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Quantifying Doctors' Argumentation in General Practice Consultation Through Content Analysis: Measurement Development and Preliminary Results

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Abstract General practice consultation has often been characterized by pragma-dialecticians as an argumentative activity type. These characterizations are typically derived from theoretical insights and qualitative analyses. Yet, descriptions that are based on quantitative data are thus far lacking. This paper provides a detailed account of the development of an instrument to guide the quantitative analysis of argumentation in doctor–patient consultation. It describes the implementation and preliminary results of a content analysis of seventy videotaped medical consultations of which the extent and type of doctors' argumentative support for medical opinions and advice are analyzed. Based on the study results, this paper addresses the merits of observational studies using content analysis as a method for the analysis of argumentative discourse in context as well as some of its key challenges and limitations, laying bare the opportunities for future research.

Keywords General practice consultation · Argumentative activity type · Pragma-dialectical theory of argumentation · Quantitative methods · Content analysis

1 Introduction

While qualitative approaches to the study of argumentation are typically characterized by in-depth analyses of argumentative discourse in its natural setting aimed at providing interpretative meaning to the subject of research, quantitative methods are characteristically used to draw valid and objective inferences about the subject on the basis of reliable and generalizable sets of data. That is, while qualitative research generally aims to provide interpretation and meaning, quantitative

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research, by producing counts and measures, aspires to predict, explain, and understand. In the study of argumentation in context, qualitative approaches are very common. Pragma-dialecticians, in particular, have provided thorough and theoretically grounded analyses of different argumentative moves in a variety of cases and a wide range of discussion contexts.[1] Quantitative analyses based on pragma-dialectics, however, seem to be less widespread.[2] Yet, such analyses could provide substantial insight for the study of argumentation in context, as they could shed light on, for example, the extent to which certain communicative contexts are argumentative, the frequency with which certain argumentative phenomena occur in practice, the conditions under which they occur, and the consequences their occurrence may have for the discussion.

This paper proposes content analysis as a rigorous method for the quantitative study of argumentation in context. In doing so, it uses general practice consultation as its contextual starting point. Over the years, several studies have been dedicated to the characterization medical consultation as an argumentative activity type. These studies typically focus on the peculiarities of the medical context that shape the argumentative discussions between doctors and their patients, such as the legal rule of *informed consent*, the ethical ideal of *shared decision-making model*, and practical constraints concerning *time* and the division of *authority roles* (e.g., Labrie 2012, 2013; Labrie and Schulz 2013; Pilgram 2009; Snoeck Henkemans and Mohammed 2012). The present study provides a detailed description of the development of a valid and reliable measurement instrument to guide the quantitative analysis of doctors' argumentation in support of their medical opinions and advice in light of the dialogical discussion context. In addition, it describes the preliminary results of an analysis of seventy videotaped medical consultations in which the instrument was used. Rather than focusing on a specific feature of argumentation, a helicopter-view is adopted in order to generate a broad but comprehensive description of argumentative discourse in general practice consultation. Thereby, this paper aims to demonstrate how observational studies using content analysis can add to current, qualitative endeavors to characterize general practice consultation as an argumentative activity type and how such studies may provide a starting point for further in-depth analyses of specific argumentative features of medical consultation. In addition to discussing the merits of content analysis as a method for the analysis of argumentative discourse in practice, some of its limitations and challenges are elaborated on, laying bare the opportunities for further research.

[1] For an overview of the various applications of the pragma-dialectical theory to the study of argumentation in context, see van Eemeren (2012).

[2] This does not imply that the pragma-dialectical framework has not been instrumental in quantitative empirical research at all. Rather than providing a practical tool to the analyst of argumentation, however, these quantitative studies focus primarily on the ways in which ordinary arguers identify and assess specific argumentative moves in practice.

2 Methodology

2.1 Content Analysis

Content analysis as a method can be briefly defined as the systematic and quantitative analysis of messages and their characteristics within the broader communicative context they occur in. It is an empirically grounded method, which is exploratory in process, and either predictive or inferential in intent (Krippendorff 2013, p. 1). That is, content analysis, as a research technique, aims to objectively summarize "what is said on a given subject in a given place at a given time" in order to ultimately arrive at generalizable conclusions (Lasswell et al. 1952, p. 34). In doing so, content analysis relies on the scientific method, including attention to objectivity-intersubjectivity, a priori design, reliability, validity, generalizability, replicability, and hypothesis testing (Neuendorf 2002, p. 10). Content analysis is not restricted to the types of variables that may be measured or the contexts that may be examined. Moreover, it allows for a theory-driven approach. As such, it provides an appropriate method for analysts of argumentative discourse who want to examine data from a quantitative perspective, with the intention to both describe a specific set of texts (e.g., belonging to a particular communicative activity type) and to test hypotheses concerning message characteristics.

2.2 Sample

The sample in this study consisted of a random sub-set of seventy videos that were drawn from a database containing in total 808 Dutch general practice consultations that were recorded as part of a large-scale study into doctor–patient communication at the Netherlands Institute for Health Services Research in, 2007–2008 (de Bekker-Grob et al. 2011; Noordman et al. 2010, 2012). The recordings were made with an unmanned camera on weekdays among forty general practitioners—all members of the Netherlands Information Network of General Practice—and were believed to reflect Dutch general practice consultation.[3] The practitioners were found to be representative of Dutch general practitioners in gender, practice form, and number of days worked. However, they appeared to be on average four years older than the average Dutch general practitioner. In total, 77.6 % of the patients agreed to participate. The non-responders were slightly older and more often male (Noordman et al. 2012). Both the general practitioners and the patients signed an informed consent form prior to recording. However, neither general practitioners nor patients were aware of the specific topics of interest to the researchers (de Bekker-Grob et al. 2011).

[3] A sample of 93 general practitioners was drawn from the Netherlands Information Network of General Practice, a representative network of 84 general practices and more than 330.000 patients. Forty GPs (44 %) from 20 practices agreed to participate in the video observation study (de Bekker-Grob et al. 2011; Noordman et al. 2010, 2012).

2.3 Procedures

Data collection and analysis were preceded by an extensive development phase in which the study instruments—a codebook and a digital coding sheet—were developed. While in the codebook all variables of interest were specified and careful coding instructions were provided, the coding sheet was used as a means to keep record of all codes. As the instruments had to be firmly rooted in theory as well as practical in use, they were revised in a number of rounds until acceptable first versions were created.[4] In order to enhance the validity and reliability of the study, an extensive training session was subsequently carried out in which, in addition to the principal investigator, an independent second coder took part. The codebook and coding sheet were elaborately discussed by the two coders and carefully adapted where deemed incomplete or unclear at face value. To familiarize themselves with the coding procedures and measurements used as well as to further improve the coding instruments, both coders additionally analyzed a number of pre-selected videos and audio-files.[5] Taking into account the problems encountered by the coders during trial coding, the codebook and coding sheet were revised once more.

