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General practitioners' understandings of and experiences with defensive medicine: evidence from a focus group study

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General practitioners' understandings of and experiences with defensive medicine: evidence from a focus group study

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ABSTRACT

Objectives: Recent years have witnessed a progressive increase in defensive medicine (DM), primarily documented within a US healthcare setting. In Danish primary and secondary care, documentation on the extent of DM is lacking. Before investigating the extent of DM we wanted to explore how the phenomenon is understood and experienced in the context of general practice in Denmark. The objective of the study was to describe the phenomenon of DM as understood and experienced by Danish general practitioners (GPs).

Design: A qualitative methodology was employed and data were generated through six focus group interviews with 3-8 GPs per group (n = 28) recruited from the Region of Southern Denmark. Data were analysed using a thematic content analysis inspired by a hermeneutic-phenomenological focus on understanding and meaning.

Results DM is understood as unnecessary and meaningless medical actions, carried out mainly because of external demands that run counter to the GP's professionalism. Several sources of pressure to act defensively were identified by the GPs: the system's pressure to meet external regulations, demands from consumerist patients and a culture among GPs and peers of infallibility and zero-risk tolerance.

Conclusions GPs understand DM as unnecessary and meaningless actions driven by exterior demands instead of a focus on the patient's problem. GPs consider defensive actions to be carried out as a result of succumbing to various sources of pressure deriving from the system, the patients, the GPs themselves and peers.

Keywords: Defensive medicine, general practice, primary health care, qualitative research, focus groups

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Strengths and limitations of this study

- Research on DM has tended to focus on the monetary dimensions rather than examining the understandings of and experiences of physicians themselves, which is an important contribution of the present study.
- Employing a qualitative methodology eliciting discussion and reflection among GPs, we have been able to achieve a nuanced understanding of DM that is closely connected to the everyday experiences, routines, activities and views of GPs in relation to DM.
- Whereas it is beyond the methodological scope of his study to claim empirical generalisability, the research findings are transferable to other GPs, physicians and health professionals from similar cultural and organisational contexts and with countries with similar advanced medical systems.
- Further validity and depth could have been added to the study if additional individual interviews with the participating GPs had been conducted subsequently, making it possible to deepen some of the themes on an individual basis and to shed light on possible information bias resulting from lacking confidence in a group.

INTRODUCTION

Rapid developments in medical technology, increases in medical expertise together with societal changes have contributed to several beneficial changes in the healthcare sector, e.g. sophisticated diagnostic and treatment procedures and a less authoritative doctor-patient relationship (1). However, recent years' medical developments have also promoted a culture in which high expectations for diagnosing, treatment and cure encourage health service users to sue for malpractice or lodge formal complaints to health authorities, hereby encouraging physicians to practice defensively. Defensive medicine is commonly defined as the use of diagnostic tests,

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treatments and procedures that are conducted primarily to protect the physician from liability and complaints rather than to improve the patient's diagnosis, treatment or well-being (1). It has been argued in a number of studies that practicing DM can be directly harmful to the patient (leading to fear and overtreatment) (2), to society (entailing unwarranted use of resources) and to physicians (fear of being sued) (3, 4).

Increases in DM are primarily documented within a US healthcare setting, where physicians are reported to order more tests and procedures than needed to protect themselves from malpractice suits (3, 5, 6). A recent American study revealed that among specialty groups, primary care physicians contributed the most to DM spending (7). Almost all GPs in an American study acknowledged that they practiced DM. The most widespread practices were diagnostic tests, referrals and follow-ups as well as unnecessary medical records (4).

In Denmark, documentation on the extent of DM in general practice as well as in the hospital sector is lacking. Danish physicians are not covered by the culpa legislation, meaning that they cannot be held financially liable for malpractice which instead is covered by the publicly financed Patient Compensation programme - a comprehensive national programme to compensate for patient harm. However, physicians may be sued individually with reference to the Physicians' Act Law (gross negligence) where the maximum penalty is losing their license to practice medicine or fines (8).

There is little understanding of which specific aspects drive GPs to practice defensively in a setting without financial liability. Thus, the aim of this study was to identify individual and shared perspectives among GPs on how DM is understood and experienced in their daily clinical work.

METHOD

The methodological approach employed was rooted in a qualitative description inspired by a

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hermeneutic-phenomenological research methodology (9). As a method for data generation, focus group interviews were chosen because their interactional features were fit for exploring subjective understandings, experiences and viewpoints (10, 11).

Setting

The Danish healthcare system is tax-financed, and most GP and hospital services are free of charge. Danish GPs act as gatekeepers for access to specialist treatment and are responsible for frontline care 24 hours a day. GP collaborations provide out-of-hours primary care in four out of the five regions (12).

Recruitment and sample size

GPs from one of Denmark's five Regions with a minimum of two years of experience in general practice were invited to participate in a focus group interview. Research colleagues, not involved in the study and being practicing GPs themselves, helped identify participants by providing email addresses to primary care clinics. We attempted to achieve variation with respect to age, gender, practice type, practice experience and practice location (rural or urban area). The final sample comprised 28 GPs (14 males and 14 females) between 36 and 68 years of age (see Table 1 for participant characteristics). All participants gave their written informed consent, and ethical approval was obtained from the *Danish Data Protection Agency* (J. no.: 16/46654).

Data generation

Six focus group interviews (with 3-8 participants per group) were held between October 2016 and May 2017. The first author, a sociologist and an experienced qualitative researcher, moderated all six groups and had neither professional knowledge of nor experience with DM. The last author, a

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researcher and practicing GP, acted as co-moderator in five out of six focus groups. Both researchers consciously and continuously explored their prejudgements about the phenomenon. The interviews were conducted in the office of one of the group informants (four groups), at a regional meeting room (two groups) or in the private home of one of the informants (one group). To facilitate a gradual disclosure of the GPs' understandings and experiences as they related to DM, we followed a semi-structured interview guide with open-ended questions (Table 2). The recruitment of new groups continued until sufficient information power regarding the subject at hand was achieved (13). The discussions lasted from one hour to 75 minutes and were all digitally recorded, then transcribed verbatim by a secretary, and validated by the researchers who moderated the interviews.

Data analysis

Data were analysed according to the core principles of a thematic analysis approach (14). The first and last authors (EAH and MKA) performed the analysis. The continuous analytic process was presented to and discussed with the other members of the author group at regular analytic meetings. The analytic process moved through the following stages: interview transcripts were read in their entirety several times to gain a general understanding of the data. The text was divided into meaning units that were grounded in the particularity of what was being said by the participants (14). The subsequent stage of analysis aimed at transforming meaning units into larger themes with special attention to how they related to the research questions. Significant meaning units documenting participants' understandings of and experiences with DM were categorised. Some of the meaning units were found to be replete with utterances that described experiences of pressure. These utterances were categorised into different types of pressure. We acknowledge that they cannot be considered exhaustive and may overlap. In the following, the key themes and subthemes are presented with exemplary data sequences.

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RESULTS

Theme 1: GPs' understanding of DM

In most focus groups, GPs were quick to respond to the question about what they understood by the phenomenon of DM. With few variations, GPs stated that they understood DM as medical actions performed without medical indication in order to "cover one's back" and to secure oneself against patient complaints. However, when discussing the phenomenon more in depth, understandings were broadened to involve all those medical actions performed due to exterior demands that run counter to the GP's professionalism and common sense. As a consequence, the defensive actions were understood to be "meaningless", "unnecessary" and "irrelevant". One of the GPs remarked:

> *FG5GP5: One tends to immediately think that it's something we do to protect ourselves against patient claims, right, but in reality, maybe it's more like the sum of unnecessary actions that makes it a little exhausting to be a GP?!*

To describe and reflect upon a particular understanding of DM, one male GP suggested mapping the terrain of possible opponents that the GP must defend him/herself against:

> *FG4GP2: You are defending yourself against something, and I can think of many I must defend myself against. Must I defend myself against the patients? Must I defend myself against the medical officer of health? Must I defend myself against my colleagues? Must I defend myself against my own medical conscience? So, there are many things one can defend oneself against, and in this way, I think the concept can take up much space in everyday life!*

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Resonating with the above account, other GPs across groups consistently talked about DM as practices the GP does as a result of him/her being the subject of and succumbing to different types of pressure in the daily work. In the following section these different sources of pressure identified by the GPs will be outlined.

