Patients and acute coronary syndrome

Prehospital delay and mental and emotional delaying responses - a qualitative study

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Sammendrag

Nøgleord
Akut koronart syndrom, brystsmerter, forvarsel symptomer, kvalitativ sygeplejeforskning, mental og følelsesmæssig respons

Abstract
In the pre-hospital phase, patients with Acute Coronary Syndrome symptoms delay making contact to medical services. Initiatives taken to improve...
knowledge and reduce pre-hospital delay have proven unsuccessful, and a need to focus on subjective factors was emphasised. The aims of this study were to identify and discuss patient’s mental and emotional responses, including interpretations and delaying strategies concerning Acute Coronary Syndrome symptoms, with a view to elucidating patterns in the pre-hospital decision-making process of female and male persons to contact medical services. A phenomenological design inspired by Steinar Kvale provided the methodological foundation. 15 women and 15 men with a first-time diagnosis of Acute Coronary Syndrome were interviewed 48–72 hours after admission. On symptom debut, the participants’ strategies were to «wait and see» and «let me be». Chest pains were cardinal. Male participants often used expletives and expressed symptoms in concrete terms. Women expressed symptoms in vaguer terms. Both genders used linguistic metaphors. The implications for nursing emphasised the impact of prodromal symptoms, mental and emotional withdrawal, and linguistic presentation of chest pains to understand and reduce pre-hospital delay.

Keywords
Acute Coronary Syndrome, chest pain, mental and emotional responses, prodromal symptoms, qualitative nursing research

Acute Coronary Syndrome (ACS) is responsible for several million deaths worldwide each year (1– 2). Standardised recommendations exist, both internationally and nationally in Denmark, for diagnosis and treatment programmes aimed at ensuring that ACS patients receive the best possible treatment (3–7). The preferred treatment is percutaneous intervention treatment (PCI). However, this treatment requires contact to medical services within a few hours from onset of ACS symptoms. Consequently, a vital issue is how coronary patients respond to their symptoms and avoid delay in contacting medical services.

For several decades, there has been a substantial research focus on the pre-hospital actions of ACS patients (8–14). However, the research findings fail to provide a solid foundation for understanding and reducing pre-hospital delay. Studies have focused on the time lapse between ACS symptom onset and initiation of treatment (15–20). Most of these studies have encompassed clinical and socio-demographic factors, based on medical records, to explain the pre-hospital actions of ACS patients. Some of the studies indicated that women delay contact with medical services longer than men do. This was primarily attributable to atypical symptoms, lack of knowledge about symptoms, denial of symptoms, and attempts to retain control by treating themselves (12, 21–24). Other studies show that it is doubtful how much clinical and socio-demographic factors influence the timing as to when women and men seek medical help (12, 25–28).
Knowledge of symptoms has been acknowledged as vital to how quickly patients suffering from ACS interpret their symptoms as being cardiac-related and contact medical services (12, 17). However, doubts have been voiced as to whether cognitive factors may have an effect in avoiding hospital delays. It has been demonstrated that public education campaigns aimed at increasing community awareness were ineffective, whereas patients’ subjective experiences and interpretations regarding the severity of their symptoms were significant predictors of reduced delay times (12, 29–32). Despite many years of research and interventions aimed at reducing response times, the problem of ACS and pre-hospital delay remains unsolved.

AIMS
The aims of this study were to identify and discuss women’s and men’s mental and emotional responses, including interpretations and delaying strategies concerning Acute Coronary Syndrome symptoms, with a view to elucidating patterns in the pre-hospital decision-making process of female and male persons to contact medical services.

«Emotional responses» are understood as women’s and men’s ACS symptom experiences, feelings, and spontaneous reactions. «Mental responses» are understood as the application of knowledge, interpretations, and linguistic presentations of ACS symptoms.

METHODS
The study employed a descriptive phenomenological design inspired by Steinar Kvale (33–34).