In a pilot study, subsequently, a random sample of eight videos was analyzed by each of the two coders individually. Reliability statistics were calculated on each of the variables, using Krippendorff's alpha, Cohen's kappa, percentage agreement, and intra-class correlation coefficients where applicable. The results were carefully examined and discussed among the coders. Variables were revised, repaired, or even removed from the codebook if necessary. Revisions included, for instance, reformulating instructions, variables, and codes as well as adding, deleting, and restructuring the coding categories. All variables that did not meet the reliability criterion of Krippendorff's $\alpha \geq .80$ or higher in the first pilot test were re-examined in a second round of coding, in which an additional four, randomly drawn, videos were individually analyzed by both coders. Upon completion of the second pilot test, again reliability statistics were calculated and the results on all variables were—despite some minor reservations—deemed reliable enough to proceed to the actual coding phase. The results of the reliability testing procedures will be more elaborately discussed in Sect. 2.6.

To guide the coding phase, the two coders were each randomly assigned to a unique set of videos for coding.[6] There was no pre-fixed coding order for the videos. The codebook provided guidance to the coders concerning the coding sequence for the different variables. Finally, both coders independently analyzed a random subset of eight videos to allow for a reliability figure to be calculated for each of the

[4] The codebook and coding sheet (in English) are available upon request.

[5] In this phase, both coders practiced with the OPTION-instrument—one of the measurements included in the codebook—using the official training pack and audio-tapes provided by Elwyn et al. (2005).

[6] At the start of the study, three unique sets of videos were randomly drawn from the main database. Each set consisted of fifty videos for coding, taking into account the possibility of damaged or otherwise unusable video files. The two coders were each randomly assigned one set of videos. The third set was used for the pilot study. Coders were allowed to freely determine the order in which they coded the videos. From each of the coders' sets a random sub-sample of ten videos was drawn for reliability testing.

variables under study upon completion of the data collection.[7] Data analysis was performed using the statistical package SPSS, 20.[8]

2.4 Measures

The final version of the codebook contained variables pertaining to the characteristics of the consultation (*consultation level variables*) as well as variables concerning the argumentative moves made by the participants during the medical consultation (*advice statement level variables*). As such, the study centered around different units of analysis: the video-taped consultations overall and argumentative statements. The consultation level variables were intended to measure a variety of constructs and characteristics pertaining to the consultation at large. Among these variables were formal and technical variables concerning the video files and coding itself, variables related to both doctor and patient characteristics, and variables regarding the doctor's communication style. The advice statement level variables pertained to the argumentative moves, or units of meaning, made by the general practitioner and the patient throughout the consultation, starting from the doctor's medical opinion or advice (i.e., *standpoint*). In contrast to the consultation level variables, which had to be recorded only once per video-file, advice statement level variables had to be completed for each medical standpoint put forward by the doctor during the consultation. Moreover, only one code could be given to each argumentative statement. That is, for instance, an argumentative move marked as a sub-type of an argument by analogy could not simultaneously be coded as a type of causal argument as well. Both the consultation level variables and the advice statement level variables will be discussed more elaborately below.

2.4.1 Consultation Level Variables

Video Coding The technical variables pertaining to the coding of the video files were added mainly for purposes of coder and consultation identification and included: coder initials, video file name, date of recording, and date coded. In addition, coders were asked to note down the length of each consultation, rounding off by half a minute precisely.

Doctor Characteristics Coders were asked to identify the doctor's gender as well as to report or estimate the doctor's age. The coding options for the age variable consisted of three groups, representing 'young', 'experienced', and 'senior' doctors ('younger than 40', 'between 40 and 60', and 'older than 60') as well as a category 'unable to determine'). Coders were instructed to opt for the 'younger' category in case of doubt and to use the 'unable to determine' category only when the doctor was not visible in the video.

[7] Neuendorf (2002) recommends a random sub-sample of at least 10 % to be drawn to determine the inter-rater reliability of the overall study. In this case, the sub-set of 8 videos together constitutes 11.4 % of the overall sample.

[8] In order to calculate Krippendorff's alpha, use was made of a SPSS macro developed and freely distributed by Hayes and Krippendorff (2007).

Patient Characteristics Coders were also asked to record the patient's gender and estimate or report the patient's age. The categories for the age variable differed slightly from the doctors' age variable, as patients—in contrast to doctors—can be of all ages. Therefore, five coding possibilities were offered ('younger than, 20', 'between, 20 and 40', 'between 40 and 60', 'between 60 and 80', and 'older than 80') as well as the option 'unable to determine'. Again, coders were instructed to only use the last option in those cases where the patient was not visible and to opt for the 'younger' alternative in case of doubt.

Furthermore, an item was included concerning the patient's company during the consultation. This item was included to determine who precisely made up the discussion parties in medical consultation. Six coding possibilities were included: 'not accompanied by another person', 'accompanied by parent(s)', 'accompanied by child(ren)', 'accompanied by partner/friend(s)', 'accompanied by unidentified other', and 'accompanied by identified other'. In case of the last option coders were asked to provide the identity of the person accompanying the patient.

Communication Style In order to code the doctor's perceived communication style, use was made of the validated, twelve-item OPTION-scale developed by Elwyn et al. (2003). Using this scale, it was aimed to measure the extent to which the doctor involves the patient in the treatment decision-making process. Each of the twelve items had to be scored by the coders on a five-point Likert-scale, where a '0' indicated that the behavior described in the item was not observed and '4' denoted that the behavior was observed and executed to a high standard. On the basis of the summed items, a total OPTION-score could be calculated ranging between '0' and '100', where '0' indicated 'least involvement' and '100' pointed to 'most involvement' of the patient in the decision-making process.

A second measurement of doctor's communication and decision-making style was included in the codebook. A tool developed by Degner and Sloan (1992) to evaluate patients' preferences to participate in treatment decision-making was adapted to measure coders' perception of the doctor's communication style.[9] This resulted in a five-point Likert-scale ranging from '1', the doctor prefers to leave the final decision regarding treatment to the patient, to '5', The doctor prefers to make the final decision regarding treatment, with '3' denoting that the doctor prefers to share with the patient the responsibility of deciding which treatment is best.