Theme 2: GPs' own experiences with DM

Subtheme: System pressure

A majority of the GPs associated DM with clinical imperatives imposed by what was usually referred to as "the system", in many cases personified by the politicians and health authorities. A common experience across groups was that external regulations such as *clinical guidelines*, *fast-track packages* (e.g. cancer packages) and *treatment guarantees* often resulted in "thin" or "nonsense" referrals more substantiated by an obligation to live up to political regulations and time warrants than to meaningful clinical decision-making. The experience among several of the GPs was that the obligation to apply and implement clinical guidelines and refer patients to fast-track packages was undermining the individual GP's clinical assessment and professionalism:

> *FG4GP4: Society dictates that we must act on specific symptoms in such a way that we actually put aside our own professionalism…and so our professionalism is not in great demand any longer.*

In relation to this, some GPs experienced that the national clinical guidelines were often not in accordance with their own clinical reality, despite being allegedly evidence-based. Applying the guidelines without reflecting on their meaningfulness and thus pushing patients into rigid structures

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would, according to several of the GPs, too often do harm to the patients, e.g. by leading to anxiety and overtreatment. Along these lines, other GPs said that acting defensively reflected a "zero tolerance culture":

> *FG4GP3: So we are asked to be very defensive, not to defend, or not to protect ourselves, but because society has decided that we cannot live with the teeny-weeny risk that somebody calls the doctor and is told to take a pain killer and it turns out that they have a brain tumor or something, and I think that with this decision we shoot completely above the target!*

Another recurring theme when reflecting on own experiences with DM was the demand to document (what some of the GPs described as "limitless, meaningless documentation"), specifically by writing long patient records with enumerations of negative clinical findings:

> *FG1GP1: For example our patient records, all the time we must write, this you didn't find, well, all the negative findings, there wasn't this, there wasn't this, there wasn't this... just think about the amount of resources that are spent on not having trust in professionals and all the time we have to beware, beware, beware, document, document, document*!

When talking about how the tendency to document had increased in recent years, some of the GPs characterised the patient record as "word salad" and "spam" paradoxically compromising the quality of care and patient safety. To further illustrate this point, one male GP even brought a print of a patient's medical record, displaying the progression in note length over the past five years

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while uttering:

> *FG4GP2: Patient records just get longer and longer. The clarity and the details are lost and the patient trajectories almost drown in documentation.*

Subtheme: Patient pressure

All participating GPs talked about how they felt pressured to act defensively because of an increasing request from patients for medical examinations and referrals to specialists, leaving the GP with the impression that generally and compared to earlier, patients lack confidence in the clinical assessment of today's GPs.

Across groups the GPs agreed that the socioeconomically privileged patients constituted a particularly demanding patient category:

> *FG1GP3: Generally, it's the kind of people who are well functioning who have the capacities to operate within this system and who have the resources to turn up at the doctor's office and put their foot down and demand to be given this or that, right? And it's not always those who really need the examinations that get through, is it?*
> *FG1GP6: Nope, it's not social classes five-seven, definitely not!*

Patients holding supplemental private health insurances were in particular experienced to exert pressure in that their insurance company had given them the prospect of a private treatment provided that their GP would refer them to these further examinations:

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FG1GP6: *Private health insurances are a substantial factor. Yes, there we are under great pressure, because their health insurance company has held out the prospect that they can be seen at a private hospital within a few days and they can have a scan. "You just need a referral from your GP". We hear that SO often.*

Furthermore, the group of psychosomatic patients was by several of the GPs mentioned as a source of patient pressure:

FG3GP2: I think that our psychosomatic patients are probably the group of patients that pressure us the most to do the strangest things and afterwards one thinks: "Come on! Why on earth did I agree to give that referral for this completely unnecessary examination?"

The GPs agreed that resisting patient pressure was further complicated and challenged by the dominating influence of the media. Several GPs pointed out that although increase in health education is generally a positive development, the health warnings communicated through the media, sometimes based on dubious scientific evidence, result in patients becoming increasingly fearful and anxious about risk factors and alarm symptoms, motivating them to request for specific tests and examinations.

The increase in patient complaints was also considered to be a result of the mass media's exposure of single stories of incompetent physicians and making people conscious of their "rights", e.g. to treatment guarantees, to complain/sue for malpractice with the prospect of receiving compensation.

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Subtheme: Self-pressure

The GPs acknowledged that a pressure deriving from themselves contributed to the increase in defensive medical actions, making some of the GPs voice that "we are our own worst enemy". One substantial pressure was described as the fear of making errors of judgement having lethal consequences for the patient. A way of minimising this fear in the daily work would be to reduce medical uncertainty to the lowest possible level by ordering further tests and examinations:

> *FG3GP1: Just overlooking something that has disastrous consequences for another human being – it does not even have to elicit a complaint, but just the risk of overlooking something, I mean that is terrible!*
>
> *FG3GP2: Yes, then I'd rather play it safe*
>
> *FG3GP1: Yes, but this has nothing to do with the complaints!*

As indicated in the above excerpt the patient complaint as such, which a medical error might elicit, was perceived as secondary compared to the anguish of harming the patient. A culture of infallibility among GPs, in the medical community and in society at large, was highlighted by several of the GPs as maintaining their fear and thus as pressuring them to act defensively.

Every GP had experienced being either a subject or co-subject of a patient complaint at some stage in their career, not least when working in the out-of-hours primary care service. The patient complaints referring to these out-of-hours consultations were referred to as unjustified or ridiculous. The GPs explained that in the out-of-hours primary care service the relational bonds between GP and patients were weak and, consequently, the threshold for complaints particularly low. Generally, the younger doctors were more concerned about receiving a patient complaint than the more experienced GPs.

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Subtheme: Peer pressure

Fear of having one's reputation damaged by colleagues was also perceived as a pressure that could motivate the GPs to perform defensive medical actions. Some of the GPs had experienced malicious statements and gossip by hospital colleagues following a medical error:

> *FG2GP2: And we have seen how easy it is to have two colleagues stand up together and state that the colleague who has made the error must be completely at sixes and sevens, right? Total stupid decision, how on earth could this happen?*

Other GPs described how they felt pressured to perform a lot of examinations prior to hospitalising a patient, because they had experienced that the hospital physicians demanded as thorough examinations of the patient as possible:

> *FG2GP4: I mean, they stand there laughing at us when we call from the emergency service and we want to hospitalise somebody: "No, you can't just do that without measuring both this and that and without having a broad blood picture and having cultivated the blood and x-raying this and x-raying that."*

Another kind of pressure deriving from colleagues or peers was the pressure to refer patients for scans or other examinations because other practitioners, e.g. physiotherapists or chiropractors, were requesting examinations rather than the GP's assessment. Since the practitioner had already held out prospects of a particular examination to the patient, the GPs experienced the situation as

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involving a conflict that in most cases would result in giving in to the pressure of the practitioner's request:

> *FG3GP1: It gets really difficult when they have already written down their suggestions for further diagnosing and then the patient is already expecting you to refer for further diagnostics – then we are kind of checkmate!*
>
> *FG1GP3:*
>
> *And I mean, this is really problematic because this is not what our guidelines tell us to do, but we can end up acting as defensively as ordering an MR scan after all.*

DISCUSSION

Summary

In this study, we explored GPs' understandings of and experiences with DM. We found that GPs understand DM as unnecessary and meaningless medical actions that are carried out as a result of succumbing to daily pressures deriving from four different sources: the system, patients, the GPs themselves and colleagues.

Comparison with existing literature

A vast body of literature suggests that recent changes and reforms to which general practice has been subject, such as an increase in external accountability, monitoring and managerial controls as well as the movement towards evidence-based medicine as the dominant rationale for choice of treatment, may not be congruent with the values and sense of professional identity of GPs (15-18). Health sociologists argue that the above-mentioned changes in the healthcare system, resulting in a decrease in professional autonomy of physicians, are attributable to powerful large-scale social

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developments such as late-capitalism, neoliberalism and post-modernity (19). From this perspective, DM together with the identified pressures motivating physicians to act defensively can be said to arise from a culture of consumer rights, decreasing trust in the "expert system" that was a central tenet of modernity (20), and an increasingly incalculable "risk society" in which rationality is partly abandoned in the name of subjectivity (21).

Studies investigating GPs' emotional responses to their work in general practice support the findings of this study that medical actions in which the GPs' identity, professionalism and clinical judgement are compromised are experienced as meaningless and frustrating, potentially leading to frustration and disillusion (15, 17). It is argued that a healthcare system emphasising standardised biomedical evidence-based practice, based on protocols and guidelines as a means to improving population rather than individual health, pays little attention to the context in which primary care consultations take place. The exceptional potential of the primary care consultation is said to include the continuing and personal GP-patient relationship, a multidimensional approach to illness (biopsychosocial) and person-centred medicine (22-24).

As we have seen in the above, many GPs changed their professionally informed behaviours to adapt to the pressures coming from insistent "consumerist" patients insisting on patient rights. Research has described the impact of an increasing consumerist "ethos" in society in which medical professional knowledge is made available to lay people, mainly through the mass media, hereby challenging the medical dominance of the past as well as the professional identity of doctors - and ultimately quality of care (19, 25). The result showing that the well-educated, articulated and young patients with minor health problems constituted a particularly demanding patient group is in line with research showing that consumerism and decreasing patient deference to physicians are influenced by factors such as age, education and by the seriousness of the illness, which can discourage consumerism and foster deference (19). Furthermore, our finding that GPs

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feel pressured to act defensively by patients holding supplemental health insurances is supported by results from a recent Danish study showing that a majority of the 2000 surveyed GPs perceived this patient group as particularly insistent in getting referrals, and that almost half of the GPs felt a pressure to refer even when short of a medical indication (26).