Participants
The study included 15 women and 15 men under the auspices of a medium-sized hospital in the Mid-Jutland region of Denmark. The inclusion criteria were: women and men between 40 and 75 years of age; hospitalised for the first time with the diagnosis ACS; mentally and physically able to take part in an interview lasting between half an hour and 45 minutes; able to comfortably understand and speak Danish; and able to partake in interviews 48–72 hours after admission. Exclusion was made in accordance with these criteria. The participant profiles are detailed in Table 1 and Table 2.

Data collection
An interview guide provided questions for the participants to answer or ponder about (33–35). Firstly, to yield a participant profile, the interview guide contained a structured section focusing on clinical and socio-demographic factors for example age, material status, ACS risk factors like smoking and diet, and
diagnosis. Secondly, the interview guide contained a semi-structured section with a few open-ended questions concerning participant experiences and responses relating to pre-hospital symptoms of ACS, interpretations of symptoms, thoughts, reactions, and actions in the pre-hospital phase, including the decision-making process regarding contact to medical services. In this second section, the interviewers’ were to listen actively, use open-ended follow-up questions, and encourage the participants to describe their pre-hospital symptoms, thoughts, and reactions in their own language. The interviews were audio taped, and transcribed verbatim.

A clinical nursing specialist identified potential participants and coordinated the recruitment process. Four specialised cardiology nurses – unfamiliar with the participants’ – approached eligible patients, handed out plain language statements and consent forms, recruited participants, and performed interviews. This project team had previously been trained by the authors in recruiting participants and conducting interviews in line with the recommendations by Kvale (33–34) and The Helsinki Declaration (36). This set-up was chosen because the cardiology nurses were capable of reacting to participant distress during the interview, to participant questions related to heart diseases, and capable of assessing the interviewee’s medical condition and taking any necessary action if signs of cardiovascular distress arose. Furthermore, they were capable of reporting any participant distress to the contact nurses for further actions. All the participants were informed about the study in writing and orally, and they all gave written consent to participate. All participants were pain-free when interviewed.

The interviews were supplemented by medical journal reviews regarding the participants’ overall health condition, their present medical condition, and treatment.

The study was approved by the Danish Data Protection Agency, reference number 2007-54-0234, and the relevant hospital authorities issued their approval for data collection.

**Data analysis**

The first step was to outline participant profiles and organise clinical and socio-demographic characteristics from the interviews and the medical journal review in tabular format (Table 1 and Table 2). The profile information provided a foundation regarding each participant’s situation and the opportunity to begin to identify relevant patterns. The basis for the identification was to choose a participant for example participant 5, and note down her details. Doing so in connection with each participant, preliminary patterns regarding for example thoughts about the pre-hospital situation and needs regarding contact to medical services (Table 2) began to show.
The second step was to analyse data from the semi-structured interview section. This was done phenomenologically inspired by Kvale’s recommendations for meaning condensation (33–34). The interviews were listened to, read, and re-read. In this process, preliminary patterns from step one were detailed, strengthened or weakened, and new arose. Statements with consistent patterns, for example regarding the family history of ACS and the participant’s interpretation of the pre-hospital situation, and the need of help from family members or significant others to contact medical services, were illuminated, categorised, and the final categories were attributed central themes.

Peer debriefing (33–34) was used in the way that data was analysed by the first and second authors, independently and in collaboration; also, after preliminary patterns were formed, the project team was invited to a one-day seminar to discuss their first impressions and concerns regarding two anonymised interviews, one with a woman, and one with a man. Afterwards the first and second authors continued their condensation processes. Primarily, the ambition was to put the authors’ pre-understanding in brackets and turn to the case in itself (37). As a consequence, the focus was on participant statements, as they presented themselves. Nevertheless, in the process of performing categories, the authors used interpretation strategies, including pre-understanding inspired by the preliminary patterns and patterns related to ACS relevant literature. However, together, they tried to keep each other to the primarily ambition, to illuminate blind spots and irrelevant pre-understanding, to include all relevant perspectives, and all over to keep participant statements in focus and secure trustworthiness (38).

