

Healthy Reasoning: The Role of Effective Argumentation for Enhancing Elderly Patients' Self- management Abilities in Chronic Care

Sarah BIGI ^{a1}

^a*Università Cattolica del Sacro Cuore, Milan, Italy*

Abstract. One of the biggest challenges for doctors working in chronic care is the correct management of the argumentation phases during the encounters with their patients. During these phases doctors should provide patients with acceptable reasons for being adherent to treatment and for changing certain unhealthy behaviors and lifestyles, something which is particularly difficult for elderly patients, for whom changing life long habits can be extremely hard. However, the medical literature on the subject of communication in the chronic care encounter shows lack of theoretical models and methodological approaches that can highlight which specific linguistic structures or elements in different communication styles favor or impede patient commitment, trust in the relationship and adherence to treatment. The contribution describes ongoing research on argumentative strategies in the encounter with diabetes patients. I describe one recently concluded research project on the argumentation phases of medical encounters in diabetes care, which highlighted critical areas in need of improvement. I also describe the design and aims of a new research project, aimed at testing the effectiveness and usability of certain argumentation schemes in the medical encounter.

Keywords. Doctor-patient Communication, Argumentation Schemes, Commitment, Shared Decision Making, Chronic Care

Introduction

Numerous studies have addressed the key factors in effective patient-provider communication with elderly and chronic patients, pointing out in particular the higher effectiveness of collaborative and proactive communication styles [1-9]. Indeed, evidence shows that more collaborative communication styles favor patient outcomes (such as satisfaction, adherence and health); on the other hand, some studies still report that it is difficult to understand precisely why and how such communication styles

¹ Corresponding Author: Dipartimento di Scienze Linguistiche e Letterature Straniere, Università Cattolica del Sacro Cuore, Milano, Italy. Email: sarah.biggi@unicatt.it

impact positively on patient outcomes. Some of the most relevant open questions are the following: which are the factors that improve or impede agreement on treatment goals and strategies [5]?; which are the ‘success conditions’ of a collaborative goal setting [8]?; how can physicians effectively help patients make their preferences explicit and then co-construct with them informed preferences to help them reach their therapeutic goals [9]?

The main challenge inherent in these open questions is the possibility to have a comprehensive model of the interaction in chronic care able to explain the correlations between communication styles and patient outcomes. The potential for meeting this challenge deriving from the collaboration between the medical field and the disciplinary fields dealing with communication (e.g. linguistics, argumentation theory, artificial intelligence, psychology) has inspired the design and development of the two research projects described in this contribution.

The first, the “Doctor-patient communication project”, has been conducted between 2012-2014, involving a diabetes outpatient clinic near Milan. The second, “Healthy reasoning. Strategies and Mechanisms of Persuasion in Chronic Care”, has begun in March 2014 and will involve a larger number of diabetes doctors and patients that will be recruited from different regions in Italy.

The fundamental research question in both these projects is to understand the specificities of the doctor-patient interaction in chronic care in order to develop an overarching theoretical model of this kind of interaction that will serve as a blueprint to explain in detail the positive correlations already observed in the literature between collaborative and participatory communication styles and positive patient outcomes.

The issue is challenging because the correlation between communication styles and patient outcomes has an inner complexity that cannot be dealt with through a merely empirical approach. It involves questions such as: what is a communication style ‘made of’?; does communication impact on behavior directly or indirectly?; if indirectly, via which other features or phenomena?; how can patient outcomes be defined and specified in relation to communication styles? In order to answer these questions, the empirical approach needs to be complemented by a theoretical one. In other words, empirical data – which are now abundant – need models for their interpretation. In particular, the existing literature on communication in chronic care has pointed out the crucial role of shared decision making and patient engagement as a way of boosting patient commitment and obtain better therapeutic adherence and the needed changes in patients’ lifestyles [1, 3, 5-9]. In the two projects mentioned above, the phase of decision making has been given particular attention, along with doctors’ abilities to reason effectively with their patients. I refer to this ability as *healthy reasoning*, implying a set of communicative and relational skills based on valid reasoning, i.e. the ability to provide, in a licit way, reasons for taking action aimed at improving patients’ health. It is important to stress the fact that also the reasoning practices used by doctors need to be *healthy*, in the sense that they should be logically valid and conversationally acceptable as opposed to manipulative practices.