In the international literature, one of the major reasons reported for acting defensively is the aim to reduce risks of litigation and malpractice suits which as such is not present in Danish health care (5). Although patient complaints were reported as a disturbing factor in the daily work life of the GPs of this study, the findings showed that the anguish associated with making medical mistakes was even more dominating. Physician concerns about the scope of error and their sensitivity to the existential uncertainty of medicine have been described elsewhere (15, 27). Furthermore, a vast body of literature describes the emotional impact of mistakes, e.g. how making medical errors affects physicians unfavourably, creating a strong need for support within the medical community (15, 27-30). In a qualitative study investigating the views of doctors on their working lives, physicians' feelings of nostalgia for the past were mainly connected to a loss of opportunities of informal mutual support between colleagues (15). As the findings of this study demonstrate, support from colleagues in the medical community is sometimes lacking, making the pressure to act defensively even bigger. These findings highlight the need for enhancing a supportive organisational climate and for encouraging interdisciplinary collaboration on reducing defensive medicine.

In 2000, Wu (31) introduced the definition of "second victim", meaning that not only patients and relatives may be deeply disturbed by the errors and mistakes made by health professionals (32). From this perspective it can be argued that the GPs of today's medical culture may live an increased risk of becoming "second victims" not only following burdensome complaints, but also as a result of a daily clinical reality in which feelings of pressure from several

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sources dominate, hereby compromising professional identity, values and ideals.

Implications for practice and research

Our findings may lead to discussions within the medical establishment about the potential impact of externally imposed policy interventions on GPs' professional autonomy and sustainability of their work. Our findings indicate that DM will not be reduced without fundamental changes in the dominating cultures surrounding modern medical practice. Awareness of an increasingly defensive medical practice culture and its negative implications has paved the way for a much needed political focus, like the "Choosing Wisely" campaign in the UK launched by the Academy of Medical Royal Colleges last year listing forty tests and treatments that are unlikely to benefit patients, now being adopted to a Danish setting (33). Supplementing such campaigns, it may be of benefit to create alternative solutions to reestablish reflexivity in the medical community concerning matters such as core values and ideals regarding professional identity. However, as this study shows, "choosing wisely" is not a "free choice", but involves a support to the physician from e.g. the professional organisation and moreover time and conditions for discussions with the patients regarding pros and cons for an intervention.

This study has identified multiple variables for quantitative analysis, e.g. unnecessary tests, referrals and documentation. Future research should aim at estimating the costs of DM in primary care regarding implications for quality of care, professional motivation and satisfaction, time as well as monetary costs.

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Contributors

EAH, JL, LBP, KMP, AM and MKA were involved in study conception and design. EAH and MKA were involved in acquisition of data. EAH, JL, LBP, KMP, AM and MKA were involved in analysis and interpretation of data. EAH and MKA were involved in drafting of manuscript. JL, LBP, KMP and AM were involved in critical revision of the manuscript.

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Competing interests

None declared

Ethics approval

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Data sharing statement

No additional data are available.

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Focus groups N=28 (14 men; 14 women)	1	2	3	4	5	6
Age range	42-58	40-52	54-55	46-52	64-69	30-68
Mean	45	46	54	50	67	45
GP practice type: Group (two or more GPs): G (N) Single handed SH (N)	G (8)	G (3)	G (3)	G (4)	G (4) 1 (SH)	G (5)
Practice location: urban: U (N) or rural: R (N)	U (7) R (1)	R (3)	U (1) R (2)	U (4)	U (2) R (3)	U (5)
Man (N)	0	2	0	4	5	3
Woman (N)	8	1	3	0	0	2
Total (N)	8	3	3	4	5	5

Table 1: Demographic characteristics of participants

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Main themes	Probing questions
Understandings of DM	*What do you at first understand by the concept "Defensive medicine" when you hear it?*
Exchange of experiences	*As a way of further approaching the concept, we would ask you to look back on the last couple of weeks in your practice. Can you recall a doctor-patient situation, that you would describe as defensive?*
Motives	*Now that you have listened to each other you might recognize some features and situations from your own practice. If you again recall the specific situation, which you have described, what do you think was the reason(s) for acting as you did?*
Perceptions	*Can you try to describe how you perceived these situations?* - *What kind of feelings did they initiate (if any)?* - *To what extent do these types of situations fill your mind?* - *How often do these types of consultations occur in your daily practice? (e.g. never, seldom, often?)*

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	- *If you look back in time, do you think you would have acted differently ten years ago?*
Experiences with complaints	*Can you try to describe you experiences with receiving complaints?* *If you have received a complaint, how did it affect you? Has it made you change anything in you clinical behaviour?* - *If no, do you think that it would affect your future clinical behaviour?*
Perspective	*If we look back on what we have talked about until now, do you have the same understanding of the concept "DM" as when we started out discussing it?*

Table 2: Topic guide for the focus group interviews

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Manuscripts

How is defensive medicine understood and experienced in a primary care setting? A qualitative focus group study among Danish general practitioners

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ABSTRACT

Objectives: Recent years have witnessed a progressive increase in defensive medicine (DM) in several Western welfare countries. In Danish primary and secondary care, documentation on the extent of DM is lacking. Before investigating the extent of DM we wanted to explore how the phenomenon is understood and experienced in the context of general practice in Denmark. The objective of the study was to describe the phenomenon of DM as understood and experienced by Danish general practitioners (GPs).

Design: A qualitative methodology was employed and data were generated through six focus group interviews with 3-8 GPs per group (n = 28) recruited from the Region of Southern Denmark. Data were analysed using a thematic content analysis inspired by a hermeneutic-phenomenological focus on understanding and meaning.

Results DM is understood as unnecessary and meaningless medical actions, carried out mainly because of external demands that run counter to the GP's professionalism. Several sources of pressure to act defensively were identified by the GPs: the system's pressure to meet external regulations, demands from consumerist patients and a culture among GPs and peers of infallibility and zero-risk tolerance.

Conclusions GPs understand DM as unnecessary and meaningless actions driven by external demands instead of a focus on the patient's problem. GPs consider defensive actions to be carried out as a result of succumbing to various sources of pressure deriving from the system, the patients, the GPs themselves and peers.

Keywords: Defensive medicine, general practice, primary health care, qualitative research

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Strengths and limitations of this study

- Employing a qualitative methodology eliciting discussion and reflection among GPs, we have been able to achieve a nuanced understanding of DM that is closely connected to the everyday experiences, routines, activities and views of GPs in relation to DM.
- Whereas it is beyond the methodological scope of his study to claim empirical generalisability, the research findings are transferable to other GPs, physicians and health professionals from similar cultural and organisational contexts and with countries with similar institutional, legal and medical systems.
- Further validity and depth could have been added to the study if additional individual interviews with the participating GPs had been conducted subsequently, making it possible to deepen some of the themes on an individual basis and to shed light on possible information bias resulting from lacking confidence in a group.

INTRODUCTION

Rapid developments in medical technology, increases in medical expertise together with societal changes have contributed to several beneficial changes in the healthcare sector, e.g. sophisticated diagnostic and treatment procedures and a less authoritative doctor-patient relationship (1). However, recent years' medical developments have also promoted a culture in which high expectations for diagnosing, treatment and cure encourage health service users to sue for malpractice or lodge formal complaints to health authorities, hereby encouraging physicians to practice defensively (2). Defensive medicine is commonly defined as a deviation from standard medical practice due to fear of malpractice liability claims (1, 3). The deviating medical practice may include two types of behaviour: an "assurance behaviour" involving the ordering of more tests

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and procedures than medically indicated and an "avoidance behaviour" in which the physician avoids high-risk procedures and/or patients to distance him/herself from malpractice liability (4, 5). Many scholars claim defensive medicine to be a disadvantageous phenomenon, arguing that practicing DM can be directly harmful to the patient (leading to fear and overtreatment) (6), to society (entailing unwarranted use of resources) and to physicians (fear of being sued) (7, 8). Investigating the prevalence of DM in a number of international secondary health care settings DM has been found to be highly prevalent in countries such as the US (5, 7, 9, 10), Israel (11), Japan (12), Australia (13) and, within a European setting, in the UK (14), Italy (2, 4) and Belgium (2). As for the prevalence of DM in a primary care setting, a study examining defensive medical practices in primary care in the US showed that almost all GPs acknowledged practice changes in response to the possibility of a patient complaint (8). Specific widespread practices were diagnostic tests, referrals and follow-ups as well as unnecessary medical records. A more recent American study revealed that among specialty groups, primary care physicians contributed the most to DM spending (15).

In Denmark, documentation on the extent of DM in general practice as well as in the hospital sector is lacking. Danish physicians are not covered by the culpa legislation, meaning that they cannot be held financially liable for malpractice which instead is covered by the publicly financed Patient Compensation programme - a comprehensive national programme to compensate for patient harm. However, physicians may be sued individually with reference to the Physicians' Act Law (gross negligence) where the maximum penalty is losing their license to practice medicine or fines (16)

Little is known about how GPs perceive of DM in a Danish primary care setting and which specific aspects motivate them to practice defensively.

Thus, the aim of this study was to identify individual and shared perspectives among GPs

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on how DM is understood and experienced in their daily clinical work.