FINDINGS

Participant profile

The participants were included in the study in accordance with the inclusion criteria, as they were admitted to hospital during a period of two years. Their identification numbers indicate the sequence of inclusion (Table 1 and Table 2).

In this study, the average age for women was 62.8 years, and for men 58.6 years – a difference of 4.2 years. Ten females of 15 and eight males of 15 were 60 years old or above. The social characteristics revealed a pretty uniform profile, for example lived 23 of 30 in a partnership and 26 of 30 in owner-occupied homes (Table 1).

With regard to ACS risk factors, there was almost the same number of female smokers as male smokers. 12 females of 15 exercised physically; the same counted for 9 men of 15. The average BMI was 24.6 for women and 29.9 for men. Six women of 15 had a BMI within the normal range, while three women had a BMI below this level. One man had a BMI within the normal range, while the rest were above. Six participants stated a high-fat diet, hereof five men (Table 1).
The participants were included in the study on the basis of the two main diagnoses: Acute myocardial infarction – stemi and non-stemi – and unstable angina pectoris (Table 2). Treatment was initiated in accordance with principles laid down by the Danish Society of Cardiology (4) and The National Health Board (7). Only a minority of participants were admitted to hospital in time to enable PCI (Table 2).
### TABLE 2: CLINICAL CHARACTERISTICS AND PRE-HOSPITAL RESPONSE

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* PCI = Percutaneous Coronary Intervention
# AMI = Acute Myocardial Infarction
§ UAP = Unstable Angina Pectoris
The presence of a family history of ischemic heart disease, which is understood as verified ischemic heart disease in biological parents and/or brothers and sisters, was striking (Table 2): About two third of the participants (21 of 30) stated a family history, but this fact didn’t necessarily make them relate their pre-hospital symptoms to a heart condition. A majority of these participants (17 of 21) needed bystanders to help them contact medical services. Furthermore, almost all the participants with a family history of ischemic heart disease (8 of 9) who did relate their pre-hospital condition to a heart disease needed bystander assisted contact to medical services.

The condensation process resulted in two categories: The response to Acute Coronary Syndrome symptoms – a situation influenced by pain and withdrawal, and The contact to medical services – a decision for bystanders.

The response to Acute Coronary Syndrome symptoms – a situation influenced by pain and withdrawal

According to this first category, three essential themes were condensed: Chest pains and evasive explanations – the delaying impact of prodromal symptoms, Death thoughts and closing the mind – the delaying impact of mental and emotional withdrawal, and Expletives, metaphors, and vague statements – the delaying impact of the linguistic presentation of chest pains.

Chest pains and evasive explanations – the delaying impact of prodromal symptoms

At the onset of symptoms a large proportion of the participants (24 of 30) had experienced warning signs – so-called prodromes (Table 2) – particularly in the form of stabbing or tight sensations in the chest, or even chest pains on one or more occasions. The prodromal symptoms disappeared for hours or days, but later returned. The symptoms had occurred anywhere between a few hours and a year prior to hospitalisation. The participants did not necessarily connect prodromal symptoms with a heart condition. They were alarmed, but got used to the fact that the symptoms would disappear again; and they developed attitudes of «this is trivial», and «this will pass».

A majority of both women and men believed their prodromal chest sensations or pains to be caused by trivial health conditions like for example influenza: «I had pains in my chest, but I thought it might be a little flu» (F-22); or stress: «I had a little pain in my chest. I thought it had something to do with stress, because of my birthday party» (M-19).

If the warning symptoms were short-term, the participants did not feel that they needed to «inconvenience» their general practitioner (GP). However, a few female participants wanted a check-up, but felt that the GP minimised their symptoms. One of them said: «I’ve told him about my chest pains several times, but he believed it was my stomach. I didn’t believe him, but one counts...»
on GPs to know about these things» (F-17). The men did not contact their GPs. They considered it but commented that the GP would probably say they were making a fuss: «I don’t want to be laughed at if there’s nothing wrong» (M-2); and: «Perhaps I should have seen my GP, but I don’t inconvenience my GP for nothing» (M-16).