1. The Relevance of *Healthy Reasoning* for Active Ageing and Healthy Living

The outline of a model that can effectively explain and predict the features of an optimal doctor-patient interaction in chronic care seems particularly important in view of the huge challenges health care providers will have to meet in the coming years.

The ageing of the European population and the complexity this will imply for social and health systems are being stressed more and more frequently. The European Commission foresees that “by 2025 more than 20% of Europeans will be 65 or over, with a particularly rapid increase in numbers of over-80s. Because older people have different healthcare requirements, health systems will need to adapt so they can provide adequate care and remain financially sustainable” [10]. The major burden on health systems and on the ageing population is the presence of multiple chronic conditions, which can have high clinical impact and lead to lethal outcomes if not managed properly. Diabetes, along with cardiovascular diseases, cancer, chronic respiratory diseases, and mental illness, represents one of the leading causes of mortality in developed countries [10].

According to the International Diabetes Federation, the most important risk factors for type 2 diabetes² are: unhealthy diet, physical inactivity, high blood pressure, and increasing age. Policy programs are rightly focused on prevention and early diagnosis, but once the disease has been diagnosed, it is crucial to work with patients on the prevention of complications. These range from cardiovascular diseases, to blindness, kidney failure and lower limb amputation [11]. Especially the treatment of these conditions is extremely expensive for health systems, seriously impairing for the individuals, and particularly problematic for elderly citizens.

To prevent complications, patients and doctors together can work on three areas: pharmacological treatment, nutrition, and physical activity. The combination of these three elements can be tailored on the specific needs of each individual patient, but in all cases diabetes requires patients to change certain habits and lifestyles. Patients also need to learn to monitor their condition by using the glucometer and to interpret the values they measure through the glucometer in order to be able to take action in case of acute episodes, such as hypo- or hyperglycemias. These are no easy achievements, especially in old age, when certain routines have become consolidated and learning new skills requires greater efforts.

In the case of chronic conditions, and diabetes in particular, the pivotal opportunity for patient engagement in view of preventing complications and creating the conditions for a higher quality of life is the medical encounter. In spite of this, chronic care doctors keep lacking adequate training to manage this crucial moment appropriately and the effectiveness of consultations is still largely resting on doctors' individual skills, charisma or non-canonical education [12].

Factors such as an ageing population, the necessity for health systems to become more sustainable, and the growing incidence of chronic diseases, make it crucial to develop new models for the interpretation of the evidence we have and for the development of innovative training modules for chronic care doctors. The projects described in the following section have been designed and developed to contribute to this line of research.

² There are two kinds of diabetes, called type 1 and type 2. The former is usually diagnosed at a very early age and its causes are still not clear; the latter typically arises in adulthood and is normally associated with unhealthy lifestyles. The projects described in this contribution both focus on type 2 diabetes.

2. Our Actual Research Activity

In what follows I describe two research projects – the first already concluded and the second just begun – developed in the field of medical communication, with a special emphasis on communication styles and argumentation strategies in a chronic care setting.

2.1 The “Doctor-Patient Communication Project”

The “Doctor-patient communication project”³ is a pilot study that stemmed from an interest for communication in institutional settings, in particular in the context of the medical encounter between doctors and patients⁴. This kind of study implies necessarily an interdisciplinary approach: it was possible for me to design and carry out this project thanks to the collaboration with the medical staff at the diabetes outpatient clinic of the A.O. I.C.P. – Cusano Milanino⁵.

As already mentioned, it is particularly important for elderly chronic patients to be involved and actively engaged in the management of their disease. This is particularly true for diabetes, which is constantly increasing also among the Italian population with skyrocketing costs for the health care system⁶.

The aim of the “Doctor-patient communication project” was to provide a description of the most frequently used argumentation strategies in the medical encounter in diabetes care, in order to arrive at a proposal for a method of analysis of these interactions that would allow to identify critical or suboptimal situations and provide indications for improvement. Due to the small sample of collected data, the project did not aim at representativeness; rather, it was meant to provide a sound methodology that could then be applied to bigger numbers.

2.1.1 Material and Method

The research questions guiding the design of the project are the following: how and when do doctors use argumentation during the encounters with their patients?; what kind of arguments do they use most?; are these arguments effective in achieving the intended goal of the consultation or of a specific phase in the consultation?; is it

³ Project website at: <https://sites.google.com/site/docpatcommpro/>.