METHOD

The methodological approach employed was rooted in a qualitative description inspired by a hermeneutic-phenomenological research methodology (17). As a method for data generation, focus group interviews were chosen because their interactional features were fit for exploring subjective understandings, experiences and viewpoints (18, 19).

Setting

The Danish healthcare system is tax-financed, and most GP and hospital services are free of charge. Danish GPs act as gatekeepers for access to specialist treatment and are responsible for frontline care 24 hours a day. GP collaborations provide out-of-hours primary care in four out of the five regions (20).

Recruitment and sample size

GPs from one of Denmark's five Regions with a minimum of two years of experience in general practice were invited to participate in a focus group interview. Research colleagues, not involved in the study and being practicing GPs themselves, helped identify participants by providing email addresses to primary care clinics. We attempted to achieve variation with respect to age, gender, practice type, practice experience and practice location (rural or urban area). The final purposive sample comprised 28 GPs (14 males and 14 females) between 36 and 68 years of age (see Table 1 for participant characteristics). All participants gave their written informed consent, and ethical approval was obtained from the *Danish Data Protection Agency* (J. no.: 16/46654).

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Data generation

Six focus group interviews (with 3-8 participants per group) were held between October 2016 and May 2017. The first author, a sociologist and an experienced qualitative researcher, moderated all six groups and had neither professional knowledge of nor experience with DM. The last author, a researcher and practicing GP, acted as co-moderator in five out of six focus groups. Both researchers consciously and continuously explored their prejudgements about the phenomenon and wrote down field notes during or after each interview. The interviews were conducted in the office of one of the group informants (three groups), at a regional meeting room (two groups) or in the private home of one of the informants (one group). To facilitate a gradual disclosure of the GPs' understandings and experiences as they related to DM, we followed a semi-structured interview guide with open-ended questions (Table 2). Each focus group interview was initiated with a presentation of the explorative aim of the study, namely to capture individual and shared understandings of and experiences with DM as they related to daily clinical practice. Consequently, no formal definition of DM was presented. The recruitment of new groups continued until sufficient information power regarding the subject at hand was achieved (21). The discussions lasted from one hour to 75 minutes and were all digitally recorded, then transcribed verbatim by a secretary, and validated by the researchers who moderated the interviews.

Data analysis

Data were analysed according to the core principles of a thematic analysis approach inspired by a hermeneutic-phenomenological focus on understanding and meaning (22). The first and last authors (EAH and MKA) performed the analysis. The continuous analytic process, with description of coding themes, was presented to and discussed with the other members of the author group at regular analytic meetings. The analytic process moved through the following stages: interview

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transcripts were read in their entirety several times to gain a general understanding of the data. The text was divided into meaning units that were grounded in the particularity of what was being said by the participants (22). The subsequent stage of analysis aimed at transforming meaning units into larger themes with special attention to how they related to the research questions. Significant meaning units documenting participants' understandings of and experiences with DM were categorised. Some of the meaning units were found to be replete with utterances that described experiences of pressure. These utterances were categorised into different types of pressure. We acknowledge that they cannot be considered exhaustive and may overlap. In the following, the key themes and subthemes are presented with exemplary data sequences.

RESULTS

Theme 1: GPs' understanding of DM

In most focus groups, GPs were quick to respond to the question about what they understood by the phenomenon of DM. With few variations, GPs stated that they understood DM as medical actions performed without medical indication in order to "cover one's back" and to secure oneself against patient complaints. Interestingly, however, when exploring and discussing the phenomenon of DM more in depth, several of the GPs found that this understanding was not sufficiently comprehensive when considering the plethora of daily defensive actions in general practice. Across groups understandings of DM were broadened to involve all those unnecessary and meaningless medical actions performed due to external demands that run counter to the GP's professionalism and common sense. For example, one of the GPs remarked:

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FG5GP5: One tends to immediately think that it's something we do to protect ourselves against patient claims, right, but in reality, maybe it's more like the sum of unnecessary actions that makes it a little exhausting to be a GP?!

Extending the above understanding of DM, several of the GPs described DM as practices that one does as a result of pressure from something or somebody. One male GP described the feeling of being pressured in the following way:

FG4GP2: You are defending yourself against something, and I can think of many I must defend myself against. Must I defend myself against the patients? Must I defend myself against the medical officer of health? Must I defend myself against my colleagues? Must I defend myself against my own medical conscience? So, there are many things one can defend oneself against, and in this way, I think the concept can take up much space in everyday life!

Resonating with the above account, other GPs across groups consistently talked about how they experienced that defensive medicine as it unfolded in daily clinical practice resulted from daily pressures. In the following section these different experiences of pressure that motivated the GPs to practice defensively will be outlined.

Theme 2: GPs' own experiences with DM

Subtheme: System pressure

A majority of the GPs talked about how "the system", in many cases personified by the politicians and health authorities, pressured them to practice defensive medicine. These practices resulted from

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the system-imposed demand to comply and implement evidence-based standardized care such as *clinical guidelines*, *fast-track packages* (e.g. cancer packages) and *treatment guarantees*. According to the GPs these imperatives often resulted in "thin" or "nonsense" referrals. These actions were considered to be defensive because they were more substantiated by a pressure to live up to political regulations and time warrants than to meaningful clinical decision-making.

The experience among several of the GPs was that the obligation to comply with and implement clinical guidelines and refer patients to fast-track packages was undermining the individual GP's clinical assessment and professionalism:

> *FG4GP4: Society dictates that we must act on specific symptoms in such a way that we actually put aside our own professionalism…and so our professionalism is not in great demand any longer.*

In relation to this, some GPs experienced that the national clinical guidelines were often not in accordance with their own clinical reality, despite being allegedly evidence-based. Practicing defensively by applying the guidelines without reflecting on their meaningfulness and thus pushing patients into rigid structures would, according to several of the GPs, too often do harm to the patients, e.g. by leading to anxiety and overtreatment. Along these lines, other GPs said that acting defensively reflected a "zero tolerance culture":

> *FG4GP3: So we are asked to be very defensive, not to defend, or not to protect ourselves, but because society has decided that we cannot live with the teeny-weeny risk that somebody calls the doctor and is told to take a pain killer and it turns out*

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that they have a brain tumor or something, and I think that with this decision we shoot completely above the target!

Another recurring theme when reflecting on own experiences with DM was the demand to document (what some of the GPs described as "limitless, meaningless documentation"), that the government policy had imposed on the GPs for quality appraisal purposes. One practice that was particularly described as defensive by the GPs was the documentation of patient records involving long enumerations of negative clinical findings:

FG1GP1: For example our patient records, all the time we must write, this you didn't find, well, all the negative findings, there wasn't this, there wasn't this, there wasn't this... just think about the amount of resources that are spent on not having trust in professionals and all the time we have to beware, beware, beware, document, document, document!

When talking about how the tendency to document had increased in recent years, some of the GPs characterised the patient record as "word salad" and "spam" paradoxically compromising the quality of care and patient safety. To further illustrate this point, one male GP even brought a print of a patient's medical record, displaying the progression in note length over the past five years while uttering:

FG4GP2: Patient records just get longer and longer. The clarity and the details are lost and the patient trajectories almost drown in documentation.

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Subtheme: Patient pressure

All participating GPs talked about how they felt pressured to act defensively because of an increasing request from patients for medical examinations and referrals to specialists, leaving the GP with the impression that generally and compared to earlier, patients lack confidence in the clinical assessment of today's GPs. Across groups the GPs agreed that the socioeconomically privileged patients constituted a particularly demanding patient category:

> *FG1GP3: Generally, it's the kind of people who are well functioning who have the capacities to operate within this system and who have the resources to turn up at the doctor's office and put their foot down and demand to be given this or that, right? And it's not always those who really need the examinations that get through, is it?*
> *FG1GP6: Nope, it's not social classes five-seven, definitely not!*

Patients holding supplemental private health insurances were in particular experienced to exert pressure in that their insurance company had given them the prospect of a private treatment provided that their GP would refer them to these further examinations:

> FG1GP6: *Private health insurances are a substantial factor. Yes, there we are under great pressure, because their health insurance company has held out the prospect that they can be seen at a private hospital within a few days and they can have a scan. "You just need a referral from your GP". We hear that SO often.*

Furthermore, the group of psychosomatic patients was by several of the GPs mentioned as a source of patient pressure:

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FG3GP2: I think that our psychosomatic patients are probably the group of patients that pressure us the most to do the strangest things and afterwards one thinks: "Come on! Why on earth did I agree to give that referral for this completely unnecessary examination?"

The GPs agreed that resisting patient pressure was further complicated and challenged by the dominating influence of the media. Several GPs pointed out that although increase in health education is generally a positive development, the health warnings communicated through the media, sometimes based on dubious scientific evidence, result in patients becoming increasingly fearful and anxious about risk factors and alarm symptoms, motivating them to request for specific tests and examinations.

The increase in patient complaints was also considered to be a result of the mass media's exposure of single stories of incompetent physicians and making people conscious of their "rights", e.g. to treatment guarantees, to complain/sue for malpractice with the prospect of receiving compensation.