Participants experienced that prodromal symptoms disappeared for a while and subsequently returned. After this had happened several times, they felt reassured that their symptoms would pass: «I counted on the symptoms to disappear like the other times» (F-1); and kept it to themselves: «I felt a pressure in my chest several time in the last six months, but it disappeared every time, and I told nobody about it» (M-16).

These experiences supported attitudes of «this is trivial» and «this will pass», and contributed to participants forming a strategy of «wait and see»; a strategy which played a prominent delaying role in the decision-making process regarding contact to medical services.

Death thoughts and closing the mind – the delaying impact of mental and emotional withdrawal

Upon onset of the acute ACS symptoms that led to hospitalisation, the interviewees reported feeling like they might be dying but simply let things happen, feeling calm and inspired by a sense of defeatism: «If it ends well, then it ends well. If not, well, ... if my number’s been drawn, then it’s been drawn» (M-4); or: «I KNEW I could die from this, absolutely. If I did, no one could prevent it» (F-26).

The participants’ worst experience was finding themselves at the mercy of extremely unpleasant physical symptoms. These symptoms dominated the participants in a manner that prevented them from talking about them, answering questions from concerned relatives, and worse, prevented them from reacting advisably to the severity of their condition: «I lied to my family. At first I hid it then I snapped at them. But luckily, I managed to explain something, so they rang for help» (M-12); or: «I didn’t talk to anyone about it, not even my husband. I closed off my mind completely» (F-30).

This form of withdrawal occurred as a direct consequence of extremely disturbing experiences with bodily symptoms. The participants could not be bothered with the world around them. They preferred to be left alone. Obviously, they needed help, and they were grateful for it after treatment; but in the prehospital situation they withdrew mentally and emotionally and were unable to deal with the issue of calling upon medical assistance.

One form of withdrawal was deliberate. The participants refrained from telling anyone about their symptoms, wishing to protect their family from distress: «I didn’t talk about how bad it was. I didn’t want to let my daughter and grand-
Both forms of withdrawal contributed to a strategy signalling «let me be», and along with «wait and see» these strategies constituted crucial delaying factors in the decision-making process concerning contact to medical services.

**Expletives, metaphors, and vague statements – the delaying impact of the linguistic presentation of chest pains**

In the acute phase, all interviewees reported experiencing physical distress involving the chest region, but these experiences were described differently. Clearly they had experienced pains, but often, neither the term «pain» nor any derivations of the word were used. From a gender perspective, the linguistic presentation of chest pains was distinctive. Men often used expletives to express the intensity of pain: «It hurt so damned much. I believed it would pass, but it just bloody didn’t» (M-3); or: «Then I woke up, and Christ Almighty, it was pure hell» (M-4). Occasionally, a couple of women also used expletives, but rarely when describing symptoms.

Regardless of gender, the participants often described chest pains by using metaphors and similes, as: «It felt like there was an elephant standing on my chest» (M-2); or: «It felt as if a lump of food was stuck in my food pipe» (F-5 and M-13). The metaphors used supported the findings of gender differences regarding the linguistic presentation of chest pains, as the men used stronger metaphors than the women.

Often female participants described their chest pains in vague terms: «Then I started to feel so poorly» (F-5); or: «It hurt, and I felt strange» (F-27). The women did not play down their symptoms as such; listening to their words from the interviews, clearly they had chest pains and were in agony. Nevertheless, they described their pains using less emphatic and less concrete expressions, than male participants used.

Finally, a few participants of both genders actually described their chest pains as «pains»: «I woke up with pains in my chest and in my left arm» (M-10); or: «I felt pains in the form of a heavy pressure in my chest» (F-23).

Participants of both genders reported strong, unendurable chest pains. Upon receiving their ACS diagnosis, however, more women than men expressed that they had thought the pains would have been worse.