⁴ The project was actually the output of a few years of observations conducted on a sample of videorecordings from the Archive of Videorecordings of Medical Consultations, collected by the research group of Clinical Psychology, University of Milano (San Paolo Hospital) [13]. Publications referring to these initial observations are [14-18].

⁵ The Azienda Ospedaliera [health care facility] Istituti Clinici di Perfezionamento (I.C.P., <http://www.icp.mi.it/home>) includes four hospitals and a number of outpatient clinics in the city of Milano and surrounding areas. The project was approved by the Ethical Committee of the I.C.P. in January 2012.

⁶ In addition to the facts concerning diabetes in Europe, the Italian Barometer Diabetes Report 2013 shows that, between 2000-2012, the percentage of diabetes in Italy has passed from 3.7% to 5.5%. Diabetes takes up 9-10% of the Italian health care system's budget. On average, the health care system spends 2,600 euros every year for each Italian diabetic patient, more than double the expense for other citizens of same age and gender, but not affected by diabetes. Only 7% of this expense is for anti-diabetes medications; 25% of it covers the cost of therapies for complications and related pathologies, and much more is related to hospitalizations and ambulatory care [19]. These data have already increased if compared to the 2012 Report [20] and they suggest that the costs of diabetes will be reduced by preventing complications and the hospitalizations connected to them.

possible to ‘measure’ the impact an effective use of argumentation has on patient outcomes?

The project has run from March 2012 through March 2014 with the collaboration of the medical staff at the diabetes outpatient clinic of the A.O. I.C.P. – Cusano Milanino. We selected randomly 20 patients among the ones already assisted at the clinic: 10 men and 10 women affected by Type 2 Diabetes Mellitus, whose ages ranged between 60 and 90. We obtained an informed consent from all the patients involved in the study and from all the members of staff at the clinic. Every time the recruited patients came in for a visit, their encounter with the health care providers was videorecorded. This resulted in an uneven distribution of the recordings for each patient⁷. The recording went on for 21 months and resulted in a collection of 60 videos, for a total of about 1.800 minutes of recorded material.

The interactions were analyzed by identifying all the argumentative phases and by describing the argumentation schemes [21-24] that were used by the medical staff.

2.1.2 Results

Regarding when and how health care providers used argumentation with their patients, the results are summarized in Table 1.

Table 1. Argumentative practices in the diabetes consultation.

Research questions	Results
When is argumentation used?	<p>Phases: patient education and counseling (which includes: discussion of self-monitoring and evaluation of patient outcomes)</p> <p>Topics: patient non-adherence incorrect performance of self-monitoring patient negative outcomes</p>
How is argumentation used?	<p>Who: mostly health care providers</p> <p>How: mostly, argument from consequences or argument from cause to effects</p>

As shown in Table 1, argumentation is used mostly during the phase of patient education and counseling⁸, in which the health care providers consider and evaluate the quality of patients’ adherence to treatment, self-monitoring of blood glucose and overall lifestyles. Those who actually use argumentation are mostly the health care personnel. When used, argumentation aims at providing reasons for adopting healthier behaviors, for improving adherence to therapy, or for performing the self-monitoring more accurately. Typically, argumentation is defined as a mode of discourse aimed at resolving a difference of opinion regarding the acceptability of a standpoint, in which

⁷ Four patients were recorded two times; three patients were recorded three times; seven patients were recorded four times; two patients were recorded five and six times respectively. Of the remaining four patients, three dropped out and for the last one, we missed his subsequent visits due to organizational problems.

⁸ For the denomination of the phase of the consultation, I am relying on the description provided in [25], where the typical medical visit is described as a five-phase sequence: opening, the history, the physical examination, patient education and counseling and the closing.

two or more parties put forward proposals and discuss them in order to decide which standpoint is the most reasonable [26]. The case of the medical visit resembles closely the deliberation dialogue type [22], in which two (or more) parties discuss to arrive at a decision regarding a certain course of action. What is striking about the argumentative passages in the collected data is that there is little or no discussion. Health care providers tend to observe incorrect behaviors or bad clinical values and start sometimes rather long argumentations in which they try to convince the patient that it is preferable to do certain things or to do things otherwise. Patients often remain silent, sometimes they offer justifications for their behaviors, other times – but seldom – they attempt to put forward a proposal of their own.