Subtheme: Self-pressure

The GPs acknowledged that a pressure deriving from themselves contributed to the increase in defensive medical actions, making some of the GPs voice that "we are our own worst enemy". One substantial pressure was described as the fear of making errors of judgement having lethal consequences for the patient. A way of minimising this fear in the daily work would be to reduce medical uncertainty to the lowest possible level by ordering further tests and examinations:

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FG3GP1: Just overlooking something that has disastrous consequences for another human being – it does not even have to elicit a complaint, but just the risk of overlooking something, I mean that is terrible!

FG3GP2: Yes, then I'd rather play it safe

FG3GP1: Yes, but this has nothing to do with the complaints!

As indicated in the above excerpt the patient complaint as such, which a medical error might elicit, was perceived as secondary compared to the anguish of harming the patient. A culture of infallibility among GPs, in the medical community and in society at large, was highlighted by several of the GPs as maintaining their fear and thus as pressuring them to act defensively.

Every GP had experienced being either a subject or co-subject of a patient complaint at some stage in their career, not least when working in the out-of-hours primary care service. The patient complaints referring to these out-of-hours consultations were referred to as unjustified or ridiculous. The GPs explained that in the out-of-hours primary care service the relational bonds between GP and patients were weak and, consequently, the threshold for complaints particularly low. Generally, the younger doctors were more concerned about receiving a patient complaint than the more experienced GPs.

Subtheme: Peer pressure

Fear of having one's reputation damaged by colleagues was also perceived as a pressure that could motivate the GPs to perform defensive medical actions. Some of the GPs had experienced malicious statements and gossip by hospital colleagues following a medical error:

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FG2GP2: And we have seen how easy it is to have two colleagues stand up together and state that the colleague who has made the error must be completely at sixes and sevens, right? Total stupid decision, how on earth could this happen?

Other GPs described how they felt pressured to perform a lot of examinations prior to hospitalising a patient, because they had experienced that the hospital physicians demanded as thorough examinations of the patient as possible:

FG2GP4: *I mean, they stand there laughing at us when we call from the emergency service and we want to hospitalise somebody: "No, you can't just do that without measuring both this and that and without having a broad blood picture and having cultivated the blood and x-raying this and x-raying that."*

Another kind of pressure deriving from colleagues or peers was the pressure to refer patients for scans or other examinations because other practitioners, e.g. physiotherapists or chiropractors, were requesting examinations rather than the GP's assessment. Since the practitioner had already held out prospects of a particular examination to the patient, the GPs experienced the situation as involving a conflict that in most cases would result in giving in to the pressure of the practitioner's request:

FG3GP1: It gets really difficult when they have already written down their suggestions for further diagnosing and then the patient is already expecting you to refer for further diagnostics – then we are kind of checkmate!

FG1GP3:

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And I mean, this is really problematic because this is not what our guidelines tell us to do, but we can end up acting as defensively as ordering an MR scan after all.

DISCUSSION

Summary

In this study, we explored GPs' understandings of and experiences with DM. We found that GPs in a Danish general practice setting understand DM as unnecessary and meaningless medical actions. Drawing on their daily experiences the GPs furthermore reasoned that these defensive actions are carried out as a result of succumbing to daily pressures deriving from four different sources: the system, patients, the GPs themselves and colleagues.

Comparison with existing literature

American and European literature on DM focuses mainly on DM as medical behaviour (either assurance or avoidance behaviour) that follows from malpractice concerns (2, 23, 24). Although complaints constitute a shared concern among the GPs of this study, other forms of pressure appear to motivate a medical behaviour that is experienced as defensive and should be considered as well when trying to apprehend how the phenomenon of DM plays out in different cultural, medical contexts.

Supporting the finding that changes in medical behaviour is not only caused by malpractice concerns but also, and even more pervasively, by externally imposed system pressures, the sociological literature argues that recent changes and reforms to which general practice has been subject, such as an increase in external accountability, monitoring and managerial controls as well as the movement towards evidence-based medicine as the dominant rationale for choice of treatment, represent a trend towards disciplining GP behaviour, hereby undermining their autonomy

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and authority (25-27). Seen from this perspective the GP-perceived system pressures identified in this study might reflect these larger managerial processes in the healthcare system that the GPs' experience as indirectly pressuring them to act defensively.

In line with the understanding of DM as unnecessary and meaningless medical actions, studies investigating GPs' emotional responses to their work in general practice find that medical actions in which the GPs' identity, professionalism and clinical judgement are compromised are experienced as meaningless (25, 27). It is argued that a healthcare system emphasising standardised biomedical evidence-based practice, based on protocols and guidelines as a means to improving population rather than individual health, pays little attention to the context in which primary care consultations take place. The exceptional potential of the primary care consultation is said to include the continuing and personal GP-patient relationship, a multidimensional approach to illness (biopsychosocial) and person-centred medicine (28-30).

As we have seen in the above, many GPs changed their professionally informed behaviours to adapt to the pressures coming from insistent "consumerist" patients insisting on patient rights. Research has described the impact of an increasing consumerist "ethos" in society in which medical professional knowledge is made available to lay people, mainly through the mass media, hereby challenging the medical dominance of the past as well as the professional identity of doctors - and ultimately quality of care (31, 32). The result showing that the well-educated, articulated and young patients with minor health problems constituted a particularly demanding patient group is in line with research showing that consumerism and decreasing patient deference to physicians are influenced by factors such as age, education and by the seriousness of the illness (32). Furthermore, our finding that GPs feel pressured to act defensively by patients holding supplemental health insurances is supported by results from a recent Danish study showing that a majority of the 2000 surveyed GPs perceived this patient group as particularly insistent in getting

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referrals, and that almost half of the surveyed GPs felt a pressure to refer even when short of a medical indication (33).

Relating to the subtheme of "self pressure", physicians' sensitivity to the existential uncertainty of medicine and their concerns about the scope of error is a well-known research theme (25, 34). Furthermore, a vast body of literature describes the emotional impact of mistakes, e.g. how making medical errors affects physicians unfavourably, creating a strong need for support within the medical community (25, 34-37). As the findings of this study demonstrate, support from colleagues in the medical community is sometimes lacking, making the pressure to act defensively even bigger. Relating to this experience, a qualitative study investigating the views of doctors on their working lives, found that physicians' feelings of nostalgia for the past were mainly connected to a loss of opportunities of informal mutual support between colleagues (25). These findings highlight the need for enhancing a supportive organisational climate and for encouraging interdisciplinary collaboration on reducing defensive medicine.

In 2000, Wu (38) introduced the definition of "second victim", meaning that not only patients and relatives may be deeply disturbed by the errors and mistakes made by health professionals (39). From this perspective it can be argued that the GPs of today's medical culture may live an increased risk of becoming "second victims" not only following burdensome complaints, but also as a result of a daily clinical reality in which feelings of pressure from several sources dominate, hereby compromising professional identity, values and ideals.

Implications for practice and research

Our findings may lead to discussions within the medical establishment about the potential impact of externally imposed policy interventions on GPs' professional autonomy and sustainability of their work. Our findings indicate that DM will not be reduced without fundamental changes in the

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dominating cultures surrounding modern medical practice. Awareness of an increasingly defensive medical practice culture and its negative implications has paved the way for a much needed political focus, like the "Choosing Wisely" campaign in the UK launched by the Academy of Medical Royal Colleges last year listing forty tests and treatments that are unlikely to benefit patients, now being adopted to a Danish setting (40). Supplementing such campaigns, it may be of benefit to create alternative solutions to reestablish reflexivity in the medical community concerning matters such as core values and ideals regarding professional identity. However, as this study shows, "choosing wisely" is not a "free choice", but involves a support to the physician from e.g. the professional organisation and moreover time and conditions for discussions with the patients regarding pros and cons for an intervention.

Future research should aim at estimating the costs of DM in primary care regarding implications for quality of care, professional motivation and satisfaction, time as well as monetary costs.

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Contributors

EAH, JL, LBP, KMP, AM and MKA were involved in study conception and design. EAH and MKA were involved in acquisition of data. EAH, JL, LBP, KMP, AM and MKA were involved in analysis and interpretation of data. EAH and MKA were involved in drafting of manuscript. JL, LBP, KMP and AM were involved in critical revision of the manuscript.

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Competing interests

None declared

Ethics approval

Ethics approval was granted by *The Danish Data Protection Agency* (J. no.: 16/46654).

Data sharing statement

No additional data are available.