2.4.2 Advice Statement Level Variables

The advice statement level variables were conceptualized on the basis of the pragma-dialectical theory of argumentation (van Eemeren and Grootendorst 1984, 1992, 2004). The pragma-dialectical theory of argumentation starts from a stage-based ideal model of critical discussion that specifies all (combinations of) speech acts that have a constructive function in the various stages of the process of resolving a difference of opinion on the merits. As such, the pragma-dialectical

[9] While the original instrument intends to measure patients' self-reported preferences in treatment decision-making, the adapted version was aimed at capturing doctors' preferences from an observer perspective. The adapted tool was used before by Labrie et al. (under revision).

ideal model provides an appropriate heuristic and analytic tool for reconstructing argumentative discourse. According to the model, in the confrontation stage of a discussion one of the parties (the protagonist) externalizes a standpoint, which in turn is called into question by the other party (the antagonist). If there is no difference of opinion, there is nothing to resolve and an argumentative discussion is superfluous (van Eemeren and Grootendorst 2003, p. 366). In the opening stage, the parties seek to establish agreement on the allocation of roles and the discussion rules. While analytically, the opening stage forms an essential part of the critical discussion, in practice much of this phase may in fact remain implicit. That is, arguers may assume tacit agreement concerning, part of, the procedural and material starting points of the discussion and immediately proceed to the argumentation stage. In this stage, the protagonist tries to defend the initial standpoint against the criticism advanced by the antagonist by putting forward arguments. Finally, in the concluding stage, the arguers determine if the protagonist has successfully defended the standpoint and whether or not the standpoint can be maintained or should be retracted in favor of the antagonist's position. In line with the pragma-dialetical ideal model, the present study conceptualizes doctors' argumentative support for a medical opinion or treatment advice as part of a dialectical, and analytically sequential, exchange between doctor and patient, starting from the advancement of a standpoint in the confrontation stage and ending with the arguers establishing the extent to which agreement is reached in the concluding stage.

Doctor's Standpoint A standpoint was defined as the doctor's expression of a medical point-of-view or position that institutionally requires argumentative support, for example as a result of the legal rule of informed consent (Herring 2009). Coders were instructed to first identify each standpoint advanced or adopted by the doctor throughout the consultation and categorize these standpoints in accordance with their propositional content following a pre-defined coding scheme. The coding scheme distinguished between five main categories: standpoints pertaining to (1) 'diagnosis' (e.g., *I think your sore throat is caused by a virus*), (2) 'treatment advice' (e.g., *I suggest that you take acetaminophen*), (3) 'prognosis' (e.g., *In my opinion your ankle needs a week's rest*), (4) 'prevention' (e.g., *You should quit smoking*), and (5) 'other'. Each of the categories was sub-divided retaining a residual main category as shown in the "Appendix". No distinction was made between positively formulated standpoints (e.g., *I recommend antibiotics*) and negatively formulated standpoints (e.g., *I do not recommend antibiotics*). The adoption of a standpoint was distinguished from the mere provision of information on the basis of signal expressions and cues from the discussion context (e.g., *I advise you to*, *I am of the opinion that*, *I think that*, *therefore*, *it's a good idea to*).[10] Examples of such expressions and cues were provided in the codebook to guide the coders.

Standpoint Explicitness Upon identification of a standpoint, coders were asked to record whether the standpoint was explicitly voiced or whether the standpoint had to be inferred from the argumentative context and thus remained implicit in the

[10] As the consultations were in Dutch, equivalent Dutch signal phrases were used by the coders. For more examples of signal expressions, see van Eemeren et al. (2007).

dialogue. In doing so, a strict distinction was made between standpoint implicitness on the one hand and standpoint indirectness on the other: while implicit standpoints were conceptualized as those standpoints that had to be inferred from the surrounding arguments and were thus not 'voiced' as such, indirect standpoints were defined as those standpoints that were voiced, albeit in a more or less concealed way, for example in the form of a question. Coders were asked to focus on standpoint explicitness only and to code whether they had to infer the standpoint from the arguments advanced or whether the doctor actually voiced the standpoint. As such, indirect standpoints had to be coded as explicit standpoints.

Patient's Position Once the coders detected a standpoint, they were instructed to record several elements of the subsequent argumentative discussion between the doctor and the patient. First, coders were asked to report the patient's position with regard to the doctor's standpoint. Three coding possibilities were offered: the patient (1) 'disagrees with the doctor's standpoint', (2) 'has doubts about the doctor's standpoint', or (3) 'agrees with the doctor's standpoint'.[11] Coders were instructed to infer the patient's position from verbal expressions and indicators in the discussion. Examples were provided in the codebook to guide the coders in their analyses (i.e., for disagreement: *I don't agree*, *I was actually thinking something different;* for doubt: *Are you sure?, really?*; for agreement: *I think so too*, or simple back channel responses such as *yes* unless preceded or followed by a sequence clearly indicating the contrary).[12]

Doctor's Provision of Argumentative Support Subsequently, coders were asked to describe the argumentative support for the doctor's standpoint using five different codes: (1) 'provides argumentation to support the advice in *anticipation* of the patient's position', (2) 'provides argumentation to support the advice in *reaction* to the patient's position', (3) 'provides argumentation to support the advice, both in anticipation and in reaction to the patient's position', (4) 'invites the patient to provide argumentation', and (5) 'maintains the standpoint without further argumentation'.

Type of Argumentative Support In the next step, coders were instructed to categorize the various arguments supporting a standpoint. The coding sheet allowed the coders to indicate the number of arguments provided for each of fourteen categories of argument. The categories of argumentative support were defined according to their schematic make-up, using the pragma-dialectical distinction between 'symptomatic argumentation', 'causal argumentation', and 'analogy

[11] Following pragma-dialectical conventions, a dialogical situation in which the patient 'disagrees with the doctor's standpoint' is characterized as a mixed difference of opinion. When the patient 'has doubts about the doctor's standpoint' the difference of opinion is defined as non-mixed (cf. van Eemeren and Grootendorst 1984, 1992, 2004). Due to the institutional conventions of general practice consultation, a doctor should always assume that the patient may silently disagree with, or have doubts about, the doctor's medical opinion or advice. As a result, such medical opinion or advice should be reconstructed as a standpoint. However, the patient may also immediately 'agree with the doctor's standpoint', rendering further discussion unnecessary.

