **indirect** experiences" (p. 13). These two modalities have been shown to have different effects on attitude due to differences in information processing (Fazio et al., 1978, p. 51). Compared to indirect experiences, the behavioral engagement with the attitude object that characterizes direct experiences causes the resulting information to be qualitatively and quantitatively superior (Fazio & Zanna, 1981), more "vivid and concrete" (Daugherty et al., 2008, p. 570), easier to remember (Larsen & Plunkett, 1987), and held with greater confidence (Fazio & Zanna, 1978). For these reasons, direct experiences are better predictors of future behavior (Fazio et al., 1982). Nevertheless,

⁹ Traditionally, attitudes have been conceptualized as 'an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world', but "in subsequent decades, the attitude concept has been largely reduced to its evaluative component", and the "attitudes-as-judgments perspective" (Schwarz, 2000, p. 162) has consolidated.

the importance of indirect experiences¹⁰ for attitudes should not be underestimated. This is especially true when attitudes are not strongly held—for example, due to a lack of personal experience with the attitude object.

Based on these theoretical arguments, the public in this conceptual framework relates to the healthcare system primarily through their direct experiences. In this way, individuals gain very insightful first-hand information about how trustworthy the system is. Individuals may have direct experience with the system either because they are recipients of healthcare services or because they are professionally involved in the system or work in health-related occupations.

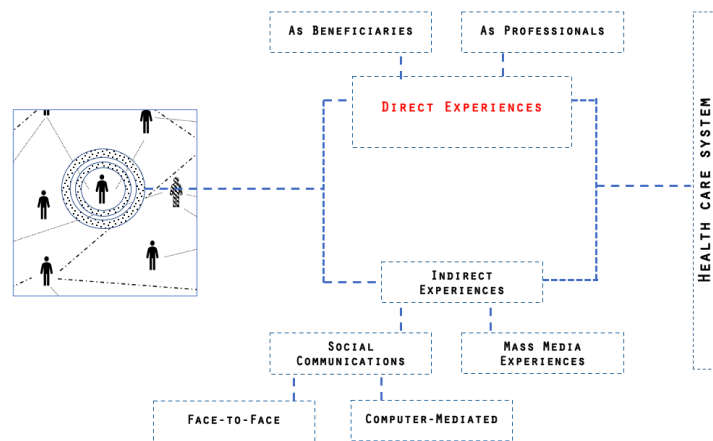


Figure 5. Interactions with the system.

Before explaining why I think this distinction is important, I must add that the public can also experience the healthcare system indirectly, through informal social communication or mass media experiences.

Every day, people connected by family, friendship, and other types of relationships share information on a variety of topics. Among other things, they share their personal experiences with the healthcare system. These second-hand experiences are expected to have a greater (lesser) impact on audience trust depending on how *credible* and *likable* the sources are (Kassin et al., 2016).

For a source to be credible, they must be *competent*, meaning they must know what they are talking about (Kassin et al., 2016, p. 228), and *trustworthy*, meaning they must be perceived as willing to report their knowledge truthfully and without compromise (Kassin et al., 2016, p. 228). Of course, people differ in how they assign these

¹⁰ According to Tyler (1980), indirect experiences can be based on both **informal social communications** and **mass media experiences**.

two attributes. However, it is reasonable to hypothesize that when healthcare professionals (or professionals working in health-related occupations) share information about their experiences, they are likely to be viewed as credible because they know the system and because they should not have incentives to share false information about the system in which they work—especially if the shared experience is negative. If this hypothesis is empirically confirmed, it would lead to fundamental considerations about the role of health professionals in the process of trusting, not only in relation to their specific tasks but also in relation to the disclosure of information intrinsic to the system to nonprofessional members of the public.

In terms of indirect forms of social communication, the model distinguishes between face-to-face communication and computer-mediated communication to account for the specifics of these two types of interactions¹¹ that affect how information is transmitted¹² (Kock, 2004) and, in principle, how trust is formed and changes over time. In particular, computer-mediated communication allows offline friends (who are sometimes almost strangers to each other) to share experiences and opinions and to participate in a process of (inter)personal influence that is not hindered by geographical barriers. I think this opportunity is particularly noteworthy for the process of trusting the healthcare system. First, CMCs allow individuals to come into contact with a wealth of information and experience that would not otherwise be available to them. Second, CMCs have the advantage of increasing the heterogeneity of information exchange and experiences to which individuals are generally exposed, assuming that members of one's network tend to be relatively homogeneous, as are the strategies used to make sense of reality.

A similar argument applies to experiences through mass media. Mass media provide the opportunity to see and participate vicariously in a wider range of experiences than most people can do directly (McQuail, 1979). The effects of mass media on trust in the healthcare system have often been assumed but rarely tested empirically. Current evidence on the relationship between media exposure and political trust suggests that “media use influences trust by affecting how much information is conveyed and, presumably, how much knowledge is gained” (Moy & Hussain, 2011, p. 5). However, the influence of media does not seem to depend only on individual disposition and the actual amount of media consumption. Interestingly, it also seems to be mediated by personal

¹¹ Among them, the presence (absence) of nonverbal cues, the potential depersonalization of the communicator, and the possibility (impossibility) of asking for clarifications.

¹² The use of the term transmission may make the reader think of a unidimensional process of experience exchange from A (source) to B (audience). However, in all likelihood, it is a rather dynamic process in which the two parties become both source and audience in an attempt to understand whether and to what extent the healthcare system can be trusted, based on their prior beliefs, their previous (direct and indirect) experiences, and the newly acquired ones.

experience (Moy & Hussain, 2011) and the degree to which individuals process mediated information (Petty et al., 2002).

This argument should have further convinced the reader that direct and indirect experiences cannot be considered closed doors. Although they are not expected to have the same weight on the process of trusting—and for this reason are allowed to take on different dimensions in the model, empirical research is nevertheless needed to clarify at what stage of the process, in what categories of the population, and under what circumstances some experiences are more influential than the others.

The process of trusting

I have argued that this research adopts a process view of trust. In particular, because of the importance of information in the process of trusting, trust is understood here as being based on the processing of information (Möllering, 2013). In the previous sections, I have tried to show parts of how such a process works. Unfortunately, it is not possible to cover all the elements that might characterize it in the abstract. Nevertheless, a number of clarifications are necessary.

First, it is unrealistic to believe that people process all the trustworthiness cues to which they are exposed in the same way—carefully and in detail. Rather, especially for information based on indirect experience, they use different strategies depending on (a) the extent to which they are motivated to elaborate on the content of the information they receive and (b) their ability to process it¹³ (Petty & Cacioppo, 1986).

Among motivational factors, personal relevance is particularly important to this framework. It is well known that the personal relevance of messages depends on how their content affects the lives of the recipients (Apsler & Sears, 1968). Specifically, “as the consequences of being incorrect [about something] are greater”, “people become more motivated to process the issue-relevant arguments” in a careful way (Petty & Cacioppo, 1986), consistent with the so-called “central path” to persuasion. This argument, which has been widely confirmed empirically, is relevant to the study of the process of trusting the healthcare system. As mentioned at the outset, acting on trust is indeed risky. In the specific context of healthcare, a person who acts on the basis of trust in the

¹³ Among the factors that affect the ability to elaborate objectively, Petty and Cacioppo (1986) identify the following: a) distraction; b) message repetition; c) recipient posture; d) message complexity/comprehensibility; e) message modality; f) heart rate; g) recipient intelligence/education.

system, e.g., by participating in a medical trial or by following the recommendations of health authorities, risks one of his or her most important goods: his or her life (or at least health).

For this reason, it is predictable that individuals will, on average, consider cues about the trustworthiness of the healthcare system to be personally relevant. However, relevance cannot be expected to always remain the same or to be the same for every subgroup of the population. On the contrary, it is more likely that people at certain life stages, at a certain health status, or under certain circumstances that make the trustworthiness of the healthcare system more salient (e.g., a pandemic!) will attach more importance to the information to which they are exposed. Hopefully, these theoretical arguments will be explored in more detail in future research.

Aside from motivation and ability, there are at least two important elements that stand in the way of objective processing of newly acquired information. In the model (Figure 6), they were represented as obstacles that stand between the flow of information from direct and indirect experiences and the individuals involved in the information exchange.

A first obstacle is the individual's prior knowledge and beliefs about the trustworthiness of the system, which leads to a less rigorous and weaker evaluation of new arguments and information that do not match them. Thus, there is a risk that the process of trusting the healthcare system will spiral, in that the experiences made at time t (and the beliefs derived from them) will determine how the experiences are made and interpreted at time $t+1$, creating a kind of self-fulfilling prophecy. For health policy researchers, however, this deterministic view seems rather frustrating. There is undoubtedly a need to better understand which experiences (at different stages of life) are most likely to shape later interactions with the healthcare system. However, I hope that future scholars will focus on empirically examining how the healthcare system can break the vicious cycle of lack of trust and instead promote its emergence.

The second obstacle to objective processing of information is the individual's feelings, which can profoundly affect the thinking process (Schwarz, 2000). Feelings are a “fast and parsimonious indicator of whether our current situation is 'benign' or 'problematic'” (Schwarz, 2012, p. 298). Therefore, in the first case, a less effortful processing style tends to be used. In contrast, when the feelings point to a problematic situation, “an analytic, bottom-up processing style” is encouraged, “with considerable attention to detail” (p. 302). These considerations have profound implications for the process of trusting the healthcare system, because the deeper the processing, the more likely it is that the experience lived, or the communication received will have long-term effects. The question, then, is what are the short-, medium-, and long-term effects of experiences with the healthcare system that arouse

negative emotions, the extent to which these experiences are more significant than those that arouse positive emotions, and whether and by what factors the relationship between the emotions aroused by the lived experience and trust in the healthcare system is mediated.

Conclusions

In this paper, I conceptually explored how public trust in the healthcare system operates. Previous literature had predominantly analyzed relational forms of trust involving patients and healthcare providers, while overlooking the impersonal part of the trust relationship between individuals and healthcare systems. Since trust in health systems has proven crucial to reach both individual- and collectivity-level goals, with this paper I intended to shed light on the actors and the processes through which trust might be generated and evolve over time.

In outlining the model, I have made it very explicit that, in my view, the study of the process of trusting the healthcare system can only start from the cognitive and affective mechanisms of the individuals who constitute the public and how they relate to the external world to make sense of their own reality. I have also made it clear that it would be very misleading to believe that every experience and every piece of information that comes from interaction with the system (be it direct or indirect) will always have the same weight for the process of trusting. Rather, as individuals form their own beliefs about the system and as circumstances change, the information they use over the course of their lives and the way they behave in exchanging trustworthiness cues will change. I hope the reader found persuasive the argument that experiences with different components of the healthcare system may carry more or less weight in the process of trusting and that there is room for empirical research to understand under what conditions this occurs.

The model is expected to change the way of studying trust in the healthcare setting. It will do so by encouraging scholars to take into account the social nature of public trust. Moreover, its interdisciplinary approach will hopefully open new spaces for a new integrated way to look at the phenomenon. In my view, the conceptual framework will serve well if it causes a shift from assessing the level of trust to examining how the process of trusting occurs. In making these contributions, there are chances that the way of looking at trust in the public sector in general will be reconsidered.

Future empirical studies will reveal which parts of the model work best and which should be completely rethought. For example, researchers could examine how influential individuals working with the healthcare system are in shaping public trust when they share their experiences and views of the system with the rest of the public.

Using this framework, it will be also possible to explore how negative emotions, such as fear and anxiety, can alter the types of trustworthiness cues that individuals consider and how it is possible to promote trust, rather than destroy it, under these conditions.

CHAPTER 2

A Scale to Measure Public Trust in the Italian Health Care System

Abstract

Public trust has proven critical to a well-functioning healthcare system. However, the difficulties associated with conceptualizing this construct have often hampered its measurement and, consequently, its empirical study. Measures of public trust in the system of medicine are either totally lacking (Ozawa & Sripad, 2013) or limited to “one or two items in a questionnaire.” The few existing scales were mainly developed and validated in the United States. In this research project, building on the theoretical framework developed in the first chapter of this thesis, I develop a multidimensional scale to measure public trust in the Italian healthcare system. After having collected and analyzed qualitative data to identify the potential items of the scale, I administered the items to a sample of 349 individuals representative of the Italian population in terms of gender, age, and education. The exploratory factor analysis performed on the collected responses indicated the existence of three factors. It confirmed that public trust in the healthcare system should be considered a multidimensional concept.

Introduction

Trust is the very foundation of healthcare (Shore, 2009). Yet, its complex conceptualization has always posed difficulties for researchers interested in its measurement and understanding. Among the aspects that complicate this area of research is the distinction between the different categories of trust, such as public and relational trust (Cook & Schilke, 2010). In healthcare, relational (interpersonal) trust takes the form of patients’ trust in their healthcare professionals. In contrast, public (impersonal) trust concerns trust in the healthcare system as a whole or healthcare institutions. Public trust is critical for a well-functioning healthcare system (Gille et al., 2014; Heidi J. Larson et al., 2018). However, “most of the existing studies have focused on trust in identified physicians or healthcare providers within established relationship” (Hall et al., 2002). This asymmetry has regarded the theoretical efforts to investigate these two areas and the provision (and consequent use) of measurement tools. This research aims to develop and validate a scale that measures public trust in the Italian healthcare system.

Currently, measures of public trust in the system of medicine are either totally lacking (Ozawa & Sripad, 2013) or limited to “one or two items in a questionnaire” (Straten et al., 2002, p. 228; see, for instance, Platt et al., 2018). Moreover, most of the scales at use have been developed and validated in the United States (Altice et al., 2001; Armstrong et al., 2008; Bova et al., 2006; Egede & Ellis, 2008; Katapodi et al., 2010; LaVeist et al., 2009; Rose et al., 2004; Shea et al., 2008). Few of them have also been tested in Europe and Asia (Anand & V Raman, 2015; Dinç & Gastmans, 2013; Straten et al., 2002), but they do not appear adequate for the characteristics of the Italian context, namely, a universal, publicly funded healthcare system.

Data from the *Wellcome Global Monitor 2018* suggests that the availability of a tool to measure public trust in the Italian healthcare system is particularly urgent. The survey, which was representative of the Italian population, did not include questions explicitly measuring this construct. It did, however, include questions on trust in science and health professionals. The analysis of this data shows (Figure 1) that the percentage of Italians (in grey) who reported having high trust in the health or medical advice received by (a) the government or (b) health professionals was worryingly low compared with other OECD countries.