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Focus groups N=28 (14 men; 14 women)	1	2	3	4	5	6
Age range	42-58	40-52	54-55	46-52	64-69	30-68
Mean	45	46	54	50	67	45
GP practice type: Group (two or more GPs): G (N) Single handed SH (N)	G (8)	G (3)	G (3)	G (4)	G (4) 1 (SH)	G (5)
Practice location: urban: U (N) or rural: R (N)	U (7) R (1)	R (3)	U (1) R (2)	U (4)	U (2) R (3)	U (5)
Man (N)	0	2	0	4	5	3
Woman (N)	8	1	3	0	0	2
Total (N)	8	3	3	4	5	5

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Table 1: Demographic characteristics of participants

Main themes	Probing questions
Understandings of DM	*What do you at first understand by the concept "Defensive medicine" when you hear it?*
Exchange of experiences	*As a way of further approaching the concept, we would ask you to look back on the last couple of weeks in your practice. Can you recall a doctor-patient situation, that you would describe as defensive?*
Motives	*Now that you have listened to each other you might recognize some features and situations from your own practice. If you again recall the specific situation, which you have described, what do you think was the reason(s) for acting as you did?*
Perceptions	*Can you try to describe how you perceived these situations?* - *What kind of feelings did they initiate (if any)?* - *To what extent do these types of situations fill your mind?* - *How often do these types of consultations occur in your daily practice? (e.g. never, seldom, often?)* - *If you look back in time, do you think you would have*

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	acted differently ten years ago?
Experiences with complaints	*Can you try to describe you experiences with receiving complaints?* *If you have received a complaint, how did it affect you? Has it made you change anything in you clinical behaviour?* - *If no, do you think that it would affect your future clinical behaviour?*
Perspective	*If we look back on what we have talked about until now, do you have the same understanding of the concept "DM" as when we started out discussing it?*

Table 2: Interview guide for the focus group interviews

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	6
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	6
Occupation	3	What was their occupation at the time of the study?	6
Gender	4	Was the researcher male or female?	1
Experience and training	5	What experience or training did the researcher have?	6
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	5
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	6
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	6
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	6
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	5
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	5
Sample size	12	How many participants were in the study?	5
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	6
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	6
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	23
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	6
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	6
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	6
Field notes	20	Were field notes made during and/or after the inter view or focus group?	6
Duration	21	What was the duration of the inter views or focus group?	6
Data saturation	22	Was data saturation discussed?	6
Transcripts returned	23	Were transcripts returned to participants for comment and/or	No

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	6
Description of the coding tree	25	Did authors provide a description of the coding tree?	6
Derivation of themes	26	Were themes identified in advance or derived from the data?	6
Software	27	What software, if applicable, was used to manage the data?	6
Participant checking	28	Did participants provide feedback on the findings?	No
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	7-14
Data and findings consistent	30	Was there consistency between the data presented and the findings?	7-14
Clarity of major themes	31	Were major themes clearly presented in the findings?	7-14
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	7-14

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

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How is defensive medicine understood and experienced in a primary care setting? A qualitative focus group study among Danish general practitioners

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How is defensive medicine understood and experienced in a primary care setting? A qualitative focus group study among Danish general practitioners

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ABSTRACT

Objectives: Recent years have witnessed a progressive increase in defensive medicine (DM) in several Western welfare countries. In Danish primary and secondary care, documentation on the extent of DM is lacking. Before investigating the extent of DM we wanted to explore how the phenomenon is understood and experienced in the context of general practice in Denmark. The objective of the study was to describe the phenomenon of DM as understood and experienced by Danish general practitioners (GPs).

Design: A qualitative methodology was employed and data were generated through six focus group interviews with 3-8 GPs per group (n = 28) recruited from the Region of Southern Denmark. Data were analysed using a thematic content analysis inspired by a hermeneutic-phenomenological focus on understanding and meaning.

Results DM is understood as unnecessary and meaningless medical actions, carried out mainly because of external demands that run counter to the GP's professionalism. Several sources of pressure to act defensively were identified by the GPs: the system's pressure to meet external regulations, demands from consumerist patients and a culture among GPs and peers of infallibility and zero-risk tolerance.

Conclusions GPs understand DM as unnecessary and meaningless actions driven by external demands instead of a focus on the patient's problem. GPs consider defensive actions to be carried out as a result of succumbing to various sources of pressure deriving from the system, the patients, the GPs themselves and peers.

Keywords: Defensive medicine, general practice, primary health care, qualitative research

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Strengths and limitations of this study

- Employing a qualitative methodology eliciting discussion and reflection among GPs, we have been able to achieve a nuanced understanding of DM that is closely connected to the everyday experiences, routines, activities and views of GPs in relation to DM.
- Whereas it is beyond the methodological scope of his study to claim empirical generalisability, the research findings are transferable to other GPs, physicians and health professionals from similar cultural and organisational contexts and with countries with similar institutional, legal and medical systems.
- Further validity and depth could have been added to the study if additional individual interviews with the participating GPs had been conducted subsequently, making it possible to deepen some of the themes on an individual basis and to shed light on possible information bias resulting from lacking confidence in a group.

INTRODUCTION

Rapid developments in medical technology, increases in medical expertise together with societal changes have contributed to several beneficial changes in the healthcare sector, e.g. sophisticated diagnostic and treatment procedures and a less authoritative doctor-patient relationship (1). However, recent years' medical developments have also promoted a culture in which high expectations for diagnosing, treatment and cure encourage health service users to sue for malpractice or lodge formal complaints to health authorities, hereby encouraging physicians to practice defensively (2). Defensive medicine is commonly defined as a deviation from standard medical practice due to fear of malpractice liability claims (1, 3). The deviating medical practice may include two types of behaviour: an "assurance behaviour" involving the ordering of more tests

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and procedures than medically indicated and an "avoidance behaviour" in which the physician avoids high-risk procedures and/or patients to distance him/herself from malpractice liability (4, 5). Many scholars claim defensive medicine to be a disadvantageous phenomenon, arguing that practicing DM can be directly harmful to the patient (leading to fear and overtreatment) (6), to society (entailing unwarranted use of resources) and to physicians (fear of being sued) (7, 8). Investigating the prevalence of DM in a number of international secondary health care settings DM has been found to be highly prevalent in countries such as the US (5, 7, 9, 10), Israel (11), Japan (12), Australia (13) and, within a European setting, in the UK (14), Italy (2, 4) and Belgium (2). As for the prevalence of DM in a primary care setting, a study examining defensive medical practices in primary care in the US showed that almost all GPs acknowledged practice changes in response to the possibility of a patient complaint (8). Specific widespread practices were diagnostic tests, referrals and follow-ups as well as unnecessary medical records. A more recent American study revealed that among specialty groups, primary care physicians contributed the most to DM spending (15).

In Denmark, documentation on the extent of DM in general practice as well as in the hospital sector is lacking. Danish physicians are not covered by the culpa legislation, meaning that they cannot be held financially liable for malpractice which instead is covered by the publicly financed Patient Compensation programme - a comprehensive national programme to compensate for patient harm. However, physicians may be sued individually with reference to the Physicians' Act Law (gross negligence) where the maximum penalty is losing their license to practice medicine or fines (16)

Little is known about how GPs perceive of DM in a Danish primary care setting and which specific aspects motivate them to practice defensively.

Thus, the aim of this study was to identify individual and shared perspectives among GPs

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on how DM is understood and experienced in their daily clinical work.

METHOD

The methodological approach employed was rooted in a qualitative description inspired by a hermeneutic-phenomenological research methodology (17). As a method for data generation, focus group interviews were chosen because their interactional features were fit for exploring subjective understandings, experiences and viewpoints (18, 19).

Setting

The Danish healthcare system is tax-financed, and most GP and hospital services are free of charge. Danish GPs act as gatekeepers for access to specialist treatment and are responsible for frontline care 24 hours a day. GP collaborations provide out-of-hours primary care in four out of the five regions (20).

Recruitment and sample size

GPs from one of Denmark's five Regions with a minimum of two years of experience in general practice were invited to participate in a focus group interview. Research colleagues, not involved in the study and being practicing GPs themselves, helped identify participants by providing email addresses to primary care clinics. We attempted to achieve variation with respect to age, gender, practice type, practice experience and practice location (rural or urban area). The final purposive sample comprised 28 GPs (14 males and 14 females) between 36 and 68 years of age (see Table 1 for participant characteristics). All participants gave their written informed consent, and ethical approval was obtained from the *Danish Data Protection Agency* (J. no.: 16/46654).

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Data generation

Six focus group interviews (with 3-8 participants per group) were held between October 2016 and May 2017. The first author, a sociologist and an experienced qualitative researcher, moderated all six groups and had neither professional knowledge of nor experience with DM. The last author, a researcher and practicing GP, acted as co-moderator in five out of six focus groups. Both researchers consciously and continuously explored their prejudgements about the phenomenon and wrote down field notes during or after each interview. The interviews were conducted in the office of one of the group informants (three groups), at a regional meeting room (two groups) or in the private home of one of the informants (one group). To facilitate a gradual disclosure of the GPs' understandings and experiences as they related to DM, we followed a semi-structured interview guide with open-ended questions (Table 2). Each focus group interview was initiated with a presentation of the explorative aim of the study, namely to capture individual and shared understandings of and experiences with DM as they related to daily clinical practice. Consequently, no formal definition of DM was presented. The recruitment of new groups continued until sufficient information power regarding the subject at hand was achieved (21). The discussions lasted from one hour to 75 minutes and were all digitally recorded, then transcribed verbatim by a secretary, and validated by the researchers who moderated the interviews.