[12] While a back channel response such as yes can also be interpreted as a mere listening token, argumentatively affirmative responses like these can be seen to commit the patient to agreement to the doctor's standpoint. In contrast, an interrogative yes? can also serve as an indicator of doubt. Coders were therefore asked to make use of contextual cues to guide their coding decisions.

argumentation' (van Eemeren and Grootendorst 1992, 2004). Each of these three schematic types was subdivided into multiple categories, focusing on the propositional content of the arguments. In the design phase of the study, an initial list of argument categories was compiled on the basis of the examination of a variety of (excerpts of) general practice transcriptions and videotaped consultations. As the list of categories was aimed to be exhaustive and mutually exclusive, the list was revised until deemed complete during the pilot-phase of the study. The categorization can be found in the "Appendix". To enable a post hoc, qualitative control of the categorizations, the coders were asked to write out the arguments and their codes in a separate column of the coding sheet.

Agreement Finally, coders were asked to specify whether ultimately, at the end of the consultation, agreement was reached between doctor and patient concerning the doctor's initial standpoint. Four coding possibilities were offered: (1) 'the patient agrees with the doctor's initial standpoint', (2) 'the doctor agrees with the patient's initial counter-standpoint', (3) 'they reach agreement, but neither in favor of the doctor nor the patient's initial standpoint', or (4) 'no agreement is reached'.

2.5 Validity

The validity and reliability of the instruments used in this content analysis were assured in a number of ways. In order to ensure that the research design would ultimately allow for generalizable conclusions to be drawn, attention was paid to both the internal and external validity of the measurements. First, and foremost, the development of the codebook was strongly rooted in theory. Because the central aim of this study was to design an instrument to guide the quantitative, pragma-dialectical analysis of argumentative discourse, the pragma-dialectical ideal model for a critical discussion formed the theoretical starting point for the development of the measurements. By doing so, it was aimed to capture the full domain of argumentative behaviors that exist in general practice consultation (content validity). Although the doctor's provision of argumentation formed the main focal point of this study, the patient's response to the doctor's standpoint was measured as well. Thereby, it was aimed to do justice to the inherent dialogical aspect of an argumentative discussion.

Second, to ensure that the items included in the codebook in fact measured what was intended to be measured at face value (face validity), all items were elaborately discussed with an independent, leading expert in the field of pragma-dialectics and the study of argumentation in context. As a result, small modifications were made to the codebook. The majority of these changes concerned minor reformulations of items and instructions. Subsequently, and prior to the study's pilot phase, the coders engaged in an extensive discussion about the measures and instructions in the codebook. As such it was assessed to what extent the items and their instructions were clear to the coders and whether the categories were mutually exclusive, exhaustive, and semantically unambiguous. The instrument was adapted accordingly, reformulating, restructuring, adding, and deleting categories where necessary. The study's criterion validity was not assessed in the present study.

In order to maximize the external validity of the study and make sure that the findings could be validly generalized to the overall population of Dutch general practitioners, use was made of a representative and random sample of videotaped consultations between general practitioners and their patients. The observational method used in this content analysis matched the study purpose closely. While observations were made of real, 'true to life' medical consultations, the collection of data by means of an unmanned camera prevented the intrusive presence of the observers as well as camera operators in the actual consultations. As such, the analysts could provide a realistic image of the consultations (ecological validity), with minimal disruptions of the normal conversation between doctor and patient.

2.6 Pilot and Study Reliability

While the majority of variables included in the codebook yielded reliable results already during the first pilot round, a small number of other variables—all on the advice statement level—did not. In Table 1 an overview can be found of all reliability figures. While raters agreed on the categorization of the doctors' standpoints (α: .92, κ: .92, 92.6 %), they were not unanimous in their identification of the standpoints in the first pilot round; a negative relationship was even detected (α: −.10, κ: −.09, 79.4 %). Negative α and κ values suggest that disagreements between coders are systematic and, therefore, greater than what can be expected based on chance (Krippendorff 2004). However, the low number of overall cases in the pilot study may have made a small number of disagreements seem systematic, while in fact they were not. Nevertheless, the coders elaborately discussed these findings and clarified the coding objectives. In the second round, as a result, they achieved highly reliable results.[13]

The item measuring standpoint explicitness appeared to cause some coding problems as well. It proved difficult for the coders to distinguish between explicitness and implicitness on the one hand, and directness and indirectness on the other hand. Even after an additional training session and the second pilot round, reliability statistics remained low on this item (α: .45, κ: .43, 88.2 %). Yet, because Cohen's kappa still pointed at 'moderate' agreement, it was decided to retain the item. Upon completion of the study, reliability statistics revealed that overall reliable results were achieved on this variable.

Furthermore, the item measuring the patient's position towards the doctor's standpoint provided coding difficulties during the pilot study. This had been anticipated by the researchers, as this item involved a relatively high level of abstraction and interpretation compared to more straightforward variables such as participants' gender and age. After the first pilot round, the item was discussed among the coders and revised where necessary. Additional examples were added to the codebook to facilitate the analysis. Yet even after the second pilot round,

[13] In the current approach, inter-rater agreement concerning standpoint identification was a prerequisite to determine the reliability figures for those variables that analytically followed the advancement of a standpoint. To avoid this, inter-rater reliability could be determined following two coding phases. First coders could seek agreement concerning standpoint identification. Then, and upon coding of all other variables, coders could establish their agreement for the remaining variables.

Table 1 Inter-rater reliability of the coded variables

Variables		Pilot reliability[a]				Study reliability			
		α	κ	%	ICC	α	κ	%	ICC
DC1	Doctor's gender	1.00	1.00	100	–	1.00	1.00	100	–
DC2	Doctor's age	1.00	–	100	–	1.00	–	100	–
PC1	Patient's gender	1.00	1.00	100	–	1.00	1.00	100	–
PC2	Patient's age	.85	–	75	–	.84	–	87.5	–
PC3	Accompanying persons	1.00	1.00	100	–	1.00	1.00	100	–
OP	OPTION	–	–	–	.86	–	–	–	.71
PP1	Doctor's communication style	.91	–	62.5	.94	.73	–	87.5	.74
DA[b]	Standpoint identification	–	–	94.4	–	–	–	97.1	–
DA1	Advice standpoint	.92	.92	92.6	–	.92	.92	93.9	–
DA2	Standpoint explicitness	.45	.43	88.2	–	.97	.97	94.1	–
AD1	Patient's position	.57	.57	70.6	–	.55	.55	84.8	–
AD1[c]	Patient's position (binary)	.61	.61	82.4	–	.53	.52	84.8	–
AD2	Doctor's argumentative support	.54	.53	64.7	–	.54	.53	69.7	–
AD2[c]	Doctor's argumentative support (binary)	.92	.92	96.3	–	.91	.90	97	–
AD3	Type of argumentative support	.85	–	93	–	.75	–	95	–
AD4[b]	Agreement	1.00	1.00	100	–	–	–	97	–

[a] Upon completion of the second pilot. Figures for AD3 concern the full pilot sample of 12 videos

[b] α and κ not calculable as (one of the coders') variable is a constant

[c] Recoded variable

reliability statistics remained low to moderate (α: .57, κ: .57, 70.6 %). Reliability analyses upon completion of the overall study revealed a similar pattern (α: .55, κ: .55, 84.8 %). Therefore, caution interpreting the result relating to this variable was advised. Recoding the variable into binary categories ('doubt or disagreement' and 'agreement') did not yield any different results (pilot: α: .61, κ: .61, 82.4 %; study: α: .53, κ: .52, 84.8 %).