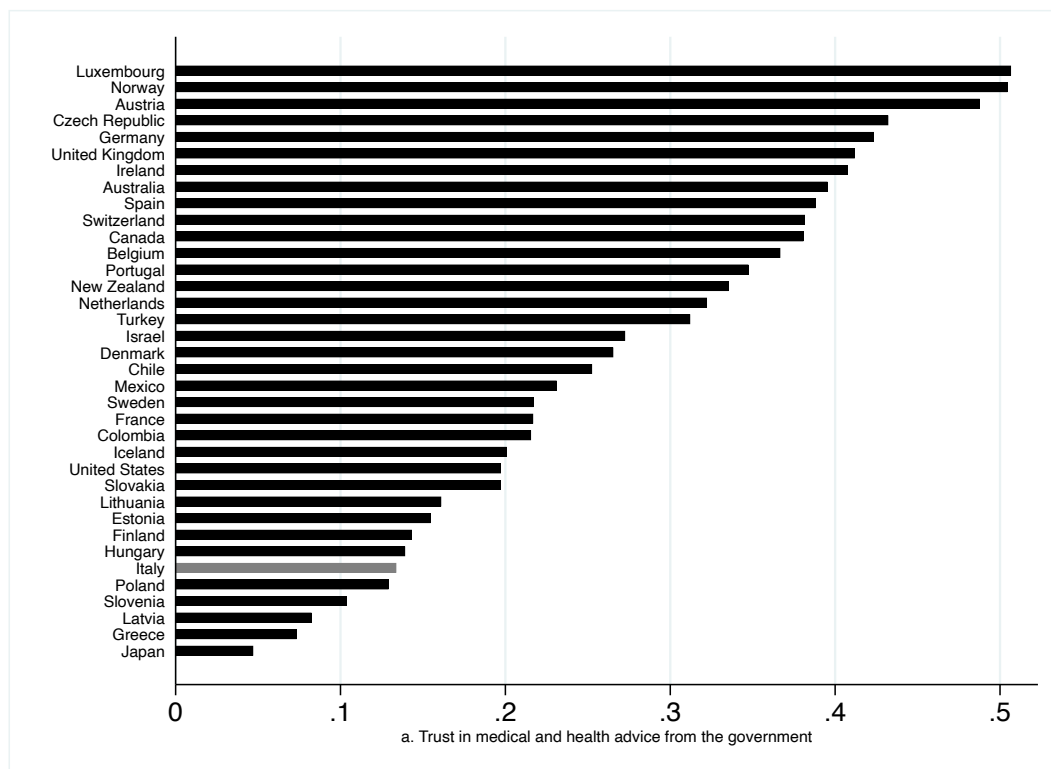


Figure 6 (a). Trust in medical and health advice from the government. OECD countries. Wellcome Global Monitor 2018

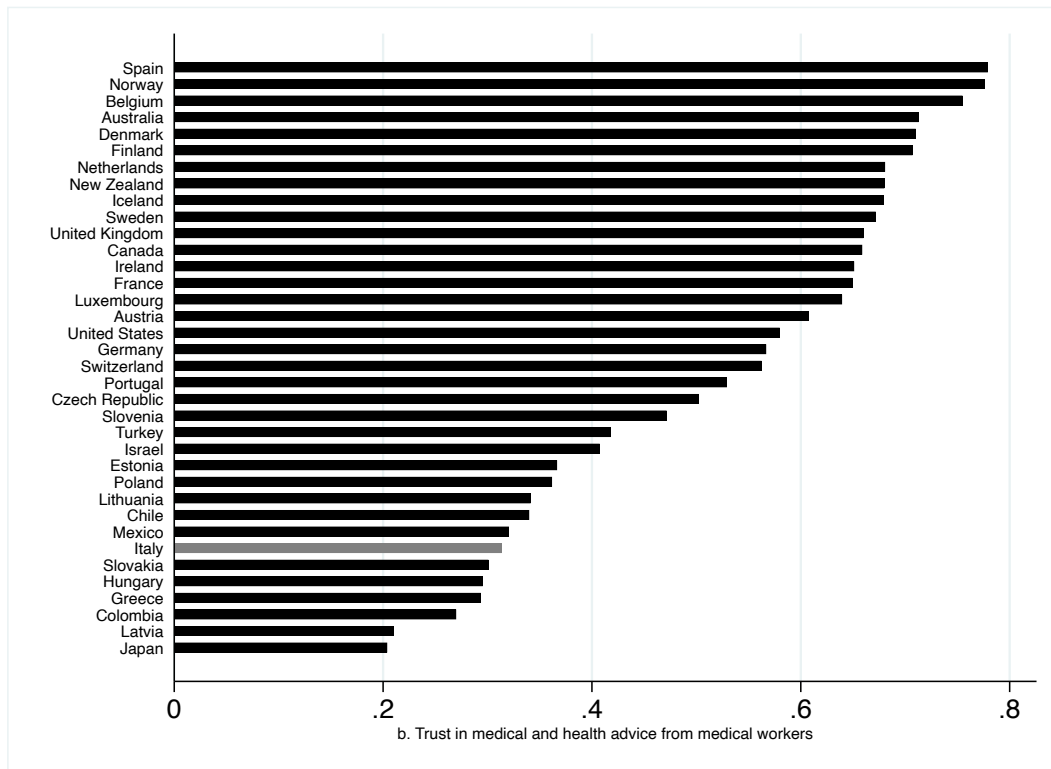


Figure 7 (b). Trust in medical and health advice from medical workers. OECD countries. Wellcome Global Monitor 2018

With this research project, I hope to provide the scientific community with a measurement tool to study Italians' trust in their healthcare system and the factors that determine it. In doing so, I try to develop a scale that, unlike existing measurement instruments, captures the multidimensionality that characterizes a complex construct such as public trust.

Methods

Following Boateng et al. (2018), the process of developing and testing a scale to measure trust in the Italian healthcare system will be articulated into three phases: item development, scale development, and scale evaluation¹⁴. The chosen design allowed combining both qualitative and quantitative methods.

Item development phase

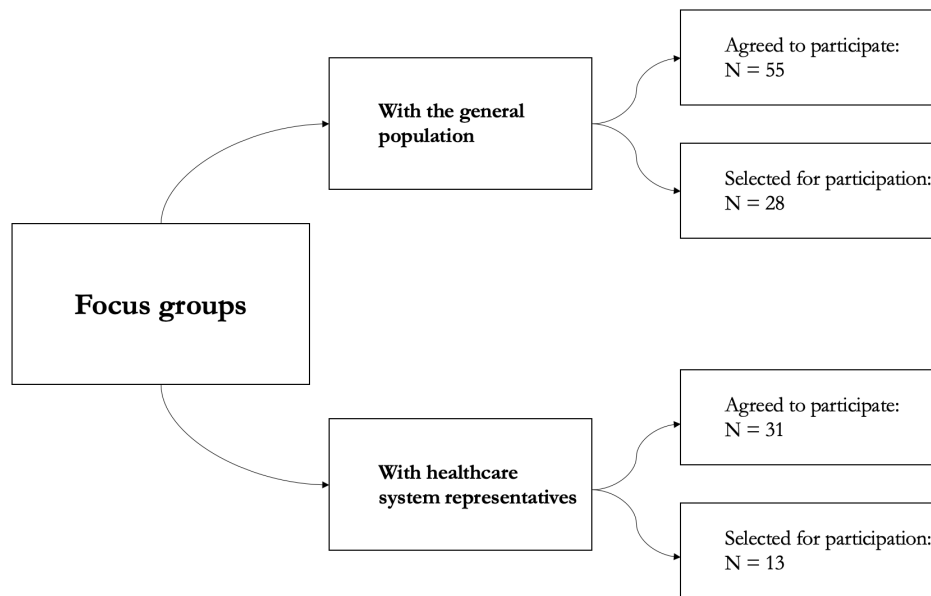
The item development phase was used to create the scale items. Building on the theoretical framework I developed in the first subproject of this dissertation, the preferred approach to defining the scale items was to capture the public's trust in the healthcare system in a multidimensional way, taking into account the various actors and institutions operating at different levels of the healthcare system. The

¹⁴ This phase of the study has not been conducted yet. I plan to conduct it in the next future.

identification of the dimensions to be included in the scale was first based on the existing theoretical and empirical literature on trust, as well as on scales that had already been developed to measure trust in the healthcare system (Anand & V Raman, 2015; L. A. Anderson & Dedrick, 1990; Bova et al., 2006; M. W. Calnan, 2004; Dinç & Gastmans, 2013; Egede & Ellis, 2008; Rose et al., 2004; Shea et al., 2008; Straten et al., 2002), trust in government and the public sector more generally (e.g., Grimmelikhuijsen & Knies, 2017; Grimmelikhuijsen, Porumbescu, Hong, & Im, 2013). However, to ensure that all relevant dimensions of the concept of interest were captured, including those not adequately covered by the previous scales, an inductive approach consisting of mini-focus group discussions (four to five members) was also adopted.

Focus groups of small size were preferred to give participants the time they needed to share their views and experiences, as Morgan (1992) suggests for emotionally charged topics that generate high levels of participants' involvement. In addition, due to the regional structure of the Italian healthcare system, it was necessary to include geographically dispersed individuals to capture multiple perspectives on what people associate with the concept of trust when they are exposed to very different ways of operating the system. Doing so was possible by conducting the focus groups online. This decision allowed people from different regions of Italy to participate without having to travel and at meager research costs. Keeping the group size small avoided the development of simultaneous conversational threads and ensured that focus groups could be adequately moderated, given the topic under discussion.

I conducted two categories of focus groups. The first one involved the **general population**. The second one involved **health system representatives** (i.e., physicians, nurses, pharmacists, pharmaceutical companies' representatives, health and health-related researchers, and science communication experts). Graph 1 summarizes how many individuals agreed to participate in both categories of focus group and how many of them were selected for participation.



Graph 1. Focus Groups

The involvement of both general population individuals and healthcare system representatives provided different perspectives on the aspects that people associate with trust in the healthcare system. In addition, the inclusion of individuals from the general population overcame one of the limitations that apply to scales developed and validated with healthcare patients: most of the respondents to surveys about public trust in the healthcare tend to have little contact with the healthcare system outside the use of general practitioners. Focus groups with individuals from the general population then shed light on the generalized public trust towards the healthcare system (Calnan et al., 2006).

A semi-structured focus group guide was used to moderate both the focus groups with the general population and those with the healthcare system representatives. The focus groups were recorded, and the recordings were transcribed at the earliest possible time.

Stakeholders from the Italian healthcare system were recruited using a snowballing process. Nominations were facilitated through the circulation of a contact form. Participants were selected if they belonged to the professional groups of interest (i.e., physicians, nurses, pharmacists, pharmaceutical company representatives, health and health-related researchers, and science communication experts). Thirty-one healthcare professionals agreed to participate in the research. Each focus group lasted approximately 70 minutes and aimed to explore the aspects that, according to participants' professional experiences, people take into account when assessing whether and to what extent the healthcare system can be trusted. Focus groups were conducted until saturation was reached. Heterogeneity was considered in selecting members for each focus group to bring multiple perspectives to bear. Table 1 shows the characteristics of participants in the three focus groups with the healthcare system stakeholders.

	mean or %	sd	min	max
Years of Experience	12.77	9.36	4	35
Doctors	31%			
Nurses	15%			
Researchers	15%			
Pharmacists	15%			
Science communicator experts	15%			
Pharma company representatives	8%			
Female	69%			
South and Islands	54%			
N	13			

Table 1. Focus groups participants - Stakeholders

As mentioned above, this first phase of the study also included focus group with subjects from the general population. Italian citizens older than 18 years were recruited through an invitation (Figure 2) posted on Facebook, LinkedIn, and Twitter. Amazon vouchers worth €10 were provided as an incentive for participation.

What influences trust in the Health Care System? Participate in this research and help us figure it out!
To find more information and give your availability to participate, click here: (Qualtrics link here). A compensation will be provided to the selected participants.



Figure 8. Recruitment material

Individuals interested in participating in the study were asked to complete a brief online questionnaire on Qualtrics that included questions about their demographic characteristics, perceived health status, geographic residence, use of health services, and whether they had been affected by COVID -19. Fifty-five general population individuals completed the questionnaire. Based on the responses provided, focus group members were selected to maximize the diversity of views and experiences (in terms of region of

residence and previous experiences with the healthcare system)¹⁵. Table 2 provides information on the characteristics of the participants selected for focus group with the general population.

	Mean	SD	Min	Max
Gender	.57	.5	0	1
Age	39.68	10.58	29	63
European Ethnicity	.96	.19	0	1
Residence				
Northern Italy	.29	.46	0	1
Central Italy	.32	.48	0	1
Southern Italy and Islands	.39	.5	0	1
City	.68	.48	0	1
Suburban town	.14	.36	0	1
Town	.18	.39	0	1
Education				
Bachelor's Degree	.21	.42	0	1
High School Diploma	.11	.31	0	1
High School, without diploma	.11	.31	0	1
Master's Degree	.29	.46	0	1
Postgraduate Degree	.29	.46	0	1
Work status				
Full-time worker	.68	.48	0	1
Housekeeper	.07	.26	0	1
Other work status	.07	.26	0	1
Permanent disability	.04	.19	0	1
Unemployed	.14	.36	0	1
Health status	4.14	.71	0	5
Interaction with the healthcare system				
General Practitioner	.39	.5	0	1
Family Counseling	.07	.26	0	1
Hospital	.14	.36	0	1
First-aid station	.04	.19	0	1
COVID				
Personally experienced COVID	.11	.31	0	1
A family member experienced COVID	.21	.42	0	1
Willingness to take COVID vaccine	.07	.26	0	1
N	28			

Table 2. Summary Statistics – Focus groups participants – General Population

Each focus group lasted approximately 70 minutes. During the focus groups, the moderator took notes that included the critical ideas arisen. The field notes were used between focus groups to understand if new themes had emerged, if there was a need to ask additional questions about specific topics in the next group, and if the group had not answered a question.

After the fourth focus group with the general population, the researcher noticed that she was no longer receiving new information and determined that saturation had been reached. The focus group

¹⁵ Focus group membership was primarily determined by education and working status. The assumption made was that communication would have been easier among people with similar educational levels or working experiences.

transcripts were then used to extrapolate the emerged topics, subsequently included in the scale. Following Straten et al. (2002), a step-by-step procedure was used to analyze these qualitative data. The analysis was conducted with Atlas.ti, a helpful software to conduct a qualitative analysis of large bodies of texts. First, the transcripts were coded to identify topics that emerged during the discussions. Coding consisted of “placing similar labels on” (Krueger & Casey, 2015, p. 147) excerpts indicating similar topics. In the second step of the analysis, multiple categories were created by grouping similar codes. Each category was assigned a label indicating the core theme of the category. Through this process, a total of seven categories were identified. These categories were considered possible dimensions of trust (Straten et al., 2002).

The identified topics and categories served as the basis for developing the scale items. Following De Vellis (2017), items were formulated by adopting the same everyday language used by focus groups participants as much as possible. A few items were also adapted from previously published scales. At a second point in time, two additional focus groups were conducted to confirm that all the dimensions of the construct to be measured had been included in the scale and to understand which were the main weaknesses that focus groups’ participants identified in the written items (Streiner et al., 2015, p. 20). Based on the feedback received, items were finalized in a clearer and easier to read way.

Scale development

The scale development phase comprised three steps. The first step consisted of pre-testing the developed items through **cognitive interviews** with the target population. During the interviews, respondents were asked to verbalize the mental process entailed by providing every answer. Boateng et al. (2018) argued that a range of 5 to 15 interviews is considered ideal for pre-testing. In this study, I conducted 16 interviews with the general population. Some of the interviewees were selected from those who, at the moment of the recruitment of focus group participants, had agreed to participate not only in the focus groups but also in subsequent follow-up activities. Individuals from age and education groups underrepresented among the available subjects were purposively sampled. Each interview lasted approximately 60 minutes. In this case, too, participation was rewarded with Amazon vouchers worth €10.

Following De Vellis (2017), I then had the initial item pool revised by a panel of purposively sampled experts, that is, researchers working in the field and healthcare professionals. The experts were asked to assess the relevance of each item (De Vellis, 2017, p. 135) for measuring the construct of trust in the healthcare system. The experts were also asked to evaluate the items' clarity and conciseness and point out ways of capturing the construct that had not yet been considered.

The potential scale items were then administered to a sample of 349 individuals representative of the Italian population in terms of gender, age, and education. The sample was recruited by Luc.id, a survey company that is an audience platform for sourcing and understanding human answers. The survey was conducted online through an internet-based survey program (Qualtrics). Participant compensation was determined by Lucid based on the length of the survey (median duration was 12 minutes).

To conclude, I conducted some analyses to assess the instrument's validity. The analyses consisted of correlating each subscale's scores with six variables that were expected to be related to the scales. These variables were: a. trust in science; b. a single-item measure of trust in the healthcare system; c. trust in respondent's physician; d. trust in pharmaceutical companies; and e. attitudes towards vaccination (i.e., vaccines' safety and effectiveness). The first four variables were measured using a scale from 1 to 10. Attitudes towards the safety and effectiveness of vaccines were measured using a 5-points Likert scale.

Results

Item development phase

At the end of the item development phase, the topics that emerged in the focus groups served as the basis for developing the scale items. Following the approach used by Straten et al. (2002), I will briefly summarize the main themes that emerged as I categorized them.