Data analysis

Data were analysed according to the core principles of a thematic analysis approach inspired by a hermeneutic-phenomenological focus on understanding and meaning (22). The first and last authors (EAH and MKA) performed the analysis. The continuous analytic process, with description of coding themes, was presented to and discussed with the other members of the author group at regular analytic meetings. The analytic process moved through the following stages: interview

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transcripts were read in their entirety several times to gain a general understanding of the data. The text was divided into meaning units that were grounded in the particularity of what was being said by the participants (22). The subsequent stage of analysis aimed at transforming meaning units into larger themes with special attention to how they related to the research questions. Significant meaning units documenting participants' understandings of and experiences with DM were categorised. Some of the meaning units were found to be replete with utterances that described experiences of pressure. These utterances were categorised into different types of pressure. We acknowledge that they cannot be considered exhaustive and may overlap. In the following, the key themes and subthemes are presented with exemplary data sequences.

RESULTS

Theme 1: GPs' understanding of DM

In most focus groups, GPs were quick to respond to the question about what they understood by the phenomenon of DM. With few variations, GPs stated that they understood DM as medical actions performed without medical indication in order to "cover one's back" and to secure oneself against patient complaints. Interestingly, however, when exploring and discussing the phenomenon of DM more in depth, several of the GPs found that this understanding was not sufficiently comprehensive when considering the plethora of daily defensive actions in general practice. Across groups understandings of DM were broadened to involve all those unnecessary and meaningless medical actions performed due to external demands that run counter to the GP's professionalism and common sense. For example, one of the GPs remarked:

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FG5GP5: One tends to immediately think that it's something we do to protect ourselves against patient claims, right, but in reality, maybe it's more like the sum of unnecessary actions that makes it a little exhausting to be a GP?!

Extending the above understanding of DM, several of the GPs described DM as practices that one does as a result of pressure from something or somebody. One male GP described the feeling of being pressured in the following way:

FG4GP2: You are defending yourself against something, and I can think of many I must defend myself against. Must I defend myself against the patients? Must I defend myself against the medical officer of health? Must I defend myself against my colleagues? Must I defend myself against my own medical conscience? So, there are many things one can defend oneself against, and in this way, I think the concept can take up much space in everyday life!

Resonating with the above account, other GPs across groups consistently talked about how they experienced that defensive medicine as it unfolded in daily clinical practice resulted from daily pressures. In the following section these different experiences of pressure that motivated the GPs to practice defensively will be outlined.

Theme 2: GPs' own experiences with DM

Subtheme: System pressure

A majority of the GPs talked about how "the system", in many cases personified by the politicians and health authorities, pressured them to practice defensive medicine. These practices resulted from

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the system-imposed demand to comply and implement evidence-based standardized care such as *clinical guidelines*, *fast-track packages* (e.g. cancer packages) and *treatment guarantees*. According to the GPs these imperatives often resulted in "thin" or "nonsense" referrals. These actions were considered to be defensive because they were more substantiated by a pressure to live up to political regulations and time warrants than to meaningful clinical decision-making.

The experience among several of the GPs was that the obligation to comply with and implement clinical guidelines and refer patients to fast-track packages was undermining the individual GP's clinical assessment and professionalism:

> *FG4GP4: Society dictates that we must act on specific symptoms in such a way that we actually put aside our own professionalism…and so our professionalism is not in great demand any longer.*

In relation to this, some GPs experienced that the national clinical guidelines were often not in accordance with their own clinical reality, despite being allegedly evidence-based. Practicing defensively by applying the guidelines without reflecting on their meaningfulness and thus pushing patients into rigid structures would, according to several of the GPs, too often do harm to the patients, e.g. by leading to anxiety and overtreatment. Along these lines, other GPs said that acting defensively reflected a "zero tolerance culture":

> *FG4GP3: So we are asked to be very defensive, not to defend, or not to protect ourselves, but because society has decided that we cannot live with the teeny-weeny risk that somebody calls the doctor and is told to take a pain killer and it turns out*

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that they have a brain tumor or something, and I think that with this decision we shoot completely above the target!

Another recurring theme when reflecting on own experiences with DM was the demand to document (what some of the GPs described as "limitless, meaningless documentation"), that the government policy had imposed on the GPs for quality appraisal purposes. One practice that was particularly described as defensive by the GPs was the documentation of patient records involving long enumerations of negative clinical findings:

FG1GP1: For example our patient records, all the time we must write, this you didn't find, well, all the negative findings, there wasn't this, there wasn't this, there wasn't this... just think about the amount of resources that are spent on not having trust in professionals and all the time we have to beware, beware, beware, document, document, document!

When talking about how the tendency to document had increased in recent years, some of the GPs characterised the patient record as "word salad" and "spam" paradoxically compromising the quality of care and patient safety. To further illustrate this point, one male GP even brought a print of a patient's medical record, displaying the progression in note length over the past five years while uttering:

FG4GP2: Patient records just get longer and longer. The clarity and the details are lost and the patient trajectories almost drown in documentation.

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Subtheme: Patient pressure

All participating GPs talked about how they felt pressured to act defensively because of an increasing request from patients for medical examinations and referrals to specialists, leaving the GP with the impression that generally and compared to earlier, patients lack confidence in the clinical assessment of today's GPs. Across groups the GPs agreed that the socioeconomically privileged patients constituted a particularly demanding patient category:

> *FG1GP3: Generally, it's the kind of people who are well functioning who have the capacities to operate within this system and who have the resources to turn up at the doctor's office and put their foot down and demand to be given this or that, right? And it's not always those who really need the examinations that get through, is it?*
> *FG1GP6: Nope, it's not social classes five-seven, definitely not!*

Patients holding supplemental private health insurances were in particular experienced to exert pressure in that their insurance company had given them the prospect of a private treatment provided that their GP would refer them to these further examinations:

> FG1GP6: *Private health insurances are a substantial factor. Yes, there we are under great pressure, because their health insurance company has held out the prospect that they can be seen at a private hospital within a few days and they can have a scan. "You just need a referral from your GP". We hear that SO often.*

Furthermore, the group of psychosomatic patients was by several of the GPs mentioned as a source of patient pressure:

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FG3GP2: I think that our psychosomatic patients are probably the group of patients that pressure us the most to do the strangest things and afterwards one thinks: "Come on! Why on earth did I agree to give that referral for this completely unnecessary examination?"

The GPs agreed that resisting patient pressure was further complicated and challenged by the dominating influence of the media. Several GPs pointed out that although increase in health education is generally a positive development, the health warnings communicated through the media, sometimes based on dubious scientific evidence, result in patients becoming increasingly fearful and anxious about risk factors and alarm symptoms, motivating them to request for specific tests and examinations.

The increase in patient complaints was also considered to be a result of the mass media's exposure of single stories of incompetent physicians and making people conscious of their "rights", e.g. to treatment guarantees, to complain/sue for malpractice with the prospect of receiving compensation.

Subtheme: Self-pressure

The GPs acknowledged that a pressure deriving from themselves contributed to the increase in defensive medical actions, making some of the GPs voice that "we are our own worst enemy". One substantial pressure was described as the fear of making errors of judgement having lethal consequences for the patient. A way of minimising this fear in the daily work would be to reduce medical uncertainty to the lowest possible level by ordering further tests and examinations:

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FG3GP1: Just overlooking something that has disastrous consequences for another human being – it does not even have to elicit a complaint, but just the risk of overlooking something, I mean that is terrible!

FG3GP2: Yes, then I'd rather play it safe

FG3GP1: Yes, but this has nothing to do with the complaints!

As indicated in the above excerpt the patient complaint as such, which a medical error might elicit, was perceived as secondary compared to the anguish of harming the patient. A culture of infallibility among GPs, in the medical community and in society at large, was highlighted by several of the GPs as maintaining their fear and thus as pressuring them to act defensively.

Every GP had experienced being either a subject or co-subject of a patient complaint at some stage in their career, not least when working in the out-of-hours primary care service. The patient complaints referring to these out-of-hours consultations were referred to as unjustified or ridiculous. The GPs explained that in the out-of-hours primary care service the relational bonds between GP and patients were weak and, consequently, the threshold for complaints particularly low. Generally, the younger doctors were more concerned about receiving a patient complaint than the more experienced GPs.

Subtheme: Peer pressure

Fear of having one's reputation damaged by colleagues was also perceived as a pressure that could motivate the GPs to perform defensive medical actions. Some of the GPs had experienced malicious statements and gossip by hospital colleagues following a medical error:

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FG2GP2: And we have seen how easy it is to have two colleagues stand up together and state that the colleague who has made the error must be completely at sixes and sevens, right? Total stupid decision, how on earth could this happen?

Other GPs described how they felt pressured to perform a lot of examinations prior to hospitalising a patient, because they had experienced that the hospital physicians demanded as thorough examinations of the patient as possible:

FG2GP4: *I mean, they stand there laughing at us when we call from the emergency service and we want to hospitalise somebody: "No, you can't just do that without measuring both this and that and without having a broad blood picture and having cultivated the blood and x-raying this and x-raying that."*

Another kind of pressure deriving from colleagues or peers was the pressure to refer patients for scans or other examinations because other practitioners, e.g. physiotherapists or chiropractors, were requesting examinations rather than the GP's assessment. Since the practitioner had already held out prospects of a particular examination to the patient, the GPs experienced the situation as involving a conflict that in most cases would result in giving in to the pressure of the practitioner's request:

FG3GP1: It gets really difficult when they have already written down their suggestions for further diagnosing and then the patient is already expecting you to refer for further diagnostics – then we are kind of checkmate!