The argument schemes mostly used by doctors are those from consequences or from causes to effects [24]. Albeit being valid arguments, the problem with the use of these schemes is that health care providers often ground them on specialized knowledge, which may not always be completely shared by the patients. Another challenge posed by the argument from positive/negative consequences is the definition of what is considered ‘good’ and ‘bad’ by the interlocutors: when using this argument scheme it is very important that both parties agree on what is preferable, but this does not always happen in the analyzed interactions.

Concerning the issue of the correlation between the use of argumentation strategies and patient outcomes, as already mentioned recent studies highlight the difficulty of establishing clearly such correlation (among others, [5, 8-9]). Part of the difficulty derives from the concept itself of ‘patient outcomes’, which may include: adherence to treatment (a behavior), health (the consequence of certain behaviors, such as adherence to treatment or to healthy lifestyles), and satisfaction [27].

Of these three very different dimensions, perhaps the only one that can have a direct correlation with the use of argumentation strategies – i.e. reasoning – is adherence to treatment. As the whole tradition of rhetoric and argumentation theory shows, the correlation between reasoning and behavior change has to do with commitment. In other words, the more reasoning is able to impact on commitment and motivation, the more it is likely for behavior change to happen and to become permanent. Also the medical literature has observed this connection in relation to the phase of shared decision making (also called, collaborative goal setting) in which positive health outcomes seem to happen more frequently when doctors and patients decide together on what the patient needs to do and on the goals they have to achieve [1, 3, 8, 9].

Another important correlation highlighted in the literature is the one between communication styles and patient self-efficacy, defined as patients’ confidence in their ability to complete self-management practices [5]. Healthy reasoning can come into play also in this correlation as the ability to help patients bring to light their difficulties and turn them from failures into challenges.

My observations regarding the correlation between argumentation and patient commitment and self-efficacy are summarized in Table 2.

Table 2. Correlations between argumentation and patient commitment and self-efficacy.

Triggers for behavior change	Results from the data
Patient commitment	Patients seldom participate in the phase of decision making regarding what actions to take until the next visit. A true phase of shared decision making is actually often lacking during the encounters.
Patient self-efficacy	Doctors and staff never use shame, sense of guilt or fear as behavior triggers. They also stress patients' achievements and tend to minimize their failures.

2.1.3 Discussion of Results

The results of the analysis combined with individual interviews conducted with the staff at the clinic revealed that doctors and medical personnel are not always aware of the potential of communication as an actual therapeutic tool, but at the same time they perceive the need for specific training in communication. The biggest challenge they reported was the difficulty of achieving patient engagement.

The use of scientific information by health care providers shows a strong influence of scientific thinking on the way they conduct their consultations with the patients. In other words, many times the interactions look like a conflict between rational and irrational modes of thinking. This is also revealed by the use of the argumentation schemes from negative/positive consequences and from causes to effects, which do not always obtain the expected responses from patients because the value hierarchies used by the interlocutors are very different.

The right preoccupation with saving patients' face by not insisting on their failures or poor results sometimes seems to leave health care providers unable to help patients describe fully and clearly the difficulties they had with treatment or self-monitoring and that might have caused their non optimal outcomes.

Finally, a significant observation regards the fact that a phase of shared decision making is almost always lacking in the encounters. Usually, doctors and staff tend to unilaterally suggest a proposal for action, which is generally accepted by patients. This kind of dynamics however needs to be improved if better patient commitment is to be achieved. It is also interesting that during the individual interviews with the doctors and staff no one reported perceptions of difficulties during the phases of decision making. Regarding this point, a paper has been submitted to a scientific journal, proposing a theoretical model of the decision making phase in the medical consultation. This model can be used as an analytical tool to identify cases of inappropriate management of the decision making phase, and at the same time it can become a normative tool for the training of medical personnel, by indicating the necessary elements to construct a truly shared decision making process with patients [28].

2.2 "Healthy Reasoning. Strategies and Mechanisms of Persuasion in Chronic Care"

The observation of the frequent disalignment between doctors and patients during the argumentation phases of the encounters was the trigger that led to the design of the "Healthy Reasoning" project. This proposal was submitted in early 2013 to the Italian Ministry for University and Research and received final approval in October 2013 for a period of three years. The project could begin in March 2014 and is now in its initial

phases. The aim of this research is to understand whether it is possible to integrate heuristic techniques in a long-term argumentative strategy, like the one chronic care doctors should pursue.