The first theme that emerged was trust in the **availability of good quality care for everyone in need**. The basic principles on which the Italian healthcare system has been built are universality, equality, and equity. Interestingly, the qualitative analysis showed that the fact that these principles are put into practice is considered essential for a fiduciary relationship between citizens and the health system. According to focus group participants, to trust the system, everyone must be treated equally, that no one is left behind, and that everyone has the right to healthcare regardless of ethnicity, socioeconomic status, or place of residence. Treatment levels that vary across regions or long waiting lists that deny access to examinations and care to those who cannot afford private healthcare are signals that the system cannot be fully trusted.

“When I hear that people prefer to go to the north, I have to laugh. There is no tendency to go to the north! If [participant's] mother could have been treated in her region (she had the option to go to another region—cause you have to spend money and not everyone can afford it), she would have stayed there. People from the south leave, they go away, they come to Lombardy or Tuscany to specialized centers, not because they want it... [...] Because there are no structures that can deal with these situations... [...] With such a response you cannot have trust.”

“Not having to wait a year and a half for a specialist visit and having to go to a private doctor. I mean, by now, I pay for all my visits because I know that whatever I decide to do using the health system, I’ll still have to wait months and months. My uncle was once given an appointment after a year—good thing it wasn’t urgent. [The system] forces you to spend money, but some people don’t have the money to spend, and they have to wait.”

In addition, the fact that some abstractly recognized rights to health in practice are not guaranteed is also detrimental to trust in the system. This is the case, for example, with the exercise of the right to abortion. Some focus group participants emphasized that the healthcare system must, of course, guarantee the right of physicians not to perform abortions if doing so violates their beliefs. However, to trust the system, the system must also ensure that physicians’ personal beliefs do not harm patients’ rights.

The second theme that emerged related to trust in the **quality of healthcare professionals** and included issues linked with citizens’ trust in the competence, professionalism, and ongoing education of healthcare staff. Focus group participants emphasized that trust in the system requires that healthcare professionals be hired solely based on merit and not through nepotism and patronage. Among the qualities of health professionals, some soft skills (e.g., courtesy, the ability to understand patients’ needs, and empathy) were indicated as necessary for building a fiduciary relationship. Healthcare providers’ commitment and motivation also appeared to be important. Trust in the healthcare system was associated, among other things, with the feeling that one can entirely rely on professionals who are not only experienced but also willing to do everything in their power to achieve patients’ well-being. In many cases, high levels of trust in the professional qualities of individuals were contrasted with low levels of trust in the organization and management of the healthcare system, confirming the multidimensionality of the construct studied.

“About competence... In my opinion, the competence of individual health professionals, whether a nurse or a doctor, in my experience, which fortunately is not direct [...]... I always saw a very high level of competence in the individual [...] doctors and nurses; they exactly knew what to tell me and what to do for the good of the person I was accompanying. [...] I’ll give you an example related to my mom. Two years ago, she had a stroke. We first took her to a hospital. We were in [name of city]. Fortunately, in [name of city], the healthcare is excellent [...] All the doctors I talked to were known for their professionalism. Everything went perfectly except for the detail that in one week— she was hospitalized for a week—she had one test a day. [...] My distrust, if I may say so, toward the healthcare system relies on this: if we do not optimize an organization, we lose time, we lose opportunities for others, for optimizing the system, because my mother was treated very well, but we were able to do everything in one, maximum two days. [...] The doctors seemed to be challenged by the fact that there was a kind of ceiling, a funnel for those who had to do the controls and evaluate the X-rays. So, **there were some difficulties at the organizational level, but for me, the individual [professionals] were the best I could find.**”

For the healthcare system to be trusted, patients should feel that they are the focus of healthcare providers; they should be given enough time and attention and must be acknowledged when they claim that they are not well.

Treating patients with humanity, respect, and empathy was cited in nearly every focus group as absolutely critical to trusting the healthcare system. One of the focus group participants referred to an episode in which they felt not having being treated with humanity using these words:

“When you wait that long, you feel like a number... There was also another episode with my ex-boyfriend’s mother. She had a hematological problem and needed a transplant in the hematology department at [name of hospital], which seems to be one of the most prestigious... but I really had the impression that they were treated like animals. These people had to go there fasting once a month at 7 a.m. and were received at 2 p.m. [...] I think there are ways to avoid this. [...] You can wait half an hour, but you can’t wait the whole day. That seems absurd to me. I think the moment you wait, you are wasting your time; you are wasting your life, you are saying, “I am a number, I am not being treated the way I think I should be”.”

Furthermore, to trust the healthcare system, each patient must be considered in their complexity, as a body and a mind. The crucial aspect of patients’ emotions and psychology when interacting with healthcare providers was very emphasized.

The theme of competence also emerges concerning **health system leaders and managers**. To trust the system, citizens must be able to rely on the fact that the only principle that applies when appointing leaders and managers of healthcare institutions is professional competence. However, according to focus group participants, professional competence is often subordinated to political expediency.

“We always come back to the fact that I trust the professionals who work there and whom I know. Also, because they have years of experience, I mean... it’s not like they are clueless. But if the problem is the trustworthiness of the entire system... [...] There is the political spoils system here. Politics essentially determine chiefs of Medicine. Why does it have to be that way? Why cannot an internal body of the same healthcare enterprise make decisions based on the curriculum? Based on experience, on publications. In my profession, I have made appeals for physicians who had a diploma, two masters, and three specialties against a physician who passed only one specialty but published regularly in the local newspaper. [...] The choice was made because the person was the vice president of the medical association.”

Also, citizens must be allowed to believe that healthcare representatives make decisions without conflicts of interest, in the sole interest of citizens, and as far as possible based on scientific evidence. When the perception is that this is not happening, trust is compromised.

Another critical theme emerged: trust that the healthcare system puts the **person at the core of its functioning**. According to focus group participants, citizens must be able to rely on the fact that, when in need, they will not be left alone in their distress. They will find reference points to help them throughout the diagnosis and treatment process.

“My daughter has Williams syndrome. [...] She has mental retardation and also some motor retardation. But when they gave the diagnosis, at the age of 3... [They told me:] “Your daughter is like this; she will have a normal life.” And that was it. But then... What am I going to do? Where am I going to go? I had to do everything myself. I did not even know what it was, and I started reading up on it.”

Patients also need to be confident that their questions will be heard and get all the answers they need, both in the diagnostic and treatment phases.

The fourth theme was trust in the **quality of healthcare services**. Health systems are complex systems consisting of various professionals, treatment providers, and institutions. According to focus group participants, trust requires the perception that all the elements that make it up cooperate. Thus, on the one hand, perceiving that teamwork is preferred to individual work or that health professionals consult with each other to help patients are essential to trust the system. In addition, it was emphasized that healthcare facilities, both within each region and throughout the national territory, should not operate in isolation. Healthcare facilities should be part of a network that ensures that patients receive treatment as quickly as possible and in the location that is best suited to their specific needs. The appropriateness of healthcare facilities is also considered relevant.

The fifth theme was trust that the healthcare system is **managed correctly**. It included topics such as the availability of sufficient resources (in the form of funds, personnel, facilities, and equipment) and their efficient use, the efficient organization of healthcare services, and the speed of the healthcare system in responding to patients' needs.

Based on these themes, I developed 69 items. Before administering them, I decided to test items' readability. The analysis was conducted using the READ-IT assessment tool developed by Dell'Orletta, Montemagni, and Venturi (2011). The obtained GULPEASE index¹⁶ was 60,3, which signals that, overall, the set of items was sufficiently easy to read for people with middle school education.

Scale development

¹⁶ The GULPEASE index is a readability index calibrated on the Italian language that predicts the lexical and syntactic complexity of a text. It has been developed by Lucisano and Piemontese (1988). A GULPEASE index below 60 indicates that people with middle education may find the text difficult. A text with a GULPEASE index greater than 60, though, is considered easy to read for people belonging to this education category.

After the end of the item development phase, I conducted 15 cognitive interviews to understand how individuals of different ages, genders, and socioeconomic backgrounds would have interpreted each item. Table 3 shows the summary statistics of the interviewed people. Three participants in this study phase had already participated in the focus groups. The decision to invite them to participate in the cognitive interviews as well was made with the idea of getting feedback from people who had already had in-depth discussions about the topic being analyzed.

	Mean	SD	Min	Max
Gender	.5	.52	0	1
Age	45.19	15.64	19	75
Education				
High School, without diploma	.19	.4	0	1
High School Diploma	.62	.5	0	1
Bachelor's Degree	.12	.34	0	1
Master's Degree	.06	.25	0	1
Work status				
Full-time worker	.44	.51	0	1
Housekeeper	.25	.45	0	1
Student	.12	.34	0	1
Other	.19	.4	0	1

Table 3. Summary Statistics - Cognitive Interviews

The interviews, which lasted an average of one hour, provided an opportunity to discuss whether some items were unclear and needed to be reworded, which items were interpreted as identical, the format in which to present them, and whether or not to include the "no opinion" option in the survey. Field notes were taken during the interviews to capture interviewees' feedbacks. In some cases, interviewees were presented with two different versions of the same item and were asked to provide feedback on both of them.

At the end of the cognitive interviews, 11 items were deleted due to their lack of clarity or redundancy. Two items were added to clarify previously written items asking for more than one information. Overall, most of the items were written in a much easier and more understandable way due to cognitive interviews.

The items were then administered to a sample of 10 experts (four experienced researchers, two doctors, a nurse, a pharmacist, and two Ministry of Health former managers). The experts were asked to rate, on a five-point Likert scale (1 – Totally irrelevant; 5 – Very relevant), to what extent they thought each item was relevant to measure the construct of trust in the healthcare system. Experts were also asked to indicate what items seemed unclear and to provide an explanation for their answers. Average rankings ranged from 3,2 to 4,8. Therefore, no item was eliminated. The language of some of the items was slightly clarified.

The definitive version of the items was finally administered to a sample of 349 subjects, representative of the Italian population on gender, age, and education. Previous research has not agreed on the sample size needed to obtain reliable data. According to Nunnally (1978), 300 people is an appropriate number to “eliminate subject variance as a significant concern” (De Vellis, 2017, p. 137). More recently, Fabrigar and Wegener (2012) showed that “under moderately good conditions (communalities of .40 to .70 and at least three measured variables loading on each factor), a sample of at least 200 should suffice” (p. 26). The authors suggested only planning on “moderately good conditions in the data given that optimal conditions may sometimes be difficult to achieve” (p. 27). These arguments suggest that the available sample size was sufficient for factor analysis.

Table 4 shows the summary statistics of the individuals in the development sample¹⁷. The analysis was conducted using exploratory factor analysis to arrive at a parsimonious representation of the underlying structure of correlations among the measured items (Fabrigar & Wegener, 2012, p. 20).

Variable	Percent
Age group	
<24	8.31
25-34	12.32
35-54	34.38
55-64	17.19
65+	27.79
Gender	
Male	48.71
Female	50.72
Not specified	0.57
Education category	
Elementary/Middle Education	14.04
High School Education	62.18
More than High School Education	23.78
Marital status	
Unmarried	24.64
Married, cohabiting with spouse	51.29
Married, not cohabiting with spouse	1.43
Cohabiting	9.46
Divorced	5.44
Legally separated	2.29
Widower	5.44
Geographic Area	
North	45.56
Center	18.91
South and Islands	35.53
Insurance	
No	63.90
Yes	36.10
N	349

Table 4. Summary Statistics - Survey

¹⁷ Responses were analyzed using SPSS 27, STATA 17, and RStudio 5. STATA 17 and RStudio 5 were used to conduct the analyses on the Spearman correlation matrices.

Initial data screening revealed that 6 of 349 respondents selected the most negative response option to all 61 items. Results of the factor analysis are then reported with and without these invalid responses.

Before beginning the exploratory factor analysis, item performance was assessed to determine if any of them needed to be excluded from the analysis. According to De Vellis (2017), two valuable attributes for a scale item are relatively high variance and a mean “close to the center of the range of possible scores.” Indeed, on the one hand, “if all individuals answer a given item identically, it will not discriminate among individuals with different levels of the construct being measured and its variance will be 0” (p. 143). On the other hand, “item means too near to an extreme of the response range will have low variance, and [...] will correlate poorly with other items”. The summary statistics of the items (Appendix A) show that there was no missing data and all of the items had at least one response for all seven scores. The mean values were not exceptionally high (most of them were in the 3 to 4 range), and there was no item with zero variance. Values of univariate skewness were indicative of mostly symmetrical data, with only 14 items presenting a moderate level of skewness¹⁸. Values of univariate kurtosis ranged from -1.185 to -0.036, with only nine items showing a kurtosis equal or greater than -1.000.

These statistics, and the fact that data had several ordered categories that made them sufficiently continuous, supported the use of a Pearson correlation matrix to conduct factor analysis. However, Mardia’s multivariate kurtosis measurement suggested that data were multivariate nonnormally distributed¹⁹. For these reasons, factor analysis was first undertaken using a Pearson correlation matrix, but a sensitivity analysis with Spearman correlations²⁰ was then performed to ensure robust results.

Before starting the factor analysis, I evaluated whether responses had been affected by social desirability. I did so by correlating each item with the social desirability scores calculated by summing the single item scores of the 9-item Italian version (SDS, Manganelli Rattazzi, Canova, & Marcorin, 2000) of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) included in the survey²¹. All the trust items exhibited a very low correlation with social desirability scores. Therefore, no item was deleted.

After all this, I proceeded with an assessment of the factorability of the correlation matrix. A prerequisite for conducting an exploratory factor analysis is that the correlations among variables are sufficiently high ($>.30$) and that the partial correlations are low (below $.70$) (Hair et al., 2014). Of the

¹⁸ Among these 14 items, skewness ranged from -0.714 to -0.510.

¹⁹ The expected kurtosis was 3843 whereas the obtained Mardia’s multivariate kurtosis was 5143.188. This shows that data are not multivariate normal ($p < .001$).

²⁰ Spearman correlations are particularly adequate for kurtotic distributions or when outliers are present (de Winter et al., 2016).

²¹ Scale items were presented as statements, and participants were asked to evaluate their degree of agreement on a 7-point Likert scale, ranging from 1 (“absolutely false”) to 7 (“absolutely true”). Scale reliability for the Italian sample was $\alpha = .66$, whereas in the present study it was $.61$.

3721 possible correlations, only 4 correlated lower than 0.3. All partial correlations were less than 0.1. The adequacy of the correlation matrix for the EFA was also assessed by analysis of the determinant²², Barlett's test of sphericity, and the Keiser-Meyer-Olkin measure of sampling adequacy. In this case, the test statistically rejected the null hypothesis that the correlation matrix was an identity matrix (chi-square of 23083 with 1830 degrees of freedom) at $p < .001$. The KMO measure of sampling adequacy was .983, which is considered excellent.

Due to the presence of multivariate nonnormality, I preferred an estimation method with reduced sensitivity to nonnormality (Watkins, 2022). Data were then analyzed using principal components as an extraction method for factor analysis, which does not assume multivariate or univariate normality (Pituch & Stevens, 2016).

Parallel analysis (Table 5) over 1000 replications (De Vellis, 2017), visual scree test (Table 6), and eigenvalues (Figure 5) were used to determine the number of factors to retain for rotation. Although the scree plot was not sufficiently unambiguous and did not help much to make the decision (it suggested retaining three to four factors), combining these three criteria I decided to keep maximum four factors and assessed the scale accordingly.

Factor	Real Eigenvalues		Random Eigenvalues
1	37,41360343	>	2,017858
2	2,422855517	>	1,912835
3	1,48113444	>	1,83868
4	1,158748631	>	1,778316
5	0,9217927	<	1,729193
6	0,866030183	<	1,679468

Table 5. Parallel Analysis

Factor	Eigenvalues	% of Variance	Cumulative %
1	37,414	61,334	61,334
2	2,423	3,972	65,306
3	1,481	2,428	67,734
4	1,159	1,900	69,633
5	0,922	1,511	71,144

Table 6. Eigenvalues and Variance Explained

²² The obtained result was 2,125E-31.