Similarly, the item aimed at capturing doctor's argumentative support for the standpoint yielded only tentative inter-rater agreement during the pilot study (α: .54, κ: .53, 64.7 %). In this instance too, some problems had been anticipated. It was foreseen that the distinction between doctor's argumentation in *anticipation* of the patient's position and doctor's argumentation in *reaction* to the patient's position could potentially cause difficulties, as the coding depended on the coders' judgment of the exact manifestation of the patient's position towards the doctor's standpoint. Indeed, when recoded into binary categories: 'provides argumentation' and 'does not provide argumentation', the results appeared to be reliable across coders (α: .92, κ: .92, 96.3 %). Therefore, the item was maintained. Similar results were found in the reliability analyses upon completion of the study (five categories: α: .54, κ: .53, 69.7 %; binary categories: α: .91, κ: .90, 97 %). As such, results based on the original variable, containing five categories, should be interpreted cautiously.

3 Results

3.1 General Characterization of General Practice Consultation

The seventy consultations analyzed were on average 10.8 min long (range 3.5–26, $SD = 4.72$). This is consistent with earlier findings on the average duration of general practice consultation in the Netherlands (Deveugele et al. 2002). In total, 34 doctors were included in the random sample. The majority of the doctors were male (61.8 %) and estimated by the coders to be between 40 and 60 years old (88.2 %). The sample was equally distributed in terms of patient gender and, in large part, also age. As expected, the sample included fewer patients in the relatively 'healthy' age group between 20 and 40 years old. The large majority of patients visited their general practitioner alone (77.1 %), 14.3 % of all patients were accompanied by a (grand)parent, and 8.6 % were accompanied by their partner. The patients accompanied by a (grand)parent were, without exception, younger than 20 years old.

On average, doctors were not perceived to involve their patients in the treatment decision-making process (100-point OPTION-scale: mean = 14.02, range 2.08–43.75, $SD = 7.59$). That is, generally, coders observed that discussions about treatment were characterized by low patient participation and high physician control. These results are similar to those found by Elwyn et al. (2003) in developing the OPTION-scale. Furthermore, doctors were perceived to want to make all final decisions regarding treatment, taking their patients' viewpoints only moderately into account (5-point Degner and Sloan-scale: mean = 4.34, range 1–5, $SD = .98$). The results pertaining to the general characterization of medical consultation have been summarized in Table 2.

3.2 Argumentative Characterization of General Practice Consultation

The content analysis showed that in 94.3 % of all consultations the doctor advanced one or more standpoints. The large majority of the standpoints pertained to either a diagnostic viewpoint (24.1 %) or a treatment advice (68.6 %). Treatment-related standpoints concerned medication advice (40.4 %), general treatment advice (15.9 %), a referral (14.6 %), examination (13.2 %), a deferral of the decision (9.9 %), taking no action (4 %), and a second opinion (2 %). On average 3.14 standpoints were advanced per consultation (range 0–8, $SD = 1.82$). One-way analysis of variance did not reveal a significant relationship between the number of standpoints advanced per consultation and the doctor's and the patient's gender or age. In addition, Pearson's product-moment coefficient did not show a correlation between the number of standpoints advanced per consultation and the doctor's perceived patient-involvement and decision-making style or visit duration.

Relatively few standpoints advanced by the doctors met with their patients' explicit disagreement. In only 14.2 % of all cases, the patient showed disagreement openly. Patients expressed their doubts about their doctor's standpoints in 24.7 % of all cases. In the majority of cases, 61.2 %, patients immediately agreed with their doctor's standpoint. 79.9 % of all standpoints advanced by the doctor were

Table 2 Visit characteristics

	N	%	*x*	range	SD
Doctor					
Gender					
Female	13	38.2			
Male	21	61.8			
Age (years)					
<40	3	8.8			
40–60	30	88.2			
>60	1	2.9			
Patient					
Gender					
Female	33	47.1			
Male	37	52.9			
Age (years)					
<20	13	18.6			
20–40	6	8.6			
40–60	11	15.7			
60–80	14	20			
> 80 years	1	1.4			
Missing[a]	25	35.7			
Visit					
Duration (min)	70		10.8	3.5–26	4.72
OPTION-scale	67		14.0	2.1–43.8	7.59
Missing	3				
Degner-scale	67		4.34	1–5	.98
Missing	3				

[a] Patients invisible on camera

supported by one or more arguments. On average 1.65 arguments supported a standpoint (range 0–16, $SD = 1.77$). Chi square tests revealed a significant association between the patient's position towards the standpoint (binary) and the doctor's advancement of arguments to support a standpoint [$\chi^2(3, N = 219) = 92.76$, $p \leq .001$].[14] In line with what could be expected based on the pragma-dialectical theory (construct validity), the doctor more often advanced argumentation when the patient expressed disagreement or doubt than when the patient agreed with the doctor's standpoint. In case of patients' agreement, the doctor's argumentation often preceded the patient's explicit reaction (54.5 % of all cases) or there was no argumentation at all (26.1 %). There appeared to be no significant relationship between the doctor's provision of argumentation and the propositional content of the standpoint. That is, in contrast to what might be expected, advice

[14] To calculate this, the binary items to measure the patient's position and the doctor's advancement of argumentation were used.

standpoints pertaining to treatment or prevention were not more often supported with argumentation than standpoints related to diagnosis and prognosis.

All arguments advanced by the doctors were categorized according to (1) their schematic make-up and (2) their propositional content. 86 % of all arguments belonged to a symptomatic argument scheme, 2.2 % to an analogy scheme, and 11.8 % to a causal scheme. In Table 3 an overview can be found of the prevalence of the various argument categories, based on their schematic make-up and propositional content.