Within argumentation theory, recent studies have focused on the medical context [29-32], showing relevant research directions but without developing analytic models and criteria specifically related to the context of chronic care. On the other hand, a wide research trend describes a particular kind of arguments, called heuristics, that are probabilistic and presumptive [22; 33]. Important studies have shown that heuristics can contribute to modifying radically individuals' behaviors [34-36]. Moreover, experiments, which have inspired the ones that will be pursued in this project, have shown the clinical advantages of teaching health care professionals communication skills tailored on their therapeutic objectives [37]. Taking these studies as my starting point, my aim is to apply them to the context of chronic care to test the appropriateness and usability of certain heuristics.

In order to do this, the project foresees to carry out an experiment in which a sample of doctors will be recruited and taught certain heuristic techniques. They will be asked to use them with their patients for a limited period of time and the effects of this new communication style will be tested through questionnaires submitted to the doctors, and through personal interviews with the patients. The experiment will be run in two subsequent rounds with different but comparable samples of doctors in order to validate the results. The recruitment of the doctors will be possible thanks to the collaboration with the Italian Association of Diabetologists⁹.

The observation underlying this project is that doctors' present training does not provide them with a complete set of 'communicative tools' to cope with different dialogical situations. If the provision of minimal specialized information to patients is necessary and unavoidable, it is also true that sometimes this is not sufficient to trigger crucial and needed behavior changes in patients. Arguing from specialized knowledge is not always the solution, because this kind of knowledge may be too difficult to process, sometimes it is presented in ways that are cognitively not easily accessible and it may not take into consideration other aspects of patients' lives that have nothing to do with agreeing or not with the doctor's point of view.

One important focus of the project will be in particular to understand how to enhance elderly patients' commitment to the chosen course of action, in order to turn new positive behaviors into permanent habits.

3. The Practical Value of Research on Healthy Reasoning for Active Ageing and Healthy Living and Future Developments of the Research

The research presented in this contribution is expected to yield important results that can be used to design communication protocols for clinicians working in chronic care and with elderly patients. In part, this is already happening.

The collaboration with the diabetes clinic in Cusano Milanino has continued after the conclusion of the "Doctor-Patient Communication Project" and, based on the project's results, together we are designing a new experiment to test the usability and effectiveness of strategies for the enhancement of clinicians' ability to conduct more effective shared decision making phases with their patients during the medical

⁹ Associazione Medici Diabetologi (AMD), www.aemmedi.it.

encounter. This is particularly aimed at improving the engagement of elderly patients, who can less frequently be supported by telemedicine due to their often poor familiarity with ICT.

A further application of the results of the project conducted in Cusano Milanino is the development of an application for tablet and smartphone aimed at supporting patients' motivation and engagement in every day life. The variety and quality of applications for tablets and smartphones specifically tailored on the needs of chronic patients are increasing every day and their effectiveness is unquestionable [38]. We are studying the design of a prototype of application for tablet and smartphone particularly aimed at supporting diabetes patients aged over-65 in the prevention of complications and adherence to treatment.

Also the collaboration with the group of Clinical Psychology at the University of Milano has continued¹⁰. Together we are testing a theoretical model for the dialogical analysis of medical encounters in chronic care. We expect to arrive at initial indications for clinicians regarding optimal ways to manage the crucial phases of their consultations with the patients, namely: clinical decision of therapeutic treatment and patient engagement and counseling. The collaboration with this research group is particularly promising because of their specific interest in the enhancement of communication in the clinical practice also through courses taught as a post graduate continuing medical education and undergraduate training at the School of Medicine, Dept. of Health Sciences, University of Milano.

New collaborations are also developing with researchers and clinicians working on other chronic diseases such as: kidney disorders, hemophilia and epilepsy. The aim of these collaborations is to work together towards shared communication protocols for the improvement of clinicians' communication skills in chronic care, thus improving elderly chronic patients' engagement and quality of life.

Acknowledgements

With regard to the initial observations that led to the design of the projects described in this contribution, I wish to thank Prof. Egidio Moja and the research group of Clinical Psychology at the University of Milano (San Paolo Hospital) for allowing me free and extensive use of their Archive of Videorecordings of Medical Consultations.