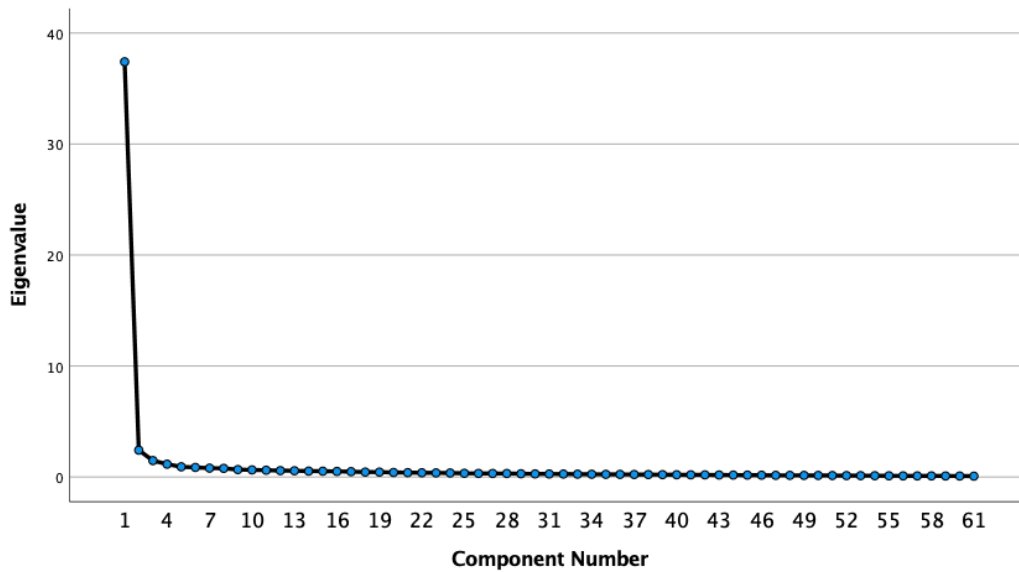


Figure 9. Scree Plot

An oblique rotation method was chosen to allow for some degree of correlation among factors, which tends to be the norm in social sciences (Costello & Osborne, 2005). Among the available oblique rotation methods, Thompson (2004) suggests that Promax rotation is “almost always a good choice” (p. 3). The kappa value of Promax was set at four.

The threshold for the salience of factor loadings was set at .50, which ensured both practical and statistical²³ significance. Loadings equal to .50 (or more) denote that (at least) 25 percent of the variance is accounted for by the factor (Hair et al., 2014). They can be considered “fully satisfactory” loadings (Morin et al., 2020, p. 1052) and, especially if accompanied by sufficiently high communalities, guarantee that slightly small samples do not bias the results of factor analysis (Kyriazos, 2018)²⁴. Items were deleted if: a. their factor loading was lower than .50; b. their commonality was less than .50 (Hair et al., 2014); c. their factor loading was high ($\geq .30$) on two factors or more.

Models with four and three factors were sequentially evaluated to assess which one had to be preferred. Item 22 revealed low communality. Therefore, it was excluded from the analyses. The four-factors model explained 70.2 percent of the total variance before rotation, with the first, second, and third factors accounting for 61.9%, 4%, and 2.4% of the variance, respectively. The fourth factor was saliently loaded by only two items, which is a symptom of over-extraction that suggests that a model with fewer factors should be considered. In the three-factors model, items 32 and 61 had communalities lower than .50 and were therefore excluded from the analysis. The model explained 69.2 percent of the total

²³ Following Norman and Streiner (2014), the statistical significance ($p = .01$) of factor loadings was calculated as follows: $5.152 / \sqrt{(349-2)} = 5.152 / 18.63 = 0.27$.

²⁴ This choice seemed particularly adequate due to the necessity of dropping some invalid responses.

variance before rotation. Five items saliently loaded the third factor. The model included 12 cross-loadings, which were deleted. Items loading on one factor only but with loadings lower than .50 were also deleted, and loadings of the remaining items were then recalculated as suggested by (Hair et al., 2014, p. 119).

The final version of the three-factors model (Appendix B and Table 7) included 34 items, with loadings ranging between 0.524 and 0.906.

Subscale	Var	How much do you trust that...	1
Subscale 1: Trust in the Quality of Healthcare Services—Care, Facilities, and Professionals ($\alpha = .973$)	QUAL1	the healthcare staff is always professional.	0,901
	QUAL2	health care staff are highly competent.	0,878
	QUAL3	in health care facilities teamwork is preferred over individual work.	0,874
	QUAL4	the health care system usually provides high-quality care.	0,867
	QUAL5	patients are always informed about the various existing treatments.	0,863
	QUAL6	health care staff do everything they can to help patients.	0,837
	QUAL7	health care facilities have excellent hygiene.	0,790
	QUAL8	patients are always treated with kindness.	0,776
	QUAL9	health care staff confront each other when they don't know how to help a patient.	0,738
	QUAL10	those who lead healthcare facilities (hospital principals, medical directors, etc.) are very knowledgeable and experienced.	0,677
	QUAL11	patient data is used only for what it is asked for.	0,647
	QUAL12	healthcare professionals are continually being trained.	0,642
	QUAL13	you can be treated well without having to travel many miles.	0,605
	QUAL14	public health facilities give patients as much time as they need.	0,601
	QUAL15	health care facilities have all the needed materials and equipment.	0,593
	QUAL16	health care facilities are provided with the most modern equipment.	0,559
	QUAL17	health care staff does not consider patients a nuisance.	0,556
	QUAL18	patients always receive answers to their questions.	0,524
Subscale	Var	How much do you trust that...	2
Subscale 2: Trust in the Management of Healthcare Resources and Leadership of the System ($\alpha = .955$)	MNLD1	waiting lists are not so long that they prevent patients from being treated on time.	0,906
	MNLD2	any cuts to healthcare are made in a way that hurts patients as little as possible.	0,863
	MNLD3	the health care system does not waste available public funds.	0,860
	MNLD4	the influence of politics in the appointment of health care leaders (chief medical officers, medical directors, etc.) will not harm competence.	0,767
	MNLD5	in all regions of Italy you would be treated properly.	0,766
	MNLD6	health care facilities have an adequate number of staff.	0,754
	MNLD7	those who lead health care facilities (chief medical officers, medical directors, etc.) are chosen more for competence than for political reasons.	0,754
	MNLD8	usually health care facilities are not obsolete and inadequate.	0,728
	MNLD9	in the case of an error detrimental to your health you would be told with transparency.	0,718
	MNLD10	the healthcare system will transparently declare its organizational and management problems.	0,705
	MNLD11	the healthcare system thinks more about the health of its citizens than about costs.	0,643
Subscale	Var	How much do you trust that...	3
Subscale 3: Trust in the Accessibility and Reliability of the Healthcare System ($\alpha = .894$)	ACRL1	healthcare professionals always believes patients who say they are sick.	0,838
	ACRL2	the health care workforce treats equally those who are rich and those who are less so.	0,737
	ACRL3	if you asked several specialists for their opinion on the same health problem, you would receive similar opinions.	0,717
	ACRL4	the information disseminated by health care institutions is reliable.	0,691
	ACRL5	dealing with the health care system is easy, even if you don't know anyone who works there.	0,657

Table 7. Subscales

Communalities ranged between 0.549 and 0.785. Analysis of residuals showed one residual coefficient greater than .10, suggesting that little residual variance remained after extraction. However, the RMSR²⁵ for the three-factors model was 0.029, which indicates a good-fitting model (Tabachnick et al., 2020, p. 564).

²⁵ As suggested by Watkins (2022), RMSR was calculated by using the standalone computer program entitled Residuals (edpsychassociates.com) developed by Marley Watkins.

The three factors of the final version of the scale were: a. Trust in the Quality of Healthcare Services—Care, Facilities, and Professionals (18 items); b. Trust in the way the Healthcare System is Managed and Lead (11 items); and c. Trust in the Accessibility and Reliability of the Healthcare System (5 items). Table 7 contains the factor correlation matrix. Interfactor correlations were slightly elevated but below .80, which can be considered reassuring.

Factor	1	2	3
1	1.000	.738	.735
2	.738	1.000	.679
3	.735	.679	1.000

Table 8. Factor Correlation Matrix

Cronbach’s α for the entire scale was .980 with 95% CI [.977 , .983]. The Cronbach’s α for the three subscales were .973 with 95% CI [.968 , .977], .955 [.948 , .962], and .894 [.876 , .911], respectively. After removing the invalid responses, Cronbach’s α for the full scale was .979, whereas the Cronbach’s α for the three subscales were .970, .952, and .886, respectively. New factor loadings remained almost identical.

Validity

The validity of the three subscales was assessed by correlating the factor scores with six measures that were expected to be related to the three subscales. Summary statistics of the variables used to test the validity of the scales can be found in Table 9.

Variable	Obs	Mean	Std. Dev.	Min	Max
Trust in Science	349	7.946	1.878	1	10
Trust in Healthcare	349	6.089	2.271	1	10
Trust in Physician	349	6.642	2.356	1	10
Trust in Pharma Companies	349	5.57	2.478	1	10
Vaccines’ safety	349	3.456	.81	1	4
Vaccines’ effectiveness	349	3.622	.711	1	4

Table 9. Summary Statistics - Measures used to test scales’ validity

Table 10 shows that there was a positive and statistically significant ($p < 0.001$) correlation between each subscale and the variables used to assess validity. Almost all correlations were higher than .30. The

values of correlation ranged from 0.255 to 0.778. The three subscales correlated particularly high with the single-item measure of trust in the healthcare system.

	Factor 1	Factor 2	Factor 3
Trust in science	0.4443*	0.2550*	0.4082*
Trust in the healthcare system	0.7781*	0.6842*	0.6871*
Trust in physician	0.5415*	0.4230*	0.4760*
Trust in pharma companies	0.5661*	0.6105*	0.5404*
Vaccines are safe	0.4654*	0.3571*	0.4102*
Vaccines are efficient	0.4683*	0.3105*	0.4408*

Table 10. Correlations between subscales and measures to assess validity

Discussion and conclusions

In this study, I have developed a multidimensional scale to measure public trust in the Italian healthcare system. Although other scales to measure this construct already exist, most of them are either unidimensional or have been validated in contexts that are too different from Italy. Building on the theoretical framework developed in the first subproject of this dissertation, I developed this scale taking into account the various actors and institutions operating at different levels of the healthcare system.

After reviewing the existing literature on trust and the existing scales to measure trust in the public sector and in the healthcare system specifically, I collected and analyzed qualitative data to identify the themes to be included in the new scale. Five themes emerged. Interestingly, only a minority of them were related to healthcare professionals, signaling that the construct under study should be thought of as a multifaceted one.

After the item development phase, the produced items were administered to a sample of 349 people representative of the Italian population in terms of gender, age, and education. The exploratory factor analysis performed with the collected responses suggested the existence of three factors, corroborating the multidimensionality of trust in the healthcare system. The three subscales showed high internal consistency and correlated highly and in the expected direction with measures that were theoretically expected to be related to the subscales. These results are encouraging and suggest that the identified factors should replicate in other, bigger samples.

To test whether the hypothesized factor structure replicates across samples, and to ensure the reliability and validity of the scale (and its subscales), following Boateng et al. (2018), in the next future the scale will be administered to a new sample of at least 500 individuals representative of the Italian population in terms of age, gender, education, and region of residence. A confirmatory factor analysis

will then be conducted to identify a set of correlated factors that explain most of the variation among scale items. Moreover, the new sample will also contain questions that will be used to assess the subscale's construct validity.

Chapter 3

Public Trust in the Healthcare System: A Survey Experiment on the Role of Indirect Experiences

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Anthony M. Bertelli

Maria Cucciniello

Abstract

Using a 2x2 between-subjects survey experiment, this study examines how the public trust in the healthcare system of individuals who are members of two racial/ethnicity groups of the U.S. population—whites and blacks, respectively, is affected by the exposure to predominantly positive (vs. predominantly negative) indirect experiences from communicators who belong to their ingroup (vs. to an outgroup). The results show that, on average, trust in the system is lower when blacks and whites are exposed to negative rather than positive experiences. However, the sources of experiences, rather than their valence, appear to play a prominent role. In particular, the effect of the source factor depends on whether the respondent is a member of a majority or minority group. While blacks appear to be influenced primarily by experiences held by ingroup members, this is not true for whites.

A widely held hypothesis is that attitudes toward the public sector are shaped by personal experience. This hypothesis is based on the idea that positive and negative encounters lead to corresponding positive and negative attitudes. However, the relationship has been shown to be “non-linear and fragile” (Rölle, 2016, p. 236). In most cases, however, citizens' direct encounters with public institutions are insufficient to make assessments and form attitudes. In our present context, scholars have primarily studied the effect of direct experience of the system²⁶ on trust, particularly in the form of doctor-patient interactions. However, most people have little or no direct experience with the healthcare system construed more broadly. Nevertheless, they may form judgments about its trustworthiness based on the opinions of people they consider credible, such as friends, family members, and colleagues, or through “anonymous ‘others’ outside an individual’s realm of personal contacts” (Mutz, 1992, p. 90). The purpose of this study is to examine the extent to which and the ways in which indirect experiences shape public trust in the healthcare system.

Currently, our knowledge of the relationship between exposure to indirect experiences and public trust in the healthcare system is highly incomplete, in part because the complex social structure surrounding the individuals whose trust has been studied has long remained in the background. What we can surmise about this relationship is primarily due to (largely descriptive) studies of public attitudes

²⁶ In this study, when we refer to the healthcare system we mean hospitals, health insurance companies, medical schools and health researchers, public health departments, and health professionals.

toward the police sector (Brunson, 2007; Harris & Jones, 2020; Miller, 2004; Rosenbaum et al., 2005; Tankebe, 2010). For example, in one such study, Rosenbaum et al. (2005) showed that knowing that someone else had a good or bad encounter with police influenced attitudes in predictable ways. Analyses of this type are particularly relevant because nowadays, the Internet makes other people's experiences readily available, facilitating social influence processes.

In our research, we will use a 2 (valence: predominantly positive vs. predominantly negative) x 2 (sources of indirect experiences: majority ingroup vs. majority outgroup) between-subjects survey experiment to test the effects of exposure to indirect experiences of unknown individuals on trust attitudes toward the healthcare system. Specifically, we want to examine how individuals who are members of two racial/ethnicity groups of the U.S. population—whites and blacks, respectively, respond to predominantly positive (vs. predominantly negative) indirect experiences from communicators who belong to their ingroup (vs. to an outgroup). We believe that looking at differences in these two sub-populations will provide interesting insights. Blacks and whites have always differed in their average trust in the system (Boulware et al., 2003; Doescher, 2000). In particular, the relationship between blacks and the healthcare system has been marked by structural violence, discrimination, and racism (Feagin & Bennefield, 2014), which partly explain disparities in trust levels (Adegbenbo et al., 2006). We hypothesize that, compared to whites, this affects how black people respond to cues about the system's trustworthiness.

In the following paragraph, we briefly summarize the scientific evidence that will guide us in constructing the hypotheses and the treatments to be administered. We then explain the methodology used and provide an analysis of the data collected. Finally, we discuss what conclusions we can draw from the data and the implications.

Theory and hypothesis

For a long time, scholars have debated whether “people’s levels of trust are fixed or change over time” (OECD, 2018, p. 10). According to some authors, the propensity to trust is a relatively stable characteristic of the individuals (Sztompka, 1998; Uslaner, 2002), “usually credited to the caring family climate during early socialization” (Sztompka, 1998, p. 20) or learned at an early age. In contrast to this perspective, others have argued that trust varies over the life cycle (Hudson, 2006; Schoon & Cheng, 2011) and is affected by the direct experience of the system and its reputation.