Notably, 95.9 % of all standpoints advanced by the doctors were accepted by the patients at the end of the consultation and Chi square tests showed no correlation between the doctor's advancement of arguments and final acceptance. In only 1.4 % of the cases in which the doctor advanced a standpoint, the patient's initial counter-standpoint was accepted by the doctor.

In 0.9 % of the cases, doctor and patient ultimately agreed on a 'new' or 'negotiated' point-of-view at the end of the consultation. Finally, in 1.8 % of the cases where the doctor advanced a standpoint, no agreement was reached at all. These figures shift when those cases are left out where the patient immediately agrees on the doctor's standpoint and no 'difference of opinion' takes place (89.4, 3.5, 2.4, 4.7 %, respectively). Chi square tests reveal a significant relationship between doctors' provision of argumentation and final agreement in those cases where a difference of opinion takes place. In line with theoretical expectations, when the patient disagrees with, or has doubts about, the doctor's standpoint, the doctor's provision of argumentation to support the standpoint thus seems to have a positive effect on the final agreement with the doctor's standpoint [$\chi^2(3, N = 85) = 5.50, p \leq .05$].

4 Discussion

4.1 Implications of the Findings

The results described in the above justify qualitative characterizations of general practice consultation as an inherently or frequently argumentative activity type (e.g., Labrie 2012, 2013; Pilgram 2009; Snoeck Henkemans and Mohammed 2012). Within the consultation, general practitioners typically advance multiple standpoints—predominantly pertaining to diagnostics and treatment—and most often these standpoints are also supported by argumentation. In contrast to what may be expected, the study suggests that general practitioners' advancement of argumentation is not significantly associated with the propositional content expressed in standpoint (i.e., diagnostics, prognosis, treatment, or prevention). Similarly, patients' position towards the standpoint is not correlated to standpoint content. This implies that in medical consultation differences of opinion are not restricted to a specific topic.

The results point out that patients only rarely explicitly disagree with their doctors' point of view. While the expression of doubt occurs more regularly, most often patients immediately voice agreement with their doctors' advice. This may indicate that often doctors and patients have similar views concerning the patient's

Table 3 Prevalence of the argument types

Schematic make-up	Propositional content	*n*	% (scheme)	% (overall)
Symptomatic argumentation (n = 313; 86 %)	Non-scientific evidence or facts	42	13.42	11.54
	General medical evidence, facts, or knowledge	46	14.70	12.64
	Diagnosis or the results of an examination	81	25.88	22.25
	Prognosis	1	0.32	0.27
	Treatment or prevention (characteristics)	93	29.71	25.55
	Contextual rules or conventions	3	0.96	0.82
	Doctor's expertise, authority, experience	13	4.15	3.57
	Patient's expertise/authority/experience/history	24	7.67	6.59
	Third party's expertise/authority/experience	8	2.56	2.20
	Number of people supporting the standpoint	2	0.64	0.55
Analogy argumentation (n = 8; 2.2 %)	The comparability of the patient's present situation to his/her situation before	3	37.50	0.82
	The comparability of the patient's present situation to the situation of some other(s)	5	62.50	1.37
Causal argumentation (n = 43; 11.8 %)	The positive consequences of accepting the advice	33	76.74	9.07
	The negative consequences of not accepting the advice	10	23.26	2.75
Total		364	–	100

health. It may also suggest that patients are generally easily convinced of their doctors' standpoints or simply trust their doctors' expertise, even though legal rules aimed at protecting patient autonomy give the patient the ultimate right to decide over their own body and, thus, the right to make the final decision regarding treatment. The results may also imply that patients, as a result of the traditional asymmetrical division of authority roles, hesitate to openly express their disagreement with their doctors' points of view. Pilnick and Dingwall (2011) argue that the doctor–patient relationship is characterized by a remarkable persistence of asymmetry in power that lies at the heart of medical practice. In the present study, this asymmetry is reflected in doctors' lack of involvement of their patients in the decision-making discussion and, perhaps even more noticeably, the finding that the majority of final decisions are taken in favor of the doctors' positions. This could indicate that frequently patients settle, rather than resolve, their dispute with their doctor at the end of the medical consultation, possibly because they feel constrained to do so on the grounds of the doctor's authority role. It should be explored, for instance by means of post-consultation interviews, to what extent patients' verbal agreement with their doctors at the concluding stage of the discussion reflects their reasonable acceptance of their doctors' standpoints. If patients indeed frequently, and silently, settle for their doctors' standpoints without being reasonably convinced of their acceptability, it could be argued that what seems a critical discussion on the merits between doctor and patient, in fact often is not.[15] This could even form part of the explanation why patients often do not fully adhere to their prescribed treatment.[16]

In line with theoretical expectations, doctors' provision of argumentation is related to patients' expression of doubt or criticism. Moreover, the study shows a significant relationship between the use of supporting arguments in the context of a difference of opinion and final agreement between doctor and patient. This not only means that the provision of argumentation can have a positive effect on the outcome of the discussion, but it also signifies that, in consultation practice, doctors indeed often provide arguments when requested or required to do so. Nevertheless, the study results also lays bare situations in which doctors fail to argue or, in contrast, provide superfluous arguments: Frequently, general practitioners appear to provide argumentation while the patient agrees at face value. This could potentially be the result of informed consent laws stipulating that doctors should provide all relevant information to their patients to allow them to make an informed treatment decision. Yet, when patients are informed and agree with their doctors' position upfront, voicing the underlying argumentation seems redundant. Future research could assess whether it could be fruitful if doctors would explicitly ask their patients to verbalize their position towards the advice. Thereby, the critical discussion procedure between doctor and patient could possibly be optimized.

[15] This could potentially have consequences for the higher order conditions that apply in the context of general practice consultation. Further in-depth discussion of this issue is required. Yet, this goes beyond the scope of the present study.

[16] For a comprehensive overview of adherence research, see Vermeire et al. (2001).

4.2 Methodological Merits

Overall the results demonstrate that a theory-driven, content analytical approach to the study of argumentation in empirical reality is fruitful for a number of reasons. First, and most noticeably, the results of a content analysis can be used to provide a full-blown, general characterization of an institutionalized context in which argumentative discourse takes place. Participant characteristics (i.e., gender and age) and different features of the discussion (i.e., duration and communicative style of the encounter) can be measured and used for descriptive purposes as well as to generate new hypotheses.