Clearly, the strategies «wait and see» and «let me be» had a major impact on pre-hospital delay. In this respect, the linguistic presentation of the participants' chest pains might be more controversial. The linguistic presentations occurred in interviews conducted hours after the actual incident. Even so, the linguistic presentations were strikingly in each interview.
The contact to medical services – a decision for bystanders

The Danish recommendation to the public when there is suspicion of ACS is to call for a medical emergency team (7). With regard to this second category, the vital themes that emerged were: Interpreting symptoms – the questionable impact of knowledge, and Contacting medical services – a facilitating task for bystanders (Table 2).

Interpreting symptoms – the questionable impact of knowledge

In the acute phase, a majority (18 of 30 participants) did not associate their situation with a heart condition at all (Table 2); not even if they exhibited classic symptoms such as chest pains, pains radiating into the left arm, breathing difficulties, and had a known family history of ACS: «It hurt so much in my chest, I had difficulty breathing; but I didn’t think it was my heart» (F-5); or:

I had severe pains in my chest. I couldn’t breathe, but I didn’t think it had anything to do with my heart, not until [I was] in the ambulance, when they told me. My father was 53 when he died of a heart attack, and my mother had one when she was 60, but I didn’t think ...

(M-12).

The study revealed that the participants possessed some knowledge of heart-related risk factors: Participants who were smokers; who ate lots of sweets, cakes and fat foods; and who were overweight or obese (Table 1) were aware that they could be at risk of cardiac problems. The participants revealed this knowledge after receiving treatment, talking about their future: «I cannot hide it ... I love cakes and fat foods. I do physical exercise regularly, but I’ll have to do more ... and eat more vegetables» (M-19); or: «Now it’s crucial that I quit smoking, and begin to exercise more» (F-28). Other participants revealed an awareness of risk factors, talking of their surprise at receiving an ACS diagnosis: «I’ve never associated myself with being «at risk». I’ve never smoked, I’m not overweight, and I do physical exercise» (M-21); or: «We’ve led a really healthy life style, so I was completely taken aback when they told me it was a heart attack» (F-23).

Retrospectively, even participants who didn’t connect their pre-hospital symptoms to a heart condition did possess knowledge of ACS symptoms and risk factors. However, this knowledge was not activated until the participants were informed of their diagnosis. Consequently knowledge seemed to play a minor role in their decision-making when contacting medical services – or not.

Contacting medical services – a facilitating task for bystanders

In the acute phase, a majority of the participants did not call for a medical emergency team, immediately. They tried to stay calm and treat themselves by taking painkillers, by staying in bed, or by taking other steps that they deemed to be appropriate. They postponed the decision to contact medical services, and sometimes even opposed it; and they required assistance from family
members, neighbours, or other bystanders to get the medical help they needed (Table 2).

A considerable proportion (25 of 30 participants) required active assistance from facilitators to establish contact with medical services (Table 2). In this study a «facilitator» is defined as a bystander providing active assistance to put the patient into contact with medical services. In doing so, it was a huge challenge for the facilitators to conquer the participants’ hesitation: «When it [the attack] came, my colleague insisted that I contact medical services. When I hesitated, finally she did it herself» (F-17); or to conquer mental and emotional withdrawal: «I believed it would disappear again. Several times my daughter asked if I felt better, and I told her that I did; but I didn’t. I just didn’t want to be bothered» (F-1); or to conquer direct resistance: «I DID NOT want to let my son contact the medical service. But he stood there, gritting his teeth – he was very angry with me – and he said, «MOTHER, you HAVE to go to the hospital!» (F-5).

The decision to contact medical services proved to be a hard decision. In many cases the person afflicted with ACS played a delaying role; and the study’s findings indicate that facilitators may be obliged to take on highly proactive roles when they witness someone having a heart attack. In the final analysis facilitators may have to overrule an ACS victim’s wishes and assume responsibility for making the vital contact.