Contemporary scholars tend to privilege the idea that a combination of these two factors should be preferred. In their life learning model, Schoon and Cheng (2011) showed that political trust is shaped by both early and later experiences with institutions and society. Moreover, testifying that trust attitudes can be influenced and do change over time, a relatively recent experiment by Faulkner and co-authors

(2015) demonstrated that the exposure to positively (vs. negatively) valenced arguments about politicians alters reported levels of trust in politicians and institutions.

These findings are consistent with the socio-psychological argument that attitudes are not always inherited (Olson et al., 2001) or transmitted at an early age. In a significant number of cases, they are determined by **direct experiences** with the attitude object (Fazio et al., 1978; Regan & Fazio, 1977), either in the form of a “single traumatic or salient incident” or “in the form of repeated, accumulated contacts” (McGuire, 1969, p. 166). Moreover, attitudes can also be determined by **indirect social communications** from others, that is, “messages from other people which contain information and”, in some cases, “induce the receiver to change her attitude”²⁷ (McGuire, 1969, p. 171).

Existing evidence reveals that the tendency to develop attitudes based on the information available in the social environment (Salancik & Pfeffer, 1978) is particularly salient “when situations are ambiguous or when concepts lack objective verification” (Ferrin et al., 2006, p. 875) like it often is the case with trust in public institutions and the healthcare system specifically. On many occasions, the trustworthiness of public institutions cannot be objectively verified, either because the trustor has scarcely (or not) interacted with the part whose trustworthiness must be evaluated or because the individual recognizes not to have adequate knowledge to make such an evaluation. Taking the healthcare setting as an example, individuals often have little direct interactions with the system, apart from sporadic exchanges with general practitioners.

Nevertheless, scholarship suggests that indirect information can be used as a basis to get to a trust evaluation (Brown & Reingen, 1987; Ferrin et al., 2006; McKnight et al., 1998). Through the exposure to other people’s judgments on their interactions with the healthcare system, using multiple cognitive strategies (Soll & Larrick, 2009), individuals are expected to integrate the received informational stimuli (N. H. Anderson, 1971; Sawyers & Anderson, 1971) with their own prior opinions and trust evaluations, and eventually change their trust attitudes.

Valence

Differences in the characteristics of indirect social communication affect the formation and change of attitudes in different ways. Researchers have pointed out that negative information tends to be more influential than positive information (Baumeister et al., 2001; Mizerski, 1982). This tendency is known as the negativity effect or negativity bias, according to which when people are confronted with both positive and negative information stimuli, “negative stimuli attract more attention, receive greater weight when forming evaluations, and are recalled more frequently” (Meffert et al., 2006, p. 29).

²⁷ An attitude can be defined as “*the psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor*” (Eagly & Chaiken, 1993, p. 1, emphasis in original).

This pattern has already been recognized in the fields of impression formation (Fiske, 1980; Klein, 1991; Skowronski & Carlston, 1989), political behavior and communication (Lau, 1985; Meffert et al., 2006; Soroka & McAdams, 2015), and consumer research (Herr et al., 1991; C. H. Lee & Cranage, 2014; K.-T. Lee & Koo, 2012). According to some authors (see, e.g., Fiske, 1980), the mechanism behind it is first adaptive. Being “cognitive misers” (Taylor, 1981), individuals cannot process all information equally. As a result, they prioritize extensive and effortful processing of negative information, which may signal a need to change something about themselves to have a higher probability of surviving and passing on their genes (Baumeister et al., 2001).

Consequently, Kahneman and Tversky (1979) postulated that when people are faced with decisions under risk, they exhibit loss aversion. Particularly in high-stakes situations (Slovic, 1969), “people are more strongly motivated to avoid costs than to approach gains,” and this motivation “increases as the potential costs increase” (Kellermann, 1984, p. 38). Accordingly, in such scenarios, individuals automatically focus greater attention on negative information (Pratto & John, 1991) and assign more value, importance, and weight to negative stimuli than positive ones (Ito et al., 1998; Pratto & John, 1991). For instance, this cost-orientation mechanism has been shown to operate when citizens are exposed to negative (compared to positive) information about presidential candidates (Lau, 1985). Since presidential elections are highly involving due to the power of presidents to affect citizens' lives, individuals prefer to minimize their potential losses and do so by placing more value on negative information than on positive information (Lau, 1985).

We hypothesize that the same phenomenon might happen when people hear negative (vs. positive) information about others' experiences with the healthcare system and arrive at a trust evaluation based on what they heard and their prior experiences with the system. Assuming that “acting on trust is risky” (Hardin, 2001, p. 10), we predict that, on average, individuals will give greater weight to negative information to minimize the risk that their trust will not be honored and that they will thus suffer material and emotional losses. This reasoning is expected to work particularly well in health-related situations, in which decisions based on trust, such as disclosing confidential information or participating in medical trials, may expose individuals to high losses if it turns out that trust had been misplaced.

It is worth emphasizing that the rationale we offer for the functioning of negative bias is only one of several possible ones (Kanouse & Hanson Jr., 1987). The second line of reasoning, although insufficient in its own right (Kellermann, 1984), states that negative information is more salient and informative. Negative information is less frequent because of the social norms that prevent individuals from sharing it (Kanouse & Hanson Jr., 1987). Consequently, when negative information is shared, it has the power to stand out (Mizerski, 1982, p. 302). Moreover, given “the assumption that normative behavior is behavior that is positive” (Kellermann, 1984, p. 41), non-positive behaviors tend to be more diagnostic than positive ones. For example, in the case of public services, the norm is that citizens'

interactions with them are positive. For this reason, unsatisfactory experiences are weighted more heavily than satisfactory experiences when evaluating government services (Kahn et al., 1976).

There is evidence that this mechanism is also at work in trust situations. In a study by Slovic (1993), the author showed that negative news about the management of a hazardous facility, a nuclear power plant, influenced respondents' trust in the facility's administration more than positive news. According to the author, this effect can be explained by what he calls the “asymmetry principle,” according to which “when it comes to winning trust, the playing field [...] is tilted towards distrust” (p. 677). According to Slovic's theory, trust-destroying events are “more visible or noticeable than positive (trust-building) events” (p. 677), and when they catch our attention, they “carry much greater weight” (p. 677). Similar results were also obtained by Poortinga and Pidgeon (2004) in a survey of GM foods in the UK.

Although encouraging, neither of these studies focused on the health system and, more importantly, they measured expressed rather than actual effects on trust. Moreover, both studies focused on the impact of news on trust. In contrast, we are interested in the effects of indirect (rather than mediated) experiences on trust—that is, experiences gained through information shared by other individuals. To overcome these limitations, we are willing to test these hypotheses:

H1. Exposure to a majority of negative indirect experiences will influence trust in the healthcare system more than exposure to a majority of positive experiences.

H2: Exposure to a majority of negative indirect experiences with the healthcare system will be negatively associated with the likelihood of participating in a Cancer Prevention Program²⁸.

Ingroup vs. outgroup influence

In examining how the experiences of unknown individuals affect trust in the healthcare system, theoretical arguments suggest that the characteristics of the sources of trustworthiness cues may play an important role. In particular, previous research has shown that sources from one's group (*ingroup influence*) are more influential than those from other groups (*outgroup influence*) (Mackie et al., 1990; MacKie et al., 1992), regardless of the strength of the arguments (Esposito et al., 2013).

There are at least two reasons for such an *ingroup effect*. First, category membership makes the source particularly attractive to recipients (Kelman, 1961), facilitating the acceptance of ingroup communication with little content processing. In addition, “communication from a [ingroup] source [may also] encourage careful and thoughtful processing for the very reason that it is seen as reflecting, defining,

²⁸ As it will be explained later on, willingness to participate in a Cancer Prevention Program has been used as a measure of behavioral trust.

and informing about social reality for people *similar* to the recipient” (Mackie & Queller, 2000, p. 143, emphasis added). Indeed, a similar person is usually perceived as seeing things the same way as the communicator and judging them from the same point of view (Hovland et al., 1953).

Ingroup similarity is the outcome of self-categorization (Turner et al., 1987). When a social identity becomes salient through self-categorization, individuals “come to see themselves and other category members less as individuals and more as interchangeable exemplars of the group prototype” (Hornsey, 2008, p. 208). Depersonalization thus increases perceived similarity and consequently contributes to ingroup influence as the result of a process in which agreeing with ingroup members equals agreeing with similar others. Moreover, messages from ingroup sources are usually seen as credible and informative, which increases the likelihood that such communications will influence the receiver.

Among the many social identities to which people have access, some are more salient²⁹ than others because of their frequent activation (Hornsey, 2008, p. 208). In the country where this study has been developed, the United States, a perfect example of a chronically accessible identity is race. The concept of racial identity has been defined by Broman et al. (1988) as the “feeling of closeness to similar others in ideas, feelings and thoughts” (p. 148), with similarity, in this case, referring to skin color and other physical characteristics. Why racial identity tends to be salient in the United States is written in the country’s history. Indeed, although multiracial, the U.S. is a racialized society and has a history of racial exclusion (Masuoka & Junn, 2013), inequalities, and discrimination against minorities, especially Blacks.

Given the importance of racial identity in the United States, we are interested in understanding whether the influence of trustworthiness cues from vicarious experiences on trust in the system depends on the other being an ingroup rather than an outgroup. The hypothesis we wish to test is:

H3. Exposure to a majority of experiences had by individuals that respondents perceive as ingroup members will influence trust in the healthcare system more than exposure to experiences had by individuals perceived as outgroup members.

H4: Exposure to a majority of experiences had by individuals that respondents perceive as ingroup members will influence the likelihood of participating in a Cancer Prevention Program more than exposure to experiences had by individuals perceived as outgroup members.

Race as a mediating factor

Because we are interested in the presence of an ingroup effect on system trust, we chose to compare blacks and whites based on their different trust relationships with the healthcare system. In

²⁹ Identity salience can be defined as “the probability, for a given person, of a given identity being invoked in a variety of situations” (Stryker, 1968, p. 560).

contrast to whites, blacks have been affected by persistent and systemic racial disparities in access to quality care. This problem is rooted in institutional mechanisms (Williams & Wyatt, 2015), structural racism (Wesson et al., 2019), and unconscious biases based on negative stereotypes (Williams & Rucker, 2000) that, on the one hand, affect health outcomes, and on the other hand, foster distrust of healthcare institutions (Armstrong et al., 2007; Corbie-Smith et al., 2002; Powell et al., 2019). What makes the comparison between black and white people particularly important is that exposure to others' experiences with the healthcare system might affect people of both races differently. Our final hypotheses, then, are that:

H5: The valence effect of indirect experience on trust will vary depending on how the source of the experience is perceived (ingroup vs. outgroup).

H6: The valence effect of indirect experience on the likelihood of participating in a Cancer Prevention Program will vary depending on how the source of the experience is perceived (ingroup vs. outgroup).

Methods

Experimental design

We conducted an online survey experiment with adult residents of the US. The online sample was collected through Qualtrics. Respondents were representative of the US population in terms of age, education, and gender. In terms of race, half of the sample consisted of non-Hispanic whites, and the other half consisted of non-Hispanic blacks. US citizens had to be 18 years or older to be eligible to participate in the experiment. Panelists were invited by Qualtrics, and researchers did not offer any additional compensation. Participation in the research was voluntary, and no identifying information was collected beyond the postal code.

The study was approved by the Institutional Review Board of Pennsylvania State University on November 10, 2021³⁰. It was also approved by the Bocconi Research Ethics Committee on November 29, 2021³¹.

The experiment was a 2 x 2 between-subjects online experiment in which we manipulated: 1) the valence of the majority of reported vicarious experiences (majority positive vs. majority negative); and 2) the sources of the indirect experiences (majority ingroup vs. majority outgroup). Table 1 summarizes the four experimental conditions.

³⁰ Study 18930.

³¹ Request SA000381.

		Sources	
		Majority in-group	Majority out-group
Valence	Predominantly positive	Condition 1	Condition 2
	Predominantly negative	Condition 3	Condition 4

Table 11. Experimental conditions

To understand how blacks and whites differentially respond to the treatments, the respondents were block-randomized into the treatments by race.

Treatments

Respondents were informed that they would have read the results of research conducted by CRoPP, an objective, nonpartisan research institute that provides reliable data and rigorous analysis. The way we introduced the vicarious experiences looked as follows:

“You will now see the webpage of CRoPP – Centre for Research on Public Policy. CRoPP is an objective, nonpartisan research institute based at the University of Western Wisconsin (U.S.) that provides reliable data and rigorous analysis. On the webpage, you will find details on interesting research recently conducted. Please read them carefully.”

To make the treatment more realistic, we presented a webpage of CRoPP³² containing information on a study on U.S. citizens' satisfaction with the healthcare system. Satisfaction and trust are similar concepts, although not overlapping. We decided not to refer to trust directly to avoid priming study participants. In the image of the website (Figure 1), subjects found information on a mixed-methods study in which participants were asked not only to indicate their level of satisfaction in the healthcare system but also to share one personal experience that explained their satisfaction or dissatisfaction.

³² CRoPP is a fictitious research institute.

A Mixed Methods Approach to Study Satisfaction in the U.S. Healthcare System

At the beginning of 2021, CRoPP conducted a study of U.S. citizens' satisfaction with the healthcare system.

Participants were asked to indicate the extent to which they are satisfied with the healthcare system on a scale of 1 to 5.

To understand the reasons for their choices, we also asked participants to share at least one **personal experience** that explained the level of satisfaction or dissatisfaction they reported. Their responses were fascinating. On our webpage, we share some responses that were most representative of the study results.

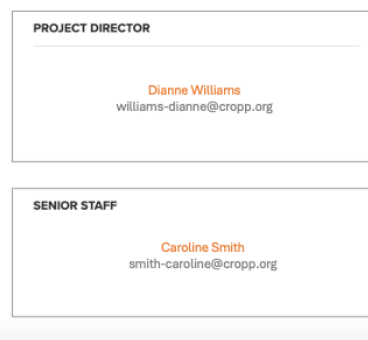


Figure 10. Treatment - Introduction

Then, we presented subjects with eight brief paragraphs containing reported experiences with the healthcare system. Each experience was accompanied by a photo of its (fictitious) source and their initials. The vicarious experiences were included in a box containing references to the research institute conducting the study (Figure 2).

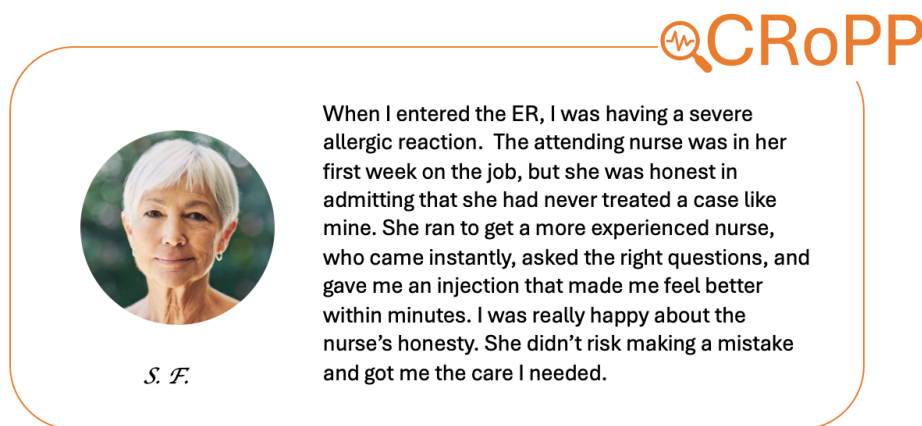


Figure 11. Vignette included in the study. The reported experience is not authentic and was not experienced by the person depicted in the photo.

In the *majority ingroup* condition, study participants were shown experiences of six individuals in their racial/ethnicity group and two experiences of members of another racial/ethnicity group. In the *majority outgroup condition*, though, respondents saw the majority (6 out of 8) of experiences coming from outgroup sources and a minority (2 out of 8) of experiences coming from members of their racial/ethnicity group.