Furthermore, the results of a content analysis that broadly focuses on the role of argumentative discourse in a specific setting can provide a rationale for the study of a certain argumentative move or phenomenon that is prevalent in that context. The present study suggests that while some of the broadly studied argument types are not as prevalent in general practice consultation as one may expect, e.g., the argument by authority, other—less frequently studied—argument types are commonly employed by general practitioners. Think of, for instance, pragmatic argumentation (11.8 % of all arguments). Furthermore, a more narrowly focused content analysis could serve to analyze the argumentative moves in depth, exploring their different manifestations and argumentative functions from a quantitative perspective. Whereas the present study concentrated on the schematic make-up and propositional content of the arguments, more focused analyses could also take argument presentation into account.

The results also show how content analysis can be used to test relationships between the different (argumentative) variables that can be measured in a specific discussion context. As such, the method can be used to test theoretical assumptions and explore possible correlations. Consider, for example, the correlation between doctors' provision of argumentation and final acceptance of the standpoint in the context of a difference of opinion in general practice. While the present study showed a significant correlation between provision of argumentation and agreement, the results also demonstrate that agreement with the doctor's standpoint is generally the most prevalent outcome of general practice consultation. Lastly, content analysis thus also proves to be a useful method to lay bare the argumentative peculiarities of an activity type that require further—quantitative and qualitative—investigation.

4.3 Methodological Challenges

While the content analytic approach to the study of argumentative discourse in general practice consultation adopted in this study indeed proves to provide a promising starting point for the quantitative study of argumentation in medical practice, a number of methodological challenges and limitations should be addressed as well. Only when these are taken into account, can the directions for future research be established.

First, it should be noted that in the present study a broad, helicopter view was applied to the study of argumentative discourse in general practice consultation. Thereby it was aimed to provide general insights to guide the quantitative characterization of general practice as a communicative activity type in which

argumentation plays a role, but also to provide a general overview of the types of arguments doctors use in daily consultation practice. The development of such general overview would be beneficial for other communicative activity types as well to add to present qualitative characterizations of their argumentative nature. Yet, future observational studies in the context of medical consultation should ideally opt for a focused perspective to shed a more detailed light on, for example, one specific type of argumentative move made by the doctor at a certain stage of the discussion. Such studies could, for instance, also include explorations of the reasonableness and effectiveness of doctors' argumentation. Taken together, these studies that each focus on one specific argumentative phenomenon would constitute a detailed description of doctors' argumentation in general practice consultation. A similar series of studies could be carried out, centering on the patient's argumentation. As such, a full-blown, quantitative characterization of doctor–patient consultation as an argumentative activity type could be created.

A well-designed content analysis allows for multiple coders over time to use the codebook and coding sheet. When analyzing the same data, these coders ideally also obtain similar results. To avoid bias, the use of expert coders only is generally discouraged (Neuendorf 2002). In the present study, two coders were employed that both had received substantial prior training in argumentation theory. Thus, both could be considered experts. However, this does certainly not mean that other analysts are barred from using the coding instruments in the future. In a codebook addendum and an additional training session, some of the key elements of argumentation theory that are required for the purposes of coding could be explained. For reasons of time-efficiency, however, in the present study it was chosen to work with two coders that had already received such training prior to the present project and, instead, to invest more time in training the coders to work with the database, the coding instruments, and the coding procedures in general. An additional limitation that should be pointed out here is that the principal investigator took part in the study as a coder. Typically, quantitative content analysts discourage this practice as the investigator's knowledge of the study hypotheses could potentially bias the results. However, due to the relatively high inter-rater agreement with the second, un-biased coder, it is believed that bias was sufficiently avoided. Nevertheless, future studies should seek to employ multiple, independent coders to ensure optimal validity.

4.4 Coding Difficulties

Both the pilot study and post hoc testing revealed a number of reliability issues that suggest that some results reported in this study must be interpreted with caution. The item measuring the patient's position towards the doctor's standpoint provided coding difficulties during the pilot study and showed some problems in the post hoc reliability analyses as well. Additionally, the item aimed at capturing doctor's argumentative support for the standpoint yielded only tentative inter-rater agreement during the pilot study as well as in the analyses upon completion of the study. While this suggests that all interpretations based on these results should be made with care, more importantly these findings point out the need for future studies to re-examine and improve these items.

In addition, two coding issues surfaced during the pilot phase of the present study that, even though they did not cause any reliability issues in the overall study, seem worthwhile to be addressed here. First, in the pilot phase coders at times experienced difficulties making a distinction between the doctors' presentation of mere *information* and their provision of *argumentation*. As the ability to make this distinction was of crucial importance for successful completion of the study, the coders extensively discussed the matter in the pilot phase in order to reach common ground. If it was unclear whether or not a statement was intended by the doctor as a supporting argument for a standpoint, coders were instructed—conforming to pragma-dialectical conventions—to opt for a maximally argumentative interpretation, thus deciding for an analysis "for reason's sake" (van Eemeren 1986). Such maximally argumentative analysis is based on a favorable interpretation of the doctor's utterances assuming that the doctor in principle aims to constructively substantiate all standpoints with argumentative support in order to adhere to both the dialectical and institutional obligations.

The second issue that emerged during the coding phase partially resulted from the choice of the methodology used, but was deemed inacceptable by the coders: the risk of mere counting. As a result of the video-based message format in combination with the sequential design of the codebook, structuring the doctor's argumentation proved challenging. Sometimes the same arguments were recognized but headed under a different standpoint, at times arguments were not recognized by both coders, or they were labeled differently. This prompted the question: If the same *number* of arguments are counted, can we be certain that also the *same* arguments are counted? To account for this problem, a small qualitative component was added to the study. The coders were asked to add a short argumentation structure at the end of the coding sheet to allow for a post hoc, qualitative control of the analyses. Future studies should consider similar solutions to account for structuring issues. One possibility would be to add a third coding level for arguments, which would allow coders to identify the relationships between arguments and standpoints in any complexity one could wish for.

4.5 Measurement Problems

In addition to the coding challenges mentioned above, a number of measurement problems should be addressed. First, the inherent presence of implicit argumentation in medical consultation posed a measurement problem. It was decided during the development phase to code explicit elements of argumentation only in order to capture the verbal reality of doctor–patient interaction. Implicit arguments—i.e., unexpressed premises—were not coded by the analysts. Due to the sequential design of the codebook, however, implicit standpoints (2.7 % of all standpoints) had to be coded in order to include the explicit arguments advanced in their support. It could be questioned whether the choice to exclude implicit arguments from coding is indeed justified. After all, patients can be generally assumed capable of inferring these implicit arguments. Moreover, the fact that these arguments are not explicitly voiced does not mean they are absent from the doctor's line of argument. Yet, in order to adhere to the doctors' verbal discourse as closely as possible and avoid adding missing arguments unjustly, in this study only explicit arguments were counted.