FG1GP3:

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And I mean, this is really problematic because this is not what our guidelines tell us to do, but we can end up acting as defensively as ordering an MR scan after all.

DISCUSSION

Summary

In this study, we explored GPs' understandings of and experiences with DM. We found that GPs in a Danish general practice setting understand DM as unnecessary and meaningless medical actions. Drawing on their daily experiences the GPs furthermore reasoned that these defensive actions are carried out as a result of succumbing to daily pressures deriving from four different sources: the system, patients, the GPs themselves and colleagues.

Comparison with existing literature

American and European literature on DM focuses mainly on DM as medical behaviour (either assurance or avoidance behaviour) that follows from malpractice concerns (2, 23, 24). Although complaints constitute a shared concern among the GPs of this study, other forms of pressure appear to motivate a medical behaviour that is experienced as defensive. Our research thus documents that Danish GPs understand DM in a broader and more differentiated way than how the phenomenon has predominantly been defined within the health economical and judicial literature. We assert that if other GPs, physicians and health professionals from similar cultural and organisational contexts understand and experience DM this way then the research findings of this study complement the traditional definition of DM.

Supporting the finding that changes in medical behaviour is not only caused by malpractice concerns but also, and even more pervasively, by externally imposed system pressures, the sociological literature argues that recent changes and reforms to which general practice has been

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subject, such as an increase in external accountability, monitoring and managerial controls as well as the movement towards evidence-based medicine as the dominant rationale for choice of treatment, represent a trend towards disciplining GP behaviour, hereby undermining their autonomy and authority (25-27). Seen from this perspective the GP-perceived system pressures identified in this study might reflect these larger managerial processes in the healthcare system that the GPs' experience as indirectly pressuring them to act defensively.

In line with the understanding of DM as unnecessary and meaningless medical actions, studies investigating GPs' emotional responses to their work in general practice find that medical actions in which the GPs' identity, professionalism and clinical judgement are compromised are experienced as meaningless (25, 27). It is argued that a healthcare system emphasising standardised biomedical evidence-based practice, based on protocols and guidelines as a means to improving population rather than individual health, pays little attention to the context in which primary care consultations take place. The exceptional potential of the primary care consultation is said to include the continuing and personal GP-patient relationship, a multidimensional approach to illness (biopsychosocial) and person-centred medicine (28-30).

As we have seen in the above, many GPs changed their professionally informed behaviours to adapt to the pressures coming from insistent "consumerist" patients insisting on patient rights. Research has described the impact of an increasing consumerist "ethos" in society in which medical professional knowledge is made available to lay people, mainly through the mass media, hereby challenging the medical dominance of the past as well as the professional identity of doctors - and ultimately quality of care (31, 32). The result showing that the well-educated, articulated and young patients with minor health problems constituted a particularly demanding patient group is in line with research showing that consumerism and decreasing patient deference to physicians are influenced by factors such as age, education and by the seriousness of the illness

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(32). Furthermore, our finding that GPs feel pressured to act defensively by patients holding supplemental health insurances is supported by results from a recent Danish study showing that a majority of the 2000 surveyed GPs perceived this patient group as particularly insistent in getting referrals, and that almost half of the surveyed GPs felt a pressure to refer even when short of a medical indication (33).

Relating to the subtheme of "self pressure", physicians' sensitivity to the existential uncertainty of medicine and their concerns about the scope of error is a well-known research theme (25, 34). Furthermore, a vast body of literature describes the emotional impact of mistakes, e.g. how making medical errors affects physicians unfavourably, creating a strong need for support within the medical community (25, 34-37). As the findings of this study demonstrate, support from colleagues in the medical community is sometimes lacking, making the pressure to act defensively even bigger. Relating to this experience, a qualitative study investigating the views of doctors on their working lives, found that physicians' feelings of nostalgia for the past were mainly connected to a loss of opportunities of informal mutual support between colleagues (25). These findings highlight the need for enhancing a supportive organisational climate and for encouraging interdisciplinary collaboration on reducing defensive medicine.

In 2000, Wu (38) introduced the definition of "second victim", meaning that not only patients and relatives may be deeply disturbed by the errors and mistakes made by health professionals (39). From this perspective it can be argued that the GPs of today's medical culture may live an increased risk of becoming "second victims" not only following burdensome complaints, but also as a result of a daily clinical reality in which feelings of pressure from several sources dominate, hereby compromising professional identity, values and ideals.

Implications for practice and research

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Our findings may lead to discussions within the medical establishment about the potential impact of externally imposed policy interventions on GPs' professional autonomy and sustainability of their work. Our findings indicate that DM will not be reduced without fundamental changes in the dominating cultures surrounding modern medical practice. Awareness of an increasingly defensive medical practice culture and its negative implications has paved the way for a much needed political focus, like the "Choosing Wisely" campaign in the UK launched by the Academy of Medical Royal Colleges last year listing forty tests and treatments that are unlikely to benefit patients, now being adopted to a Danish setting (40). Supplementing such campaigns, it may be of benefit to create alternative solutions to reestablish reflexivity in the medical community concerning matters such as core values and ideals regarding professional identity. However, as this study shows, "choosing wisely" is not a "free choice", but involves a support to the physician from e.g. the professional organisation and moreover time and conditions for discussions with the patients regarding pros and cons for an intervention.

Future research should aim at estimating the costs of DM in primary care regarding implications for quality of care, professional motivation and satisfaction, time as well as monetary costs.

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Contributors

EAH, JL, LBP, KMP, AM and MKA were involved in study conception and design. EAH and MKA were involved in acquisition of data. EAH, JL, LBP, KMP, AM and MKA were involved in

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analysis and interpretation of data. EAH and MKA were involved in drafting of manuscript. JL, LBP, KMP and AM were involved in critical revision of the manuscript.

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Competing interests

None declared

Ethics approval

Ethics approval was granted by *The Danish Data Protection Agency* (J. no.: 16/46654).

Data sharing statement

No additional data are available.

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Focus groups N=28 (14 men; 14 women)	1	2	3	4	5	6
Age range	42-58	40-52	54-55	46-52	64-69	30-68
Mean	45	46	54	50	67	45
GP practice type: Group (two or more GPs): G (N) Single handed SH (N)	G (8)	G (3)	G (3)	G (4)	G (4) 1 (SH)	G (5)
Practice location: urban: U (N) or	U (7) R (1)	R (3)	U (1) R (2)	U (4)	U (2) R (3)	U (5)

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rural: R (N)						
Man (N)	0	2	0	4	5	3
Woman (N)	8	1	3	0	0	2
Total (N)	8	3	3	4	5	5

Table 1: Demographic characteristics of participants

Main themes	Probing questions
Understandings of DM	*What do you at first understand by the concept "Defensive medicine" when you hear it?*
Exchange of experiences	*As a way of further approaching the concept, we would ask you to look back on the last couple of weeks in your practice. Can you recall a doctor-patient situation, that you would describe as defensive?*
Motives	*Now that you have listened to each other you might recognize some features and situations from your own practice. If you again recall the specific situation, which you have described, what do you think was the reason(s) for acting as you did?*
Perceptions	*Can you try to describe how you perceived these situations?* - *What kind of feelings did they initiate (if any)?* - *To what extent do these types of situations fill your*

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	mind? - *How often do these types of consultations occur in your daily practice? (e.g. never, seldom, often?)* - *If you look back in time, do you think you would have acted differently ten years ago?*
Experiences with complaints	*Can you try to describe you experiences with receiving complaints?* *If you have received a complaint, how did it affect you? Has it made you change anything in you clinical behaviour?* - *If no, do you think that it would affect your future clinical behaviour?*
Perspective	*If we look back on what we have talked about until now, do you have the same understanding of the concept "DM" as when we started out discussing it?*

Table 2: Interview guide for the focus group interviews

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	6
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	6
Occupation	3	What was their occupation at the time of the study?	6
Gender	4	Was the researcher male or female?	1
Experience and training	5	What experience or training did the researcher have?	6
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	5
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	6
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	6
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	6
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	5
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	5
Sample size	12	How many participants were in the study?	5
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	6
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	6
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	23
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	6
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	6
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	6
Field notes	20	Were field notes made during and/or after the inter view or focus group?	6
Duration	21	What was the duration of the inter views or focus group?	6
Data saturation	22	Was data saturation discussed?	6
Transcripts returned	23	Were transcripts returned to participants for comment and/or	No

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	6
Description of the coding tree	25	Did authors provide a description of the coding tree?	6
Derivation of themes	26	Were themes identified in advance or derived from the data?	6
Software	27	What software, if applicable, was used to manage the data?	6
Participant checking	28	Did participants provide feedback on the findings?	No
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	7-14
Data and findings consistent	30	Was there consistency between the data presented and the findings?	7-14
Clarity of major themes	31	Were major themes clearly presented in the findings?	7-14
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	7-14

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

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