The realization of the "Doctor-Patient Communication Project" was partly funded by a Research Fellowship granted by the Faculty of Linguistic Sciences and Foreign Literatures, Università Cattolica del Sacro Cuore, Milano. For their ready collaboration, kindness and willingness to make the interdisciplinary effort involved in the project, I also wish to thank Dr. Nicoletta Musacchio and her staff: Dr. Annalisa Giancaterini, Dr. Ilaria Ciullo, Dr. Augusto Lovagnini, nurses Silvia Maino and Rosana Gaiofatto, and dietician Laura Pessina.

The project "Healthy Reasoning. Strategies and Mechanisms of Persuasion in Chronic Care" is funded by a grant from the Italian Ministry for University and Research (MIUR – "FIR 2013", Grant: RBFR13FQ5J). For their willingness to collaborate on this project, I wish to thank the Italian Association of Diabetologists (AMD).

¹⁰ An important product of this collaboration is the paper that has been accepted as oral presentation at the 12th International Conference on Communication in Healthcare (ICCH), September 28-October 1st, 2014, Amsterdam [39].

References

- [1] R. Street, V.K. Piziak, W.S. Carpentier, J. Herzog, J. Heyl, G. Skinner, L. McLellan, Provider-patient communication and metabolic control, *Diabetes Care* **16**(5) (1993), 714-721.
- [2] J. Coupland, J. Robinson, N. Coupland, Frame negotiation in doctor-elderly patient consultations, *Discourse and Society* **5**(1) (1994), 89-124.
- [3] M. Von Korff, J. Gruman, J. Schaefer, S.J. Curry, E.H. Wagner, Collaborative management of chronic illness, *Annals of Internal Medicine* **127** (1997), 1097-1102.
- [4] W.A. Beach, C.N. Dixon, Revealing moments: formulating understandings of adverse experiences in a health appraisal interview, *Social Science and Medicine* **52** (2001), 25-44.
- [5] M. Heisler, S. Vijan, R.M. Anderson, P.A. Ubel, S.J. Bernstein, T.P. Hofer, When do patients and their physicians agree on diabetes treatment goals and strategies, and what difference does it make? *Journal of General Internal Medicine* **18** (2003), 893-902.
- [6] A.T. Langford, D.R. Sawyer, S. Gioimo, C.A. Brownson, M.L. O'Toole, Patient-centered goal setting as a tool to improve diabetes self-management, *The Diabetes Educator* **33**(6) (2007), 139S-144S.
- [7] A.D. Naik, M.A. Kallen, A. Walder, R.L. Street, Improving hypertension control in diabetes mellitus. The effects of collaborative and proactive health communication, *Circulation* **117** (2008), 1361-1368.
- [8] J.E. Lafata, H.L. Morris, E. Dobie, M. Heisler, R.M. Werner, L. Dumenci, Patient-reported use of collaborative goal setting and glycemic control among patients with diabetes, *Patient Education and Counseling* **92** (2013), 94-99.
- [9] R.M. Epstein, R.E. Gramling, What is shared in shared decision making? Complex decisions when the evidence is unclear, *Medical Care Research and Review* **Supplement to 70**(1) (2013), 94S-112S.
- [10] European Commission. Web. 19 May 2014. <<http://ec.europa.eu>>.
- [11] International Diabetes Federation. Web 19 May 2014. <<http://www.idf.org>>.
- [12] N. Musacchio et al., Brain&Dia: la ricerca emozionale di AMD, *Il Giornale di AMD* **16** (2013), 254-264.
- [13] E. Vegni, G. Fognini, M. Lunardelli, M. Martinoli, M. Odorici, E. A. Moja, Videoregistrazione di visite mediche per lo studio del rapporto medico-paziente in Medicina Generale. Un'esperienza sperimentale in Italia, *Recenti progressi in medicina* **90** (1999), 9-12.
- [14] S. Bigi, Analyzing doctor-patient communication: methodological issues, *Bulletin suisse de linguistique appliquée* **2** (2010), 133-145.
- [15] S. Bigi, The persuasive role of ethos in doctor-patient interactions, *Communication and Medicine* **8**(1) (2011a), 63-72.
- [16] S. Bigi, Institutional constraints on the (un)sound use of the argument from expert opinion in the medical context, in F.H. van Eemeren, B.J. Garssen, D. Godden, G. Mitchell (eds.), *Proceedings of the 7th Conference of the International Society for the Study of Argumentation*, Rozenberg/Sic Sat, Amsterdam, 2011b, 85-95.
- [17] S. Bigi, Contextual constraints on argumentation. The case of the medical encounter, in F.H. van Eemeren, B. Garssen (eds.), *Exploring Argumentative Contexts [AIC 4]*, John Benjamins, Amsterdam, (2012a), 289-303.
- [18] S. Bigi, Evaluating argumentative moves in medical consultations, *Journal of Argumentation in Context* **1**(1) (2012b), 51-65.
- [19] A. Consoli (ed.), *Italian Barometer Diabetes Report 2013*, Italian Barometer Diabetes Observatory Foundation. Web. 21 May 2014. <<http://www.ibdo.it>>.
- [20] A. Consoli, A. Nicolucci, S. Caputo (eds.), *Italian Barometer Diabetes Report 2012*, Italian Barometer Diabetes Observatory Foundation. Web. 21 May 2014. <<http://www.ibdo.it>>.
- [21] D. Walton, *Argumentation Schemes for Presumptive Reasoning*, Erlbaum, Mahwah, NJ, 1996.
- [22] D. Walton, How to make and defend a proposal in a deliberation dialogue, *Artificial Intelligence and Law* **14** (2006), 177-239.
- [23] D. Walton, C. Reed, Argumentation Schemes and Defeasible Inferences, in G. Carenini, F. Grasso, C. Reed (eds.), *Workshop on Computational Models of Natural Argument*, ECAI 2002, 15th European Conference on Artificial Intelligence, 2002, 45-55.
- [24] D. Walton, C. Reed, F. Macagno, *Argumentation Schemes*, Cambridge University Press, Cambridge, 2008.
- [25] D. Roter, J. Hall, *Doctors Talking with Patients/Patients Talking with Doctors*, Praeger, Westport, CT, 2006.
- [26] F. van Eemeren, *Strategic Maneuvering in argumentative Discourse*, John Benjamins, Amsterdam, 2010.
- [27] M. Heisler, R.R. Bouknight, R.A. Hayward, D.M. Smith, E.A. Kerr, The relative importance of physician communication, participatory decision making, and patient understanding in diabetes self-management, *Journal of General Internal Medicine* **17** 2002, 243-252.