**DISCUSSION**

Generated from the findings three delaying phenomena are discussed: Prodromal symptoms – an essential pre-hospital phenomenon, Chest pains – an ambiguous key symptom, and Mental and emotional retraction – a challenging obstacle.

**Prodromal symptoms – an essential pre-hospital phenomenon**

A large proportion of the interviewees (24 of 30) had experienced prodromal symptoms (Table 2), and the question is how important these experiences may be in terms of pre-hospital delay?

Studies indicate that ACS patients are highly inclined to «wait and see» (8,10,18,27,39), so it is conceivable that experienced disappearance of previous prodromal symptoms means that patients tend to anticipate developments, expecting symptoms to disappear. Certainly, this study found that to be the case.

Over time, prodromal symptoms have been identified as a factor affecting pre-hospital delay. The literature, however, is mainly old and sparse. It has been reported that ACS patients often experience prodromal symptoms (18,24,40–
Despite the identification of prodromal symptoms, the impact of such symptoms on pre-hospital delay has only been rarely discussed.

In line with our findings, Simon et al. (40) mentioned the risk that patients did not perceive previously experienced symptoms as alarming and therefore refrained from contacting medical services during new episodes. Schroeder et al. (41) regarded the occurrence of prodromal chest pains as unsuitable for the purpose of diagnosing ACS, as this symptom does not leave clinically relevant traces. Prodromal chest pains were therefore considered to be of minor interest. More recently, in 2010, Gallagher et al. (42) found that female participants described a pattern of escalating prodromal symptoms up to the ACS event; and that the involved GPs failed to acknowledge the severity of these symptoms.

This study has emphasised that prodromal symptoms played a substantial delaying role in the decision-making process regarding the participants’ contact to medical services. Consequently the significance of this phenomenon as a decision-making factor merits further considerations and calls for attention in future research.

**Chest pains – an ambiguous key symptom**

In the acute phase of ACS, chest pains were a key symptom. The literature in this area is ambiguous. McSweeney et al. (43) found that male patients primarily experienced chest pains, whereas chest pains were only experienced by about one third of female patients. Milner et al. (44) found that chest pains were the most frequent symptom in both genders, but more than one in three women did not experience such pains. Recently Kahn et al. (45) support the finding that chest pains are the most frequent symptoms in both gender and stress the need for more attention in assessing chest pains.

The literature indicates a need for more knowledge as to how women and men experience chest pains. Perhaps just as important, however, is how they verbalise their experiences. The findings in this study indicated that women and men employed different verbal expressions when describing their symptoms. Unlike the female approach, often the male approach was to use strong and coarse language when describing the intensity of the pains. The word "pain", or derivations of this word, was not necessarily employed by the participants. The interviewees often verbalised their experiences of pains using metaphors and similes illustrating that something was terribly wrong in their chest region, or using vague terms that could suggest more trivial health conditions.

A couple of studies have identified language use and linguistic self-presentation as significant factors relating to ACS patients of both genders. Philpott et al. (46) found that women tended to use a story discourse and men a factual discourse about their symptoms. Vodopiutz et al. (47) found that women described themselves as pain-enduring and described their symptoms dif-
fusely. Men, on the other hand, presented themselves as interested in causes and as observing and describing their symptoms concretely. Our findings supplemented these findings, but more so, emphasised the need for more attention to the presentation of chest pains. No studies were found that examined the chest pains of ASC patients as expressed in metaphors and similes.