The fact that the source was an ingroup or outgroup person was manipulated by the photo attached to the reported experience (e.g., see Figure 3).



Figure 12. Manipulation of racial/ethnic identity.
The reported experiences are not authentic and were not experienced by the people depicted in photo

The photos were purchased through iStock, a company that sells stock photos online. In selecting the “majoritarian” images, we chose to include two pictures of young people, two of middle-aged people, and two of mature people. Among the two “minoritarian” sources, we selected photos of two middle-aged people. Since gender was also expected to play a role in how vicarious experiences influence trust attitudes, half of the sources were male while the other half were female.

To manipulate valence, we varied the textual content of the vicarious experiences (Figure 4).



B. G.

The last time I went to the hospital, I suffered from a persistent headache. I didn't think it was a big deal and wanted to go home, but the doctors insisted on admitting me. It turned out I was having a stroke. Without the doctors' insistence, I am not sure whether I would be here today.



B. G.

The last time I went to the hospital, I suffered from a persistent headache. The doctors didn't think it was a big deal and wanted to send me home, but my wife insisted they admit me. It turned out I was having a stroke. Without my wife's insistence, I am not sure whether I would be here today.

Figure 13. Manipulation of racial/ethnic identity. The reported experiences are not authentic and were not experienced by the people depicted in photos.

Negative and positive experiences had similar word lengths. The experiences related to the domains of competence, communication, honesty, confidentiality, and fairness. These domains have proven crucial in shaping individuals' trust in the healthcare system (Ozawa & Sripad, 2013). In the predominantly positive condition, subjects read six positive experiences and two negative experiences. In the predominantly negative condition, participants instead read six negative experiences and two positive experiences. The predominant experiences, whether positive or negative, were always attributed to individuals of the same racial identity (e.g., six positive experiences, all from ingroup sources, and two positive experiences, all from outgroup sources). The content of the vignette was elaborated based on the sources in Appendix A. These include previous qualitative research and websites where people described their experiences of health clinics.

Before running the survey experiment, vignettes were pre-tested in a pilot study. On that occasion, respondents were asked to indicate the valence (K.-T. Lee & Koo, 2012) and strength of the arguments used in each vignette, and it was also tested whether photos were adequate to signal sources' racial/ethnic identity. Based on the obtained feedback, vignettes' quality was overall improved.

Measures

Dependent variables. Our primary variable of interest was the change in trust in the healthcare system, measured both before and after the treatments. Previous studies measured public trust in the healthcare system using multi-item scales or single-item questions. Multi-item scales have the advantage of capturing multiple dimensions of the construct being analyzed. However, we were primarily interested in observing changes in the overall level of trust. Therefore, we chose to use a single-item question asking: "In general, how much do you trust the healthcare system as a whole?". Participants were asked to respond on a scale of one to ten, where one meant "Do not trust at all" and ten meant "Trust completely."

Based on the recorded responses, our main dependent variables were the following four:

- a. Change in trust level: A binary variable taking a value of 1 if the respondent's level of trust had changed toward the direction of most experiences after treatment and 0 otherwise;
- b. Absolute magnitude of trust change: A continuous variable obtained by calculating the absolute value of the change in trust level;
- c. Post-treatment trust: A continuous variable taking values from 1 (do not trust [the healthcare system] at all) to 10 (trust completely);
- d. Behavioral trust: A binary variable taking value of 1 if the respondent declared that they were willing to participate in a Cancer Prevention Program and 0 otherwise.

The measurement of participants' willingness to participate in the program was introduced by the following paragraph:

"Next, you will read about a program for cancer prevention called Cancer Prevention Matters. Please read the program description carefully before answering questions about it.

Cancer was a major cause of death in the United States in 2020.

For this reason, the U.S. Bureau of Healthcare and Health Prevention recently spent 152 million dollars to develop a program to prevent the most common cancers: breast, cervical, lung, and colorectal (colon) cancers.

The program, called Cancer Prevention Matters, aims to detect breast, cervical, lung, and colorectal (colon) cancers early, when treatment is likely to work best. Participation in the program consists of free screenings. Screening means checking your body for cancer before you have symptoms.

Apart from early detection, the program also aims to reduce participants' risk of getting these cancers. For this reason, participation of individuals of all ages is highly encouraged. Depending on patients' risk levels, they may be asked to do some activities to lower their cancer risk (such as exercising or following a special diet) or to take a medication or vitamins."

Manipulation checks. The administered survey contained five manipulation checks that were used to conduct robustness analyses. Following Sparks and Browning (2011), valence was checked by asking the following question: “Overall, I felt the experiences were more positive than negative.” Participants were asked to answer on a scale from 1 (strongly disagree) to 7 (strongly agree). We also asked questions to determine whether depersonalization had occurred and whether participants perceived the majority of the sources as members of their race/ethnicity group or as members of another group. The included questions were: "Overall, I felt that most communicators were similar to me as a person", "Overall, I felt that most communicators were credible", and "Overall, I felt that most communicators were trustworthy". Following Wyer (2010), participants also rated how important the topic was to them and the extent to which the experiences they read were consistent with what they expected from sources. Finally, we asked participants how important it was to them that blacks and whites be treated equally in healthcare.

Data Analysis

Data were collected between November 30 and December 21, 2021. The final sample included 959 responses, 49% from black (non-Hispanic) respondents and 50% from white (non-Hispanic) respondents. Table 2 shows summary statistics.

<i>Variable</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
Gender					
Male	959	.474	.5	0	1
Female	959	.517	.5	0	1
Race/Ethnicity					
White (non-Hispanic)	959	.507	.5	0	1
Black (non-Hispanic)	959	.493	.5	0	1
Age group					
18-34 years	959	.356	.479	0	1
35-54 years	959	.359	.48	0	1
>54 years	959	.286	.452	0	1
Education category					
HS/GED or less	959	.568	.496	0	1
Some college or above	959	.432	.496	0	1
Income					
Lower-income household	959	.641	.48	0	1
Middle-income household	959	.317	.466	0	1
Upper-income household	959	.042	.2	0	1
Trust					
Pre-treatment trust	959	6.225	2.255	1	10
Post-treatment trust	959	6.156	2.282	1	10
Trust change	959	.348	.477	0	1
Trust in doctor	959	3.82	1.008	1	5
Social trust	959	5.363	2.559	1	10
Attitudes towards the healthcare					
Healthcare system trustworthiness is important to me	959	5.632	1.354	1	7
Equality in healthcare is important to me	959	5.830	1.339	1	7

Table 12. Summary statistics

Appendix B provides the results of balance tests performed across treatment groups. The balance tests were performed for the entire sample as well as by race. Despite random assignment, there were some (small to moderate) statistically significant imbalances in some sociodemographic characteristics, attitudes, and personality traits. Therefore, we decided to include some control variables (Appendix C) in our analyzes.

Results

We begin our presentation of study results by providing graphical analyzes of differences in two outcome means, post-treatment trust and magnitude of change in trust level. These outcome means are presented by treatment group and respondent race. Appendix D contains two-way and three-way ANOVAs. The statistical significance of the three-way interactions (Tables 1 and 4, respectively, in Appendix D) suggests that the ways in which valence and source factors interact vary by race/ethnicity.

Figure 5 shows that, as expected, both black and white respondents have lower trust in the healthcare system if they have had negative rather than positive (indirect) experiences with the system. In both cases, the main effect of valence is statistically significant.

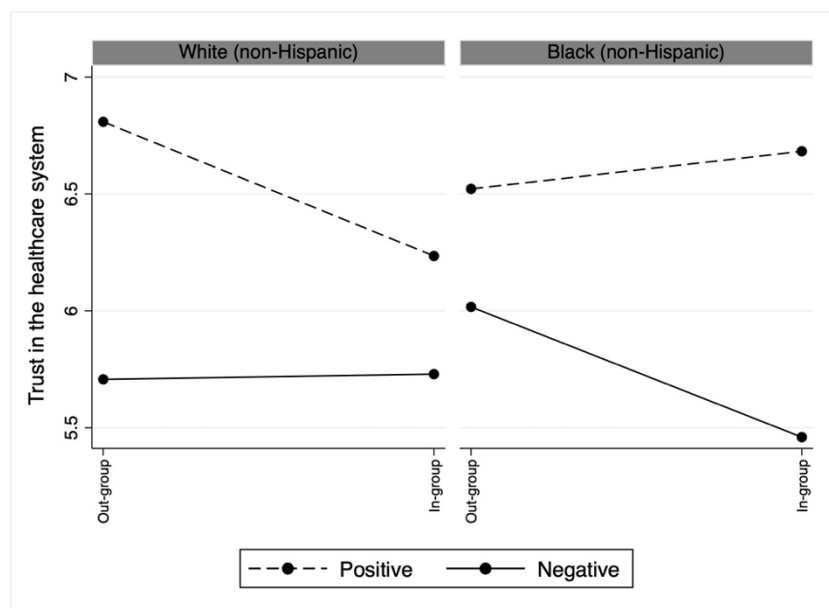


Figure 14. Trust in the healthcare system (post-treatment).

Interestingly, the observed change in trust level is greater for black respondents whenever they are exposed to negative experiences than positive ones, regardless of the source of those experiences (Figure 6). In contrast, for white respondents, the factors of valence and source interact. When white respondents hear of majority positive experiences that come from outgroup individuals, their trust in the system increases more than when the experiences come from ingroup individuals. When white respondents hear

about negative experiences, though, the change that these experiences exert on trust levels is greater if the experiences come from ingroup people rather than outgroup people.

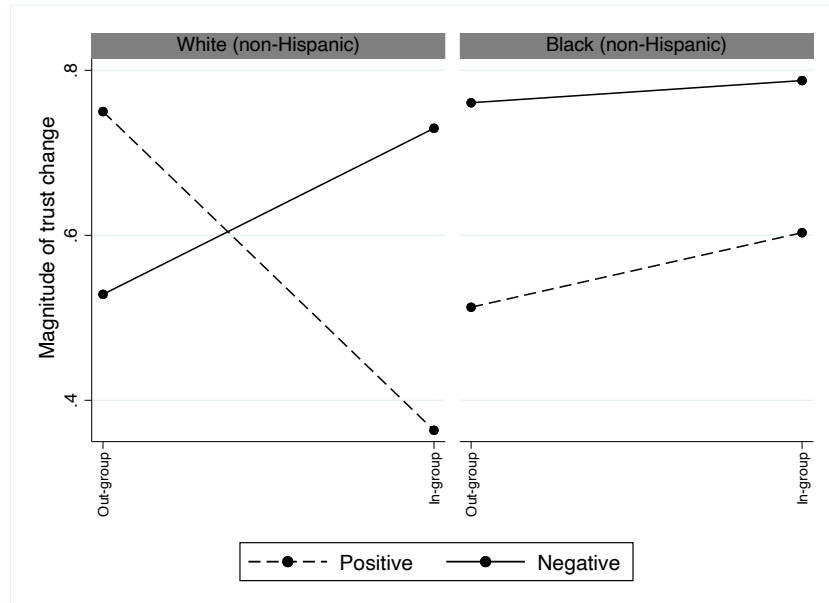


Figure 15. Magnitude of trust change

We now present a regression analysis of the experimental results. For dependent variables that are binary (probability of trust change and behavioral trust), we performed a logistic regression analysis. As mentioned earlier, our regression models include some control variables to account for some of the imbalances that emerged. Appendix E contains the regression results without control variables.

Table 3 shows that black and white respondents reported lower levels of trust when they had negative (indirect) experiences with the healthcare system. The probability of observing a change in trust levels varies by race/ethnicity. Black respondents appear to be more likely to be influenced by experiences that come from ingroup people, while the main effect of source (ingroup) is negative for whites. The interaction between source and valence is not statistically significant in the black sample. However, it is positive and statistically significant in the white sample. Combined with the negative main effect of source (ingroup), this positive interaction effect means that whites are more likely to change their trust in the healthcare system when confronted with experiences from members of their ingroup if the experiences are negative.

	Post-Treatment Trust ^(a)		Probability of Trust Change ^(b)		Magnitude of Trust Change ^(a)		Behavioral Trust ^(b)	
	White	Black	White	Black	White	Black	White	Black
Negative	-0.506** (-2.26)	-0.404* (-1.77)	-0.411 (-1.46)	0.323 (1.10)	-0.207 (-1.58)	0.281* (1.88)	-0.279 (-0.82)	-0.401 (-1.15)
In-group	-0.355 (-1.64)	0.148 (0.67)	-0.864*** (-3.04)	0.603** (2.12)	-0.381*** (-3.01)	0.0933 (0.64)	0.0116 (0.03)	-0.173 (-0.50)
Negative # In-group	-0.00281 (-0.01)	-0.524 (-1.63)	1.008** (2.48)	-0.588 (-1.44)	0.548*** (2.97)	-0.0931 (-0.44)	-0.138 (-0.29)	0.177 (0.36)
Constant	-0.0298 (-0.05)	0.408 (0.59)	-0.687 (-0.85)	-1.860** (-2.10)	0.801** (2.20)	-0.265 (-0.59)	-1.020 (-1.11)	-1.891* (-1.77)
N	486	473	486	473	486	473	486	473
R ²	0.4617	0.4600	0.0520 ^(c)	0.0528 ^(c)	0.0846	0.0793	0.1132 ^(c)	0.1173 ^(c)

* $p < .10$ ** $p < .05$ *** $p < .01$. (a) Model estimated using OLS. (b) Model estimated using Logit. (c) Pseudo R². Control variables included (Appendix C).

Table 13. Regression Analysis

Moreover, although for white respondents the magnitude of trust change tends to be smaller when the experiences come from ingroup individuals, the effect of such experiences is greater if the experiences are negative. The same reasoning does not seem to hold for black respondents, where both the main effect of source (ingroup) and the interaction between source and valence are not statistically significant. However, for black respondents, the magnitude of trust change is greater when exposed to negative experiences rather than positive.

Finally, Table 3 shows that valence and source factors have no statistically significant effect on behavioral trust. This result might be due to the fact that behavioral trust tends to be more stable over time.

Conclusions

In this research, we conducted a 2 (valence: predominantly positive vs. predominantly negative) x 2 (sources of indirect experiences: majority ingroup vs. majority outgroup) between-subjects survey experiment to test the effects of exposure to indirect experiences of unknown individuals on trust in the healthcare system. Specifically, we were interested in understanding how black and white respondents' exposure to predominantly positive (vs. predominantly negative) indirect experiences of communicators belonging to their ingroup (vs. to an outgroup) affected their trust in the healthcare system.

Before commenting on the results of the study, we feel it is necessary to consider some of the limitations of this research. First, at the beginning of the survey experiment, study participants were informed that the purpose of the study was to investigate whether and to what extent attitudes toward the healthcare system change as a result of social interactions. They were then told that a form of

deception would be used in the survey experiment and that they would receive a debriefing at the end of the survey. It is possible that study participants felt less free to reveal their true attitudes, especially if they belonged to populations that have often been (intentionally) deceived in health-related research. Second, the proportions in which the vignettes were presented (6 positive and 2 negative or vice versa; 6 ingroup and 2 outgroup or vice versa) may have clarified the true scope of the experiment for some participants and ultimately encouraged socially desirable responses. Finally, although our sample was representative of the US population in terms of gender, age, and education, the fact that study participants who participate in online research panels may differ systematically from the rest of the US population should not be underestimated.

Still, to the best of our knowledge, this is the first study providing evidence that indirect experiences may influence trust in the healthcare system. Among the possible characteristics of these experiences, we focused on two aspects: the valence of the experiences (positive or negative) and the sources of the experiences (ingroup or outgroup). On average, the exposure to a majority of negative experiences leads to lower trust in the system. Interestingly, though, respondents in the predominantly negative condition were not more likely to change their trust compared to those in the predominantly positive condition. Instead, the chance of observing a change in trust seems to be affected by whether the source of the experience is in- or outgroup.