In terms of agreement between doctor and patient, in this study it was found that 95.9 % of all standpoints advanced by the doctors were accepted by the patients at the end of the consultation. This finding is noteworthy as it begs the question whether the item concerned indeed measured the extent to which reasonable agreement was reached between doctor and patient concerning the standpoint (i.e., *resolution* of the difference of opinion) or rather mere decision-making regarding a certain type of action (i.e., *settlement* of the difference of opinion). Future studies should address this issue, especially since there appeared to be a weak, but significant, correlation between the advancement of argumentation and patients' acceptance of the doctors' standpoints in the context of a difference of opinion. To overcome difficulties in deciding whether agreement is based on resolution or settlement merely on the basis of observation, it could be of interest to complement content analysis by patient (or doctor) interviews. Conducting such interviews would also allow for the inclusion of other potential outcomes of argumentation, such as intended treatment adherence.

Finally, it should be noted that in the present study a number of things were *not* measured. While inter-rater reliability was established prior to the actual study and upon completion of the study by means of a randomly drawn sub-sample, inter-rater reliability was not tested over-time using different coders. Moreover, intra-rater reliability was not measured. These clear limitations of the present research should be addressed in follow-up studies. Such studies could also assess the measurement instrument's criterion validity by determining correlations of the test items—in particular those concerning the argumentative statements—with criterion variables that are representative of similar constructs, such as items belonging to the *Roter Interaction Analysis System* (Roter and Larson 2002).[17]

5 Conclusion

Despite the methodological challenges mentioned in the above, the present paper demonstrates that—if designed and executed well—content analysis can provide a reliable, accurate, and precise tool for the theory-driven, quantitative analysis of argumentation in context. Thereby the present study contributes importantly to the field of argumentation theory. The content analytic approach allows researchers to add to current, mostly qualitative endeavors in the field of argumentation theory—and pragma-dialectics more specifically—to situate argumentation in its broader context in order to explore to what extent institutionalized rules, norms, and conventions offer opportunities for, and pose constraints on, the ways in which discussants may argue. Furthermore, content analysis can provide insights into the extent to, and ways in which specific argumentative phenomena occur and, therewith, even provide a rationale or stepping stone for further exploration of such phenomena.

Content analysis also offers the possibility to explore correlation relationships among different verbal and non-verbal characteristics of a discussion context such as that of general practice. Insight into these relationships is of interest to analysts

[17] For example, the RIAS coding categories shows criticism, asks for opinion, and shows agreement.

of argumentation, but also to scholars of, for example, health communication. Demonstrating the argumentative nature of the interaction between doctors and their patients, the results of a content analysis could provide a potential innovative starting point for health communication researchers as well as scholars of argumentation who are interested in the effects of certain communicative behaviors on the (argumentative) outcomes of general practice consultation.

Appendix: Advice Statement Level—Coding

Variable: Doctor's medical standpoint

100	**Diagnosis: The doctor identifies the nature of the patient's health condition. For diagnoses concerning a specific issue, use the codes below:***	
101	General and unspecified	
102	Blood, blood forming organs and immune mechanism	
103	Digestive	
104	Eye	
105	Ear	
106	Cardiovascular	
107	Musculoskeletal	
108	Neurological	
109	Psychological	
110	Respiratory	
111	Skin	
112	Endocrine/metabolic and nutritional	
113	Urological	
114	Pregnancy, childbearing, family planning	
115	Female genital (incl. breast)	
116	Male genital (incl. breast)	
117	Social problems	
200	**Treatment: The doctor gives advice regarding treatment of the patient's health condition. For specific treatment advice, use the codes below:**	
201	Type of medication	*E.g., antibiotics, acetaminophen, etc.*
202	Type of examination	*E.g., X-rays, blood tests*
203	Referral to a specialist or for therapy	*E.g., cardiologist, physiotherapy, psychotherapy*
204	Referral for a second opinion	*E.g., another general practitioner*
205	Deferral of the decision	*E.g., Postponing the decision, thinking it over*
206	No-action	*E.g., waiting until the pain subsides*
300	**Prognosis: The doctor provides a standpoint concerning the outlook or prospects of the patient's health condition. For specific prognoses, use the codes below:**	
301	Estimated time for recovery	*E.g., the bone will heal in six weeks*
302	Recurrence of the problem	*E.g., The mold is likely to come back*
303	No recovery possible	*E.g., the disease is chronic or deadly*
400	**Prevention: The doctor provides a standpoint pertaining to prevention strategies. For specific prevention advice, use the codes below:**	
401	Lifestyle changes	*E.g., quit smoking, practice safe sex, lose weight*
402	Preventive medication	*E.g., preventive pain killers or blood thinners*
403	Preventive examination	*E.g., a mammography*
404	Preventive intervention	*E.g., physiotherapy or surgery*
33	**Other: The doctor provides an advice standpoint pertaining to something else: _____**	

* Diagnostic codes are based on the International Classification of Primary Care (ICPC-2) method for primary care encounters (available via http://qicpd.racgp.org.au/media/57417/icpc-codes.pdf)

Variable: Type of argumentative support

Symptomatic relationship, in which reference is made to (the):

☐	Non-scientific evidence or facts	*You are young; Fall has started*
☐	General medical evidence, facts, or knowledge	*The meniscus is part of the knee*
☐	Diagnosis or the results of an examination	*It's eczema; The muscles are sore*
☐	Prognosis	*You have to keep bed rest*
☐	Treatment/prevention (characteristics)	*X alleviates your symptoms*
☐	Contextual rules/conventions of consultation	*You need an appointment for this*
☐	Doctor's expertise/authority/experience	*I always prescribe X*
☐	Patient's expertise/authority/experience/history	*You have suffered from Y for long*
☐	Third party's expertise/authority/experience	*Doctor Z says so; Studies prove it*
☐	Number of people supporting the standpoint	*Many people use X daily/think that*
☐	Other: _____	

Analogy relationship, in which reference is made to (the):

☐ The comparability of the patient's present situation to his/her situation before
E.g., You used X last time when you experienced these symptoms too

☐ The comparability of the patient's present situation to the situation of some other(s)
E.g., Also your brother has used X when he experienced these symptoms

☐ Other: _____

Causal relationship, in which reference is made to (the):

☐ The positive consequences of accepting the advice
E.g. If you take X, the pain will get less

☐ The negative consequences of not accepting the advice
If you do not take X, the pain will get worse

☐ Other: _____

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