- [28] S. Bigi, Key components of effective collaborative goal setting in the chronic care encounter, *submitted*.
- [29] S. Rubinelli, Rational versus unreasonable persuasion in doctor–patient communication: A normative account, *Patient Education and Counseling* **92(3)**, 296-301.
- [30] J.H.M. Wagemans, The assessment of argumentation from expert opinion, *Argumentation* **25** 2011, 329-339.
- [31] N. Labrie, Strategic maneuvering in treatment decision-making discussions: Two cases in point, *Argumentation* **26(2)** 2012, 171-199.
- [32] R. Pilgram, Reasonableness of a doctor's argument by authority, *Journal of Argumentation in Context* **1(1)** 2012, 33-50.
- [33] F. Macagno, Dialectical and heuristic arguments: Presumptions and burden of proof, in C. Reed, C. Tindale (eds.), *Dialectics, Dialogue and Argumentation. An Examination of Douglas Walton's Theories of Reasoning and Argument*, College Publications, London, 2010, 45-58.
- [34] R. Cialdini, *Influence: The psychology of persuasion*, Harper Collins, New York, 2009.
- [35] D. Ariely, *Predictably Irrational*, Harper Collins, New York, 2009.
- [36] R. E. Petty, J. T. Cacioppo, A. J. Strathman, J. R. Priester, To think or not to think: Exploring two routes to persuasion, in S. Shavitt, T. C. Brock (eds.), *Persuasion: Psychological insights and perspectives*, 2nd edition, Allyn & Bacon, New York, 2005, 81-116.
- [37] J. Heritage, J.D. Robinson, M.N. Elliot, M. Beckett, M. Wilkes, Reducing patients' unmet concerns in primary care, *Journal of General Internal Medicine* **22(10)** 2007, 1429-1433.
- [38] G. Graffigna, S. Barello, G. Riva, How to Make Health Information Technology Effective: The Challenge of Patient Engagement, *Archives of Physical Medicine and Rehabilitation* **94(10)** 2013, 2034-2035.
- [39] G. Lamiani, I. Strada, S. Bigi, E. Mancuso, E. Santagostino, E. Vegni, E. Moja, Adherence in Hemophilia: Patients' self-perception and physicians' argumentative strategies, accepted as oral presentation at the 12th International Conference on Communication in Healthcare (ICCH), September 28-October 1st, 2014, Amsterdam.