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BACKGROUND PAPER

OPEN ACCESS

COGITA network has constructed a glossary of diagnostic reasoning terms

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KEY MESSAGE

- A glossary of diagnostic reasoning terms relating to gut feelings research was constructed by the COGITA group to define salient terms, used in their publications. It is a prerequisite to conduct further cross-border research into gut feelings in family medicine. The development of the glossary is ongoing.

ABSTRACT

The role of gut feelings in diagnostic reasoning is recognized by most GPs throughout Europe, and probably throughout the world. Studies on this topic have emerged from different countries but there is the risk that authors will use different terms for similar concepts. The European Expert Group on Cognitive and Interactive Processes in Diagnosis and Management in General Practice, COGITA for short, was founded in 2008 to conduct cross-border research in the area of non-analytical diagnostic reasoning. Academic GPs, PhD students, psychologists, linguists and students meet once a year to share their experiences, exchange results and initiate new studies on the topic. A milestone in their research is this publication of a short glossary of diagnostic reasoning terms relating to the gut feelings research topic. It was constructed by the COGITA group members following a literature review, which aimed to define salient terms used in their publications. They described the terms, cross-reviewed the wording and reached consensus within the group. Two sections were created: (1) a diagnostic reasoning section that describes concepts such as analytical and non-analytical reasoning, clinical mind lines, and intuition, and (2) a research methods section describing concepts such as linguistic validity and saturation. The glossary, including relevant literature, has been published on the website http://www.gutfeeling-singeneralpractice.eu. In the future, the glossary will be modified if necessary and completed by members of the COGITA group.

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Background and rationale

General practitioners (GPs) face both benign and serious diagnoses sometimes presented with the same vague and nonspecific symptoms.[1] That is why consultations in primary care are described as complex, dealing with uncertainty and unpredictability 'on the edge of chaos' .[2] In these situations, occasionally GPs experience an uncomfortable feeling that something does not fit in a patient's clinical presentation. This feeling alerts the doctor. It activates the diagnostic process and induces him or her to initiate specific management to prevent serious health outcomes. The phenomenon is recognized by most GPs within Europe.[3] The concept of 'gut feelings' was further investigated in the Netherlands in 2009; it is considered a specific kind of non-analytical reasoning.[4] Two types of gut feelings have been discerned: a sense of alarm (SA) and a sense of reassurance (SR). A sense of alarm implies that a family physician worries about a patient's health status, even though he/she has found

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no specific indications yet; it is a sense of 'there's something wrong here'.[4] A sense of reassurance means that a family physician feels secure about the further management and course of a patient's problem, even though he/she may not be certain about the diagnosis: 'everything fits in'.[5] In situations of uncertainty, gut feelings may play a substantial role in the diagnostic process of GPs.[6] Until recently, no studies on this topic were available. An international network group called the European Expert Group on Cognitive and Interactive Processes in Diagnosis and Management in General Practice, or COGITA for short, was established, aiming to coordinate and stimulate research into the significance of non-analytical diagnostic reasoning such as gut feelings. GPs, psychologists, PhD students, linguists and medical students from eight European countries are active in this network group. The Dutch, Belgian, German, French, Polish, English, Swiss, and Swedish COGITA group members usually meet during an annual one-day conference. COGITA is a special interest group linked to the European General Practice Research Network (EGPRN).[7] One of the main objectives of the COGITA expert group was to define specific terms used in their publications. Therefore, a short glossary of terms related to the gut feelings topic was constructed. The objective of this paper is to present this glossary of diagnostic reasoning terms.

How we reached consensus

During a COGITA meeting (in Krakow, 2011) we first decided on a list of appropriate terms to include in the glossary. Several criteria were used for the selection of a list of terms. The frequency of use of terms in this area was the first one. For instance, 'analytical and non-analytical reasoning' were major concepts to define because of their occurrence in literature dealing with decision making. Theoretical consideration was another criterion for the selection of terms. The concept of 'Pattern recognition' was seen to be important to define in the domain of non-analytical reasoning. Whether the target group of GPs has experience with or knowledge of certain research methods important for the research domain of diagnostic reasoning, was the last criterion: research method terms as 'Delphi round procedure' or 'nominal group technique' seemed important to describe for further research.

Then, certain COGITA members put together a definition of each term, based on literature on the topic. The search terms used in the literature research were MeSH terms when they existed (diagnosis, heuristics, intuition, medical decision making, problem-solving, pattern recognition, uncertainty, focus group, grounded theory, nominal group technique) or the words in free text if it did not.

