

DISCURSIVE PAPER

Experiences of unexplained chest pain and physical activity: A Meta-Ethnography

Ingrid Ølfarnes Røysland RN, MSc, Associate Professor¹  | Harshida Patel RN, Associate Professor² 

¹Department of Public Health, Faculty of Health Sciences, University of Stavanger, Stavanger, Norway

²Institute of Health and Care Sciences, The Sahlgrenska Academy, University of Gothenburg, Göteborg, Sweden

Correspondence

Ingrid Ølfarnes Røysland, Department of Health Studies, Faculty of Health Sciences, University of Stavanger, Stavanger N-4036, Norway.
Email: ingrid.roysland@uis.no

Abstract

Aims and objectives: The aim was to examine the experiences of physical activity in the patients with unexplained chest pain.

Background: Previous qualitative studies have compiled data on the physical activity experiences of people with unexplained chest pain. Nevertheless, no meta-synthesis exists on this topic to advance the theoretical development of future-related studies.

Design: A meta-ethnographic synthesis of qualitative studies was conducted. Original qualitative studies on the physical activity experiences of people with unexplained chest pain were identified and systematically synthesised using a meta-ethnographic approach.

Methods: Seven databases were searched for relevant full-text articles in English, Danish, Norwegian and Swedish. There were no limitations concerning year of publication. Articles were first screened against inclusion criteria for eligibility and then assessed for quality and analysed using Noblit and Hare's seven-step meta-ethnography process. The ENTREQ checklist for systematic reviews was used.

Results: Nine qualitative studies were included in the analysis. The physical activity experiences of people with unexplained chest pain illuminates the metaphor: "Physical activity means balancing uncertainty" with four themes: *looking for possible explanations, feeling vulnerable, feeling uncertain of consequences and being physically active may mean becoming more capable.*

Conclusion: For people with unexplained chest pain, being physically active meant moving toward being more capable. The participants felt vulnerable and physical activity helped in balancing uncertainty. A comprehensive model illustrates the antecedents and succedent for the physical activity experiences of individuals with unexplained chest pains.

Relevance to clinical practice: An approach to care which considers the patient's experience might be applicable; however, it needs to be accompanied with a biomedical perspective. Nurses and other health professionals need to provide a bridge between the patient's experiences and health professionals' advice and recommendations.

No Patient or Public Contribution as this is a literature review.

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2022 The Authors. *Journal of Clinical Nursing* published by John Wiley & Sons Ltd.

KEYWORDS

experience, heart-health, meta-ethnography, meta-synthesis, physical activity, unexplained chest pain

1 | INTRODUCTION

Chest pain with a normal coronary angiogram implies that the chest pain is unexplained. The expression “unexplained chest pain” has often been used when referring to chest pain without obvious organic causes (Garroni & Fragasso, 2018; Ockene et al., 1980; Robertson, 2006). It is sometimes called a “puzzling condition.” Unexplained chest pain constitutes a diagnostic and therapeutic challenge, and in addition to the illness experience, it challenges patients' daily life. Practically since the advent of coronary arteriography, the condition described as “chest pain with normal coronary angiogram,” “non-specific chest pain,” “atypical chest pain,” “cardiac syndrome x,” “microvascular dysfunction,” and “microvascular angina” has puzzled health professionals and patients (Kaski et al., 2013).

In recent decades, there has been an increase in research related to biological explanations for unexplained chest pain, with specific progress reported in the diagnosis of myocardial ischemia (Kaski et al., 2018). Of special interest is the paradigm change from addressing unexplained chest pain as purely macrovascular to regarding it as microvascular disease (Kaski et al., 2018). These developments highlight the importance of awareness of the changes in explanatory focus.

Regardless of the level of biological explanation, unexplained chest pain impairs daily life and circumstances (Chambers et al., 2015). Patients have symptoms of chest pain, but there are often no signs, as microvascular function is difficult to directly visualise (Safdar et al., 2018). The vast medical and technical advances of the last century have created increased possibilities for investigation and treatment. However, there exists a risk of undermining a person's illness due to a tendency to seek an objectively measurable disease. Healthcare practices must embrace both aspects.

There are increasing number of studies investigating the cause of unexplained chest pain and various treatments (Chambers et al., 2015; Suhrs et al., 2018), physical activity is an important part of rehabilitation programs for cardiac heart disease (Dibben et al., 2018; Kaminsky et al., 2019; Khanji et al., 2018). There are also indications of avoidance behaviour in relation to physical activity (Jonsbu et al., 2011; Nelson & Churilla, 2015). People with unexplained chest pain may avoid physical activity because of concerns about their heart (Simoný et al., 2015). Chambers et al. (2015) claim that research