Mental and emotional withdrawal – a challenging obstacle
The findings demonstrated that mental and emotional withdrawal was an important phenomenon in relation to pre-hospital delay. In the literature this phenomenon has been described using the psychological term «denial» (15,47). The findings of this study revealed that participants were fully aware that their situation was serious and might be fatal. Despite this, they were unable to talk about their situation and make appropriate decisions about contacting medical services – not because they did not want any help, but because they were so much at the mercy of their symptoms that they were unable to think advisable and take suitable action. Dubayova et al. (48) refer to the phenomenon as «avoidance behaviour», while Moser et al. (12) refer to it as «distracting oneself from symptoms». According to Dubayova et al., avoidance behaviour is a coping strategy to reduce the level of fear. They recommend that healthcare professionals increase their knowledge about this phenomenon. Moser et al. state that coping is the essential issue for patients. They suggest that researchers ought to move from socio-demographic and health-history factors related to ACS and pre-hospital delay to social, cognitive, and emotional factors in order to fully understand the phenomenon of delay. Since Moser et al. special emphasis has been placed on ACS and cognitive knowledge, but the results of interventions to enhance knowledge and awareness and reduce delay have been disappointing or inconclusive (17,31). However, in recent years the significance of slow-onset and fast-onset of ACS symptoms might prove fruitful in reducing pre-hospital delay (49–50). Our study emphasised that retrospectively, patients demonstrated that they possessed knowledge of ACS symptoms, but that this knowledge seemed to be inactive in the pre-hospital phase. It also emphasised that subjective mental and emotional factors seemed to play the central role in patients afflicted with ACS.

Study limitations
The phenomena of prodromal symptoms, mental and emotional withdrawal, presentation of chest pains, and bystander facilitated contact to medical services were identified as essential to ACS and pre-hospital delay. Searching the literature more decades back, we found that these phenomena were mentioned, but rarely discussed as important – in that respect our findings provided new perspectives. The research design proved successful in identifying these important phenomena, but unsuccessful in explaining the phenomena in all its’ aspects. A qualitative study based on field observations in the acute phase followed by interviews after the necessary acute treatment might have proved...
more relevant to produce new knowledge. However, we have assessed this to be an impossible task to take on, partly on design and partly on ethical reasons.

The fact that the interviews were conducted 48–72 hours after the necessary acute treatment raised medical and ethical dilemmas; hence the decision to let cardiology nurse specialists, unfamiliar to the participants conduct the interviews which we assessed a minor dilemma than should the authors conduct interviews. The training of the specialists to conduct interviews was accomplished, thoroughly. Nevertheless, the semi-structured part might have provided more data had the authors done the interviews themselves.

In spite of the limitations, we assess our findings to provide new insight and a solid basis for further qualitative and quantitative studies. As a qualitative study, we assess that the number of participants was adequate to achieve data saturation (33–34).

CONCLUSION

As concerns acute coronary syndrome and pre-hospital delay, the findings revealed that the participants adopted attitudes that led to the strategies of «wait and see» and «let me be». They hoped that their symptoms would pass. When escalating, they were aware that their pre-hospital condition was life-threatening but were at the mercy of their symptoms, could not be bothered, and withdrew emotionally and mentally. They expressed defeatism, downplayed symptoms, and tried to avoid or oppose contact to medical services. For most participants, knowledge about risk factors and heart related symptoms was inactive until the diagnosis was established, and knowledge played a secondary role to bodily symptom experiences and emotional and mental responses. The linguistic presentation of chest pains indicated gender differences.

The findings suggested that nurse researchers should investigate emotional and mental reactions and the pre-hospital decision-making process of patients with Acute Coronary Syndrome in both genders to develop better understanding and better initiatives for reducing pre-hospital delay. Also, that in the primary health care sector, clinical nurses and physician should focus on prodromal symptoms, mental and emotional withdrawal and linguistic presentation of chest pains to better understand the pre-hospital situation of patients with complaints in the chest, stomach, neck, and back. And finally, that public campaign should address, inform, and educate citizens as potentially proactive facilitators in episodes involving persons with Acute Coronary Syndrome.

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AUTHOR CONTRIBUTION
The first and second authors elaborated the overall methodological design, supervised the data collection, conducted the qualitative analyses, and critically discussed content issues.

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ETHICAL APPROVAL
The study was approved by the Danish Data Protection Agency, reference number 2007-54-0234, and the relevant hospital authorities issued their approval for data collection.

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