Our next step was a consensus procedure inviting comments and adjustments by other members of the COGITA group. Finally, we gathered all comments, adjustments and additions, discussed them in detail in a meeting and formulated the final text.

The glossary at a glance

Each term starts with a short description after which the reader can follow a link to more information including relevant references. The glossary is available on the website http://www.gutfeelings.eu/glossary-introduction. Sixteen terms relate to the diagnostic reasoning process and eight terms relate to research methods.

Diagnostic reasoning part

In the diagnostic reasoning part, the following 16 terms or concepts were defined: analytical and non-analytical reasoning, Bayes and likelihood ratio, clinical mind lines, cognitive continuum, consistency, contextual knowledge, diagnosis, gut feelings, sense of alarm and sense of reassurance, heuristics, intuition, medical decision making and medical problem solving, pattern recognition, rules of thumb, system 1 and system 2 (dual process theories), tacit knowledge and uncertainty.

For instance, what are the differences between rules of thumb, clinical mind lines, heuristics and tacit knowledge? These four expressions refer to closely related concepts but the glossary describes their different features using relevant literature. How to deal with the umbrella term 'intuition'? The glossary provides a definition based on references from Damasio,[8] Epstein,[9] Finucane,[10] Glockner,[11] Hogarth,[12] Kahneman,[13] Klein,[14] and Slovic.[15] We describe different kinds of intuition. Non-analytical reasoning and analytical reasoning, in system 1 and system 2 respectively, are defined and models of medical decision making, medical problem-solving and gut feelings are described. As an example, the definition of 'tacit knowledge' is provided in Box 1.

Research method part

In the research method part, the following eight terms were defined: construct validity, Delphi consensus

Box 1. The definition of tacit knowledge.

TACIT KNOWLEDGE

Tacit knowledge (as opposed to formal or explicit knowledge) is the implicit (personal) knowledge that is not directly accessible and difficult to transfer to another person by means of writing it down or verbalizing ('that which we know but cannot tell'). Michael Polanyi (1891–1976) first developed the term and its definition. Tacit knowledge has been described as 'know-how' as opposed to 'know-what' (facts), 'know-why' (science) or 'know who' (networking).[16–21]

Tacit knowledge can be acquired via informal and implicit learning or gained through personal experience. Tacit knowledge may lead to routine action (or habits) and culture that we do not recognize in ourselves. By paying attention to the concept of tacit knowledge, we may have a starting point to make sense of the place of intuition in informal educational practice and in medical professional practice. In medicine, both patients and medical professionals are equipped with a wealth of tacit knowledge about health and health needs. It is a challenge to use this knowledge in decision-making processes, in parallel and complementary to explicit 'evidence-based' knowledge.

Box 2. The definition of triangulation.

TRIANGULATION

Triangulation is a term in qualitative research methods derived from navigation, in which sailors try to discover their exact position on a map by taking bearings on two landmarks. The methodological triangulation is the most frequently applied approach, using different methods when studying a subject such as the combination of ethnographic observations with interviews or the mixed methods approach, which is mixing qualitative and quantitative methods in one study.[22,23] Denzin discerned three other types of triangulation next to the methodological triangulation: data, investigator and theory triangulation.[24] Data triangulation means that diverse sources of data are used studying a phenomenon in different settings; it results in a richer description of the phenomenon.[22] In investigator triangulation, multiple observers in the same research field continually discuss their observations and interpretations through this de-biasing their personal preferences. Theory triangulation means that researchers approach their data with several hypotheses exploring how the data fit in each hypothesis.

procedure, focus group, grounded theory, linguistic validity, nominal group technique, saturation and triangulation. As an example, the definition of 'triangulation' is provided in Box 2.

Strengths and weaknesses of the glossary

As far as we know, defining terms in the area of decision making by a European expert consensus based on a literature review and gathering them in an open-access glossary is a unique initiative. This glossary was a prerequisite to conduct further research with the intention to create teachable knowledge as well as a basis for cross-border research in general and family medicine. We made the glossary freely available to share our results with other researchers and to extend our scientific network. The glossary has been constructed based on the prevalent literature at this point in time and needs the continuous effort of the expert group to be updated in line with new research findings and theoretical insights and elaborated with new relevant concepts.

The future

Constructing this glossary was an original proposition by European researchers involved in the diagnostic reasoning domain. It provides pragmatic, consensual and referenced definitions useful for researchers working in this field. Members of the COGITA group invite interested researchers to propose additional terms and definitions to complete the glossary. New terms should be defined following the same procedure, according to the researchers' criteria. This approach is an important base for further research in this field.

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Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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