However, the main effect of the "source" factor varies by race/ethnicity. Black respondents' trust is more likely to be influenced if the sources of indirect experience are from their own race/ethnicity group. This finding is consistent with research suggesting that category membership is a precondition for uncertainty reduction and influence (David & Turner, 2011). The higher risk that trust will be abused may lead blacks to place more importance on the experiences of people who are more likely to have lived their own discrimination, risks, and vulnerabilities when it comes to healthcare. If replicated in future experiments, these findings would suggest that the individual experiences of members of a minority group can be very influential on the trust of people who identify with that group, precisely considering this social categorization process.

No matter of the source of the experience, though, black people's trust seems to change more, in absolute terms, when they are exposed to negative information compared to when they are exposed to positive information. There might be various reasons behind these findings. A possibility is that trust in one's own physician plays a role in this case. Although the average level of trust in the healthcare system was not significantly different across blacks and whites, the same did not hold true for trust in [respondents'] physician. Interestingly, black people reported a level of trust in physician that was significantly lower than whites. If physicians are among the most important representatives of the health care system to those who interact with it, it is possible that low trust in the lowest level of the system is related to a greater loss of trust when one is exposed to (negative) experiences that confirm one's beliefs.

Future research could examine how the likelihood to observe a change in trust levels is related to the interpersonal trust in one's physician. The risk we see is that there could be some sort of spiral of mistrust and that members of minority groups, who are often discriminated against in getting healthcare, could more easily fall into this spiral, which in turn would have a negative impact on their health outcomes.

For individuals belonging to a majority group like whites, though, things seem to go differently. Indeed, when exposed to experiences of their ingroup members, white people were less likely to change their level of trust. However, the likelihood that this happened increased a bit when ingroup people reported negative experiences.

Although with limitations, this study presents some preliminary evidence showing that trust in the healthcare system is not only the result of direct interactions with the system but can also be shaped by indirect experiences. It also shows that black and white people respond differently to these experiences, when we look at the impact of the valence of the experiences and their sources. Future research may want to investigate whether the produced changes last over time and under what conditions.

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CHAPTER 2 – APPENDICES

Appendix A

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis		
item01	349	1	7	4,27	1,781	3,173	-0,315	0,131	-0,812	0,260
item02	349	1	7	4,81	1,575	2,481	-0,714	0,131	-0,037	0,260
item03	349	1	7	4,75	1,624	2,637	-0,611	0,131	-0,323	0,260
item04	349	1	7	4,23	1,675	2,805	-0,245	0,131	-0,773	0,260
item05	349	1	7	3,55	1,876	3,519	0,169	0,131	-1,061	0,260
item06	349	1	7	4,20	1,613	2,603	-0,308	0,131	-0,638	0,260
item07	349	1	7	4,39	1,593	2,537	-0,372	0,131	-0,479	0,260
item08	349	1	7	4,14	1,692	2,864	-0,208	0,131	-0,704	0,260
item09	349	1	7	4,27	1,738	3,021	-0,328	0,131	-0,781	0,260
item10	349	1	7	4,34	1,651	2,724	-0,385	0,131	-0,548	0,260
item11	349	1	7	4,74	1,564	2,446	-0,513	0,131	-0,301	0,260
item12	349	1	7	3,67	1,822	3,318	0,119	0,131	-1,004	0,260
item13	349	1	7	4,76	1,565	2,449	-0,645	0,131	-0,190	0,260
item14	349	1	7	4,38	1,630	2,656	-0,417	0,131	-0,431	0,260
item15	349	1	7	4,68	1,655	2,739	-0,559	0,131	-0,397	0,260
item16	349	1	7	4,18	1,731	2,997	-0,290	0,131	-0,838	0,260
item17	349	1	7	4,20	1,742	3,036	-0,282	0,131	-0,855	0,260
item18	349	1	7	4,46	1,653	2,731	-0,444	0,131	-0,616	0,260
item19	349	1	7	4,61	1,588	2,521	-0,551	0,131	-0,279	0,260
item20	349	1	7	4,52	1,674	2,802	-0,376	0,131	-0,567	0,260
item21	349	1	7	4,62	1,582	2,502	-0,626	0,131	-0,036	0,260
item22	349	1	7	3,93	1,817	3,300	-0,080	0,131	-1,002	0,260
item23	349	1	7	4,58	1,607	2,583	-0,401	0,131	-0,470	0,260
item24	349	1	7	4,35	1,645	2,705	-0,346	0,131	-0,552	0,260
item25	349	1	7	3,52	1,787	3,193	0,118	0,131	-0,970	0,260
item26	349	1	7	3,86	1,732	3,000	-0,059	0,131	-0,846	0,260
item27	349	1	7	4,51	1,693	2,865	-0,428	0,131	-0,546	0,260
item28	349	1	7	4,64	1,605	2,575	-0,541	0,131	-0,243	0,260
item29	349	1	7	4,54	1,609	2,589	-0,483	0,131	-0,392	0,260
item30	349	1	7	4,35	1,662	2,762	-0,328	0,131	-0,571	0,260
item31	349	1	7	4,58	1,614	2,607	-0,466	0,131	-0,372	0,260
item32	349	1	7	4,76	1,715	2,942	-0,629	0,131	-0,285	0,260
item33	349	1	7	4,21	1,716	2,946	-0,258	0,131	-0,823	0,260
item34	349	1	7	4,30	1,701	2,895	-0,319	0,131	-0,706	0,260
item35	349	1	7	3,67	1,803	3,251	0,103	0,131	-0,956	0,260
item36	349	1	7	4,11	1,702	2,898	-0,214	0,131	-0,835	0,260
item37	349	1	7	4,50	1,638	2,682	-0,468	0,131	-0,514	0,260
item38	349	1	7	4,50	1,607	2,584	-0,541	0,131	-0,255	0,260
item39	349	1	7	3,68	1,931	3,728	0,005	0,131	-1,185	0,260
item40	349	1	7	3,68	1,853	3,435	0,054	0,131	-1,059	0,260
item41	349	1	7	3,48	1,806	3,262	0,134	0,131	-1,067	0,260
item42	349	1	7	4,21	1,812	3,284	-0,288	0,131	-0,949	0,260
item43	349	1	7	4,29	1,597	2,551	-0,387	0,131	-0,429	0,260
item44	349	1	7	4,44	1,548	2,396	-0,314	0,131	-0,571	0,260
item45	349	1	7	3,98	1,802	3,247	-0,205	0,131	-0,997	0,260
item46	349	1	7	4,64	1,617	2,615	-0,510	0,131	-0,352	0,260
item47	349	1	7	4,06	1,672	2,795	-0,174	0,131	-0,730	0,260
item48	349	1	7	4,61	1,627	2,647	-0,525	0,131	-0,317	0,260
item49	349	1	7	3,87	1,706	2,909	-0,145	0,131	-0,861	0,260
item50	349	1	7	4,46	1,576	2,485	-0,400	0,131	-0,377	0,260
item51	349	1	7	4,04	1,802	3,249	-0,168	0,131	-0,979	0,260
item52	349	1	7	3,79	1,904	3,626	-0,012	0,131	-1,126	0,260
item53	349	1	7	4,68	1,608	2,586	-0,556	0,131	-0,358	0,260
item54	349	1	7	4,30	1,715	2,941	-0,354	0,131	-0,753	0,260
item55	349	1	7	3,91	1,771	3,135	-0,045	0,131	-1,017	0,260
item56	349	1	7	4,24	1,693	2,867	-0,267	0,131	-0,799	0,260
item57	349	1	7	4,02	1,836	3,370	-0,184	0,131	-1,003	0,260
item58	349	1	7	4,30	1,686	2,844	-0,283	0,131	-0,672	0,260
item59	349	1	7	4,00	1,749	3,060	-0,160	0,131	-0,917	0,260
item60	349	1	7	4,03	1,700	2,890	-0,144	0,131	-0,792	0,260
item61	349	1	7	4,88	1,668	2,781	-0,615	0,131	-0,312	0,260
Valid N (listwise)	349									

Appendix B

Subscale	Var	Quanta fiducia hai che (d)...	1	2	3	Cronbach's Alpha if Item Deleted
Subscale 1: Trust in the Quality of Healthcare Services—Care, Facilities, and Professionals ($\alpha = .973$)	QUAL1	il personale sanitario sia sempre professionale.	0,901			0,971
	QUAL2	il personale sanitario sia molto competente.	0,878			0,971
	QUAL3	nelle strutture sanitarie il lavoro di squadra sia preferito al lavoro individuale.	0,874			0,971
	QUAL4	di solito il sistema sanitario offre cure di alta qualità.	0,867			0,971
	QUAL5	i pazienti siano sempre informati sulle varie terapie esistenti.	0,863			0,971
	QUAL6	il personale sanitario faccia tutto il possibile per aiutare i pazienti.	0,837			0,971
	QUAL7	nelle strutture sanitarie ci sia una ottima igiene.	0,790			0,971
	QUAL8	i pazienti siano sempre trattati con gentilezza.	0,776			0,971
	QUAL9	il personale sanitario si confronti quando non sa come aiutare un paziente.	0,738			0,971
	QUAL10	chi guida le strutture sanitarie (primari, direttori sanitari, ecc.) sia molto preparato ed esperto.	0,677			0,972
	QUAL11	i dati dai pazienti siano usati solo per ciò per cui vengono chiesti.	0,647			0,972
	QUAL12	il personale sanitario si aggiorni di continuo.	0,642			0,971
	QUAL13	poter essere curato/a bene senza doverci spostare di tanti chilometri.	0,605			0,972
	QUAL14	nelle strutture sanitarie pubbliche venga dedicato ai pazienti tutto il tempo che serve.	0,601			0,97
	QUAL15	nelle strutture sanitarie ci siano tutti i materiali e le attrezzature che servono.	0,583			0,971
	QUAL16	le strutture sanitarie siano dotate delle più moderne attrezzature.	0,559			0,971
	QUAL17	il personale sanitario il paziente non sia un fastidio.	0,556			0,971
	QUAL18	i pazienti ricevano sempre le risposte ai propri dubbi.	0,524			0,97
	MIND1	le liste di attesa non siano così lunghe da impedire ai pazienti di essere curati in tempo.	0,906			0,951
	MIND2	i tagli alla sanità siano fatti in modo da danneggiare i pazienti il meno possibile.	0,863			0,952
Subscale 2: Trust in the Management of Healthcare Resources and Leadership of the System ($\alpha = .955$)	MIND3	il sistema sanitario usi senza sprechi i fondi pubblici a disposizione.	0,860			0,949
	MIND4	l'influenza della politica nella nomina di chi guida le strutture sanitarie (primari, direttori sanitari, ecc.) non danneggi la competenza.	0,767			0,952
	MIND5	in tutte le regioni d'Italia sarei curato bene.	0,766			0,952
	MIND6	nelle strutture sanitarie ci sia un numero adeguato di personale.	0,754			0,95
	MIND7	chi guida le strutture sanitarie (primari, direttori sanitari, ecc.) sia scaltro più per le competenze che per ragioni politiche.	0,754			0,951
	MIND8	di solito le strutture sanitarie non siano vecchie e inadeguate.	0,728			0,95
	MIND9	nel caso di un errore a danno della tua salute questo ti verrebbe detto con trasparenza.	0,718			0,951
	MIND10	il sistema sanitario dichiari con trasparenza i propri problemi di organizzazione e gestione.	0,705			0,951
	MIND11	il sistema sanitario pensi più alla salute dei cittadini che ai costi.	0,643			0,949
	ACR1	il personale sanitario creda sempre ai pazienti che dicono di stare male.		0,838		0,871
Subscale 3: Trust in the Accessibility and Feasibility of the Healthcare System ($\alpha = .894$)	ACR2	il personale sanitario tratti nello stesso modo chi è più ricco e chi lo è meno.		0,737		0,873
	ACR3	se chiedessi un parere sullo stesso problema di salute a più specialisti riceveresti opinioni simili.		0,717		0,868
	ACR4	le informazioni diffuse dalle istituzioni sanitarie siano affidabili.		0,691		0,875
	ACR5	muoversi nel sistema sanitario sia facile anche se non si conosce qualcuno che ci lavori.		0,657		0,869
	Extraction Method: Principal Component Analysis.					
Rotation Method: Promax with Kaiser Normalization.						
a. Rotation converged in 7 iterations.						

CHAPTER 3 – APPENDICES

Appendix A

Sources

Dimensions and Determinants of Trust in Healthcare in Resource Poor Settings – A Qualitative Exploration

<https://apcoworldwide.com/blog/declining-trust-in-the-quality-of-health-care-in-the-us/>

‘Waiting for’ and ‘waiting in’ public and private hospitals: a qualitative study of patient trust in South Australia

Factors associated with the public’s trust in physicians in the context of the Lebanese healthcare system: a qualitative study

http://www.ihi.org/about/news/Documents/IHI_NPSF_NORC_Patient_Safety_Survey_2017_Final_Report.pdf

<https://www.kevinmd.com/blog/2016/10/physician-experiences-medical-error-heres-story.html>

Why do People Avoid Medical Care? A Qualitative Study Using National Data

<https://journalofethics.ama-assn.org/article/privacy-protection-billing-and-health-insurance-communications/2016-03>

Reproductive Healthcare Utilization of Young Adults Insured as Dependents

Control group

<https://edition.cnn.com/2021/08/16/world/saturn-rings-fuzzy-core-scn/index.html>

Appendix B

Balance tests – Entire sample

Variable	[1]		[2]		[3]		[4]		T-test Difference					
	Positive - Out-group		Positive - In-group		Negative - Out-group		Negative - In-group		(1)-(2)	(1)-(3)	(1)-(4)	(2)-(3)	(2)-(4)	(3)-(4)
	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE						
Male	237	0.511 [0.033]	258	0.457 [0.031]	240	0.496 [0.032]	224	0.433 [0.033]	0.053	0.015	0.078*	-0.038	0.024	0.063
Female	237	0.481 [0.033]	258	0.531 [0.031]	240	0.500 [0.032]	224	0.558 [0.033]	-0.050	-0.019	-0.077*	0.031	-0.027	-0.058
White (non-Hispanic)	237	0.506 [0.033]	258	0.512 [0.031]	240	0.512 [0.032]	224	0.496 [0.033]	-0.005	-0.006	0.011	-0.001	0.016	0.017
Black (non-Hispanic)	237	0.494 [0.033]	258	0.488 [0.031]	240	0.487 [0.032]	224	0.504 [0.033]	0.005	0.006	-0.011	0.001	-0.016	-0.017
18-34 years	237	0.346 [0.031]	258	0.341 [0.030]	240	0.354 [0.031]	224	0.384 [0.033]	0.005	-0.008	-0.038	-0.013	-0.043	-0.030
35-54 years	237	0.346 [0.031]	258	0.384 [0.030]	240	0.358 [0.031]	224	0.344 [0.032]	-0.038	-0.012	0.002	0.025	0.040	0.015
>54 years	237	0.308 [0.030]	258	0.275 [0.028]	240	0.287 [0.029]	224	0.272 [0.030]	0.033	0.021	0.036	-0.012	0.003	0.015
HS/GED or less	237	0.603 [0.032]	258	0.585 [0.031]	240	0.550 [0.032]	224	0.531 [0.033]	0.018	0.053	0.072	0.035	0.054	0.019
Some college or above	237	0.397 [0.032]	258	0.415 [0.031]	240	0.450 [0.032]	224	0.469 [0.033]	-0.018	-0.053	-0.072	-0.035	-0.054	-0.019
Lower-income household	237	0.616 [0.032]	258	0.686 [0.029]	240	0.617 [0.031]	224	0.643 [0.032]	-0.070	-0.001	-0.027	0.069	0.043	-0.026
Middle-income household	237	0.321 [0.030]	258	0.271 [0.028]	240	0.358 [0.031]	224	0.321 [0.031]	0.049	-0.038	-0.001	-0.087**	-0.050	0.037
Upper-income household	237	0.063 [0.016]	258	0.043 [0.013]	240	0.025 [0.010]	224	0.036 [0.012]	0.021	0.038**	0.028	0.018	0.007	-0.011
Pre-treatment trust	237	6.350 [0.138]	258	6.260 [0.138]	240	6.221 [0.150]	224	6.058 [0.157]	0.091	0.129	0.292	0.039	0.202	0.163
Trust in doctor	237	3.920 [0.064]	258	3.833 [0.058]	240	3.717 [0.068]	224	3.808 [0.071]	0.086	0.203**	0.112	0.117	0.025	-0.091
Social trust	237	5.447 [0.169]	258	5.395 [0.158]	240	5.188 [0.166]	224	5.424 [0.169]	0.052	0.260	0.023	0.208	-0.029	-0.237
Healthcare system trustworthiness is important to me	237	5.755 [0.083]	258	5.663 [0.079]	240	5.517 [0.093]	224	5.589 [0.095]	0.092	0.239*	0.166	0.146	0.074	-0.073
Equality in healthcare is important to me	237	5.958 [0.083]	258	5.802 [0.081]	240	5.767 [0.086]	224	5.795 [0.096]	0.155	0.191	0.163	0.036	0.008	-0.028
Healthcare worker	237	0.105 [0.020]	258	0.112 [0.020]	240	0.092 [0.019]	224	0.125 [0.022]	-0.007	0.014	-0.020	0.021	-0.013	-0.033
Family member is an healthcare worker	237	0.211 [0.027]	258	0.240 [0.027]	240	0.208 [0.026]	224	0.196 [0.027]	-0.029	0.003	0.015	0.032	0.044	0.012
Openness	237	9.430 [0.179]	258	9.434 [0.156]	240	9.758 [0.161]	224	9.737 [0.169]	-0.004	-0.328	-0.306	-0.324	-0.302	0.022
Extraversion	237	7.338 [0.184]	258	7.244 [0.172]	240	7.517 [0.178]	224	7.420 [0.195]	0.093	-0.179	-0.082	-0.272	-0.175	0.097
Agreeableness	237	10.316 [0.160]	258	10.182 [0.154]	240	10.113 [0.160]	224	10.196 [0.171]	0.134	0.204	0.120	0.070	-0.014	-0.084
Conscientiousness	237	10.582 [0.183]	258	10.248 [0.157]	240	10.421 [0.177]	224	10.009 [0.187]	0.334	0.161	0.573**	-0.173	0.239	0.412
Emotional stability	237	9.443 [0.189]	258	9.155 [0.173]	240	9.058 [0.189]	224	9.554 [0.189]	0.288	0.385	-0.111	0.097	-0.399	-0.495*
Went to the ER over the last 6 months	237	1.734 [0.186]	258	1.760 [0.174]	240	1.500 [0.168]	224	1.661 [0.178]	-0.026	0.234	0.073	0.260	0.099	-0.161
Visited the doctor over the last 6 months	237	3.278 [0.182]	258	3.287 [0.174]	240	2.938 [0.175]	224	3.295 [0.197]	-0.008	0.341	-0.016	0.349	-0.008	-0.357
Admitted to the hospital over the last 6 months	237	1.549 [0.185]	258	1.593 [0.172]	240	1.375 [0.176]	224	1.473 [0.176]	-0.045	0.174	0.075	0.218	0.120	-0.098
Last visit with doctor - satisfaction	237	5.363 [0.108]	258	5.306 [0.100]	240	5.162 [0.105]	224	5.062 [0.112]	0.057	0.200	0.300*	0.144	0.244	0.100
Discriminated in getting healthcare due to race/ethnicity	237	0.241 [0.028]	258	0.229 [0.026]	240	0.250 [0.028]	224	0.304 [0.031]	0.012	-0.009	-0.063	-0.021	-0.075*	-0.054

Note: The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Balance tests - White subsample

Variable	[1] Positive - Out-group		[2] Positive - In-group		[3] Negative - Out-group		[4] Negative - In-group		T-test Difference					
	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	(1)-(2)	(1)-(3)	(1)-(4)	(2)-(3)	(2)-(4)	(3)-(4)
Male	120	0.417 [0.045]	132	0.333 [0.041]	123	0.333 [0.043]	111	0.270 [0.042]	0.083	0.083	0.146**	0.000	0.063	0.063
Female	120	0.583 [0.045]	132	0.659 [0.041]	123	0.659 [0.043]	111	0.730 [0.042]	-0.076	-0.075	-0.146**	0.001	-0.071	-0.071
18-34 years	120	0.217 [0.038]	132	0.227 [0.037]	123	0.285 [0.041]	111	0.243 [0.041]	-0.011	-0.068	-0.027	-0.057	-0.016	0.041
35-54 years	120	0.425 [0.045]	132	0.477 [0.044]	123	0.407 [0.044]	111	0.405 [0.047]	-0.052	0.018	0.020	0.071	0.072	0.001
>54 years	120	0.358 [0.044]	132	0.295 [0.040]	123	0.309 [0.042]	111	0.351 [0.046]	0.063	0.049	0.007	-0.013	-0.056	-0.042
HS/GED or less	120	0.550 [0.046]	132	0.477 [0.044]	123	0.472 [0.045]	111	0.477 [0.048]	0.073	0.078	0.073	0.006	-0.000	-0.006
Some college or above	120	0.450 [0.046]	132	0.523 [0.044]	123	0.528 [0.045]	111	0.523 [0.048]	-0.073	-0.078	-0.073	-0.006	0.000	0.006
Lower-income household	120	0.608 [0.045]	132	0.667 [0.041]	123	0.553 [0.045]	111	0.631 [0.046]	-0.058	0.055	-0.022	0.114*	0.036	-0.078
Middle-income household	120	0.300 [0.042]	132	0.265 [0.039]	123	0.415 [0.045]	111	0.324 [0.045]	0.035	-0.115*	-0.024	-0.149**	-0.059	0.090
Upper-income household	120	0.092 [0.026]	132	0.068 [0.022]	123	0.033 [0.016]	111	0.045 [0.020]	0.023	0.059*	0.047	0.036	0.023	-0.013
Pre-treatment trust	120	6.225 [0.193]	132	6.227 [0.195]	123	5.984 [0.213]	111	6.144 [0.222]	-0.002	0.241	0.081	0.244	0.083	-0.160

Note: The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Balance tests – Black subsample

Variable	[1] Positive - Out-group		[2] Positive - In-group		[3] Negative - Out-group		[4] Negative - In-group		T-test Difference					
	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	(1)-(2)	(1)-(3)	(1)-(4)	(2)-(3)	(2)-(4)	(3)-(4)
Male	117	0.607 [0.045]	126	0.587 [0.044]	117	0.667 [0.044]	113	0.593 [0.046]	0.020	-0.060	0.014	-0.079	-0.006	0.074
Female	117	0.376 [0.045]	126	0.397 [0.044]	117	0.333 [0.044]	113	0.389 [0.046]	-0.021	0.043	-0.013	0.063	0.007	-0.056
18-34 years	117	0.479 [0.046]	126	0.460 [0.045]	117	0.427 [0.046]	113	0.522 [0.047]	0.018	0.051	-0.043	0.033	-0.062	-0.095
35-54 years	117	0.265 [0.041]	126	0.286 [0.040]	117	0.308 [0.043]	113	0.283 [0.043]	-0.021	-0.043	-0.018	-0.022	0.003	0.025
>54 years	117	0.256 [0.041]	126	0.254 [0.039]	117	0.265 [0.041]	113	0.195 [0.037]	0.002	-0.009	0.062	-0.011	0.059	0.070
HS/GED or less	117	0.658 [0.044]	126	0.698 [0.041]	117	0.632 [0.045]	113	0.584 [0.047]	-0.040	0.026	0.074	0.066	0.114*	0.048
Some college or above	117	0.342 [0.044]	126	0.302 [0.041]	117	0.368 [0.045]	113	0.416 [0.047]	0.040	-0.026	-0.074	-0.066	-0.114*	-0.048
Lower-income household	117	0.624 [0.045]	126	0.706 [0.041]	117	0.684 [0.043]	113	0.655 [0.045]	-0.082	-0.060	-0.031	0.023	0.051	0.029
Middle-income household	117	0.342 [0.044]	126	0.278 [0.040]	117	0.299 [0.043]	113	0.319 [0.044]	0.064	0.043	0.023	-0.021	-0.041	-0.019
Upper-income household	117	0.034 [0.017]	126	0.016 [0.011]	117	0.017 [0.012]	113	0.027 [0.015]	0.018	0.017	0.008	-0.001	-0.011	-0.009
Pre-treatment trust	117	6.479 [0.199]	126	6.294 [0.197]	117	6.470 [0.208]	113	5.973 [0.223]	0.185	0.009	0.505*	-0.176	0.320	0.497

Note: The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Appendix C Control variables

Age group is a categorical variable taking value:

- 1 if age is between 18 and 34
- 2 if age is between 35 and 54
- 3 if age is greater than 55.

Gender is a categorical variable taking value:

- 0 if male
- 1 if female
- 2 if non-binary

Education category is a categorical variable taking value:

- 1 if respondent's education is "HS/GED or less"
- 2 if respondent's education is "Some college or above"

Openness, Extraversion, Agreeableness, Conscientiousness, and Emotional Stability are Big-Five Personality Traits measured using the 10-items scale validated by Gosling et al. (2003).

Race Important is a variable used to measure, on a 5-points Likert scale, the extent to which racial identity is important to respondents.

Healthcare worker is a binary variable taking value 1 if the respondent is a healthcare worker and 0 otherwise.

Family healthcare worker is a binary variable taking value 1 if the respondent has one or more family member who are healthcare workers and 0 otherwise.

Trustworthy is a variable used to measure, on a 7-points Likert scale, the extent to which respondents agree with the following statement: "Knowing that the healthcare system is trustworthy is very important to me."

Equality is a variable used to measure, on a 7-points Likert scale, the extent to which respondents agree with the following statement: "Knowing that everyone, regardless of their race, is treated equally when it comes to healthcare is very important to me."

Trust Doc is a single-item measure of "trust in my doctor". Respondents had to state, on a scale from 1 to 5, how much they agreed with the following statement: "All in all, I have complete trust in my doctor."

Social Trust is a continuous measure of "trust in others".

Visit ER, Visit Doctor, and Visit Hospital are variables measuring how many times respondents saw a doctor, went to the emergency room, or were admitted to the hospital in the six months before the survey.

Satisfied doctor is a variable measuring, on a scale from 1 (completely dissatisfied) to 7 (completely satisfied), how satisfied or dissatisfied respondents were with the treatment they received when they last visited a doctor.

Discrimination health is a binary variable measuring whether respondents have ever experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior in getting medical care because of their race or ethnicity.

Appendix D

Source	Partial SS	df	MS	F	Prob>F
Model	204.33	7	29.19	5.80	0.0000
Source (In-Group)	13.39	1	13.39	2.66	0.1031
Valence (Negative)	165.96	1	165.96	32.98	0.0000
Source * Valence	.22	1	.22	0.04	0.8333
Race	.60	1	.60	0.12	0.7292
Source * Race	.36	1	.36	0.07	0.7890
Valence * Race	.21	1	.21	0.04	0.8356
Source * Valence * Race	25.80	1	25.80	5.13	0.0238
Residual	4786.20	951	5.03		
Total	4990.54	958	5.21		
Number of obs	959				
Root MSE	2.24				
R-squared	0.0409				
Adj R-squared	0.0339				

Table 1. Three-way ANOVA. Post-treatment trust.

Source	Partial SS	df	MS	F	Prob>F
Model	96.42	3	32.14	6.64	0.0002
Source (In-Group)	9.19	1	9.18	1.90	0.1688
Valence (Negative)	78.06	1	78.05	16.14	0.0001
Source * Valence	10.74	1	10.74	2.22	0.1368
Residual	2331.66	482	4.83		
Total	2428.09	485	5.01		
Number of obs	486				
Root MSE	2.20				
R-squared	0.0397				
Adj R-squared	0.0337				

Table 2. Two-way ANOVA (race = white). Post-treatment trust.

Source	Partial SS	df	MS	F	Prob>F
Model	107.09	3	35.70	6.82	0.0002
Source (In-Group)	4.62	1	4.62	0.88	0.3478
Valence (Negative)	87.99	1	87.99	16.81	0.0000
Source * Valence	15.22	1	15.22	2.91	0.0888
Residual	2454.53	469	5.23		
Total	2561.63	472	5.43		
Number of obs	473				
Root MSE	2.29				
R-squared	0.0418				
Adj R-squared	0.0357				

Table 3. Two-way ANOVA (race = black). Post-treatment trust.

Source	Partial SS	df	MS	F	Prob>F
Model	19.93	7	2.85	2.50	0.0151
Source (In-Group)	.06	1	.06	0.06	0.8060
Valence (Negative)	4.97	1	4.97	4.37	0.0369
Source * Valence	4.10	1	4.10	3.60	0.0579
Race	1.28	1	1.28	1.12	0.2897
Source * Race	1.37	1	1.37	1.20	0.2737
Valence * Race	1.24	1	1.24	1.09	0.2976
Source * Valence * Race	6.33	1	6.33	5.56	0.0186
Residual	1083.18	951	1.14		
Total	1103.11	958	1.15		
Number of obs	959				
Root MSE	1.07				
R-squared	0.0181				
Adj R-squared	0.0108				

Table 4. Three-way ANOVA. Magnitude trust change.

Source	Partial SS	df	MS	F	Prob>F
Model	12.45	3	4.15	4.19	0.0061
Source (In-Group)	1.04	1	1.04	1.05	0.3069
Valence (Negative)	.63	1	.63	0.64	0.4248
Source * Valence	10.45	1	10.45	10.55	0.0012
Residual	477.59	482	.990		
Total	490.04	485	1.01		
Number of obs	486				
Root MSE	.995				
R-squared	0.0254				
Adj R-squared	0.0193				

Table 4. Two-way ANOVA (race = white). Magnitude trust change.

Source	Partial SS	df	MS	F	Prob>F
Model	5.96	3	1.99	1.54	0.2037
Source (In-Group)	.40	1	.40	0.31	0.5753
Valence (Negative)	5.52	1	5.52	4.27	0.0393
Source * Valence	.12	1	.12	0.09	0.7618
Residual	605.59	469	1.29		
Total	611.55	472	1.29		
Number of obs	473				
Root MSE	1.14				
R-squared	0.0097				
Adj R-squared	0.0034				

Table 4. Two-way ANOVA (race = black). Magnitude trust change.

Appendix E
Regression analyses – Models without controls

	Post-Treatment Trust		Magnitude of Trust Change	
	White	Black	White	Black
Negative	-1.101*** (-3.90)	-0.504* (-1.69)	-0.222* (-1.73)	0.248* (1.67)
In-group	-0.573** (-2.07)	0.161 (0.55)	-0.386*** (-3.08)	0.0904 (0.62)
Negative # In-group	0.596 (1.49)	-0.718* (-1.71)	0.588*** (3.25)	-0.0634 (-0.30)
Constant	6.808*** (33.91)	6.521*** (30.83)	0.750*** (8.25)	0.513*** (4.88)
N	486	473	486	473

* p < .10 **p < .05 ***p < .01

	Likelihood of Trust Change		Behavioural Trust	
	White	Black	White	Black
Negative	-0.425 (-1.60)	0.238 (0.84)	-0.247 (-0.81)	-0.353 (-1.11)
In-group	-0.830*** (-3.05)	0.540** (1.98)	-0.0228 (-0.07)	-0.0159 (-0.05)
Negative # In-group	1.027*** (2.66)	-0.486 (-1.25)	-0.0717 (-0.17)	0.0163 (0.04)
Constant	-0.268 (-1.46)	-0.892*** (-4.38)	1.335*** (5.94)	1.463*** (6.18)
N	486	473	486	473

* p < .10 **p < .05 ***p < .01. Logit (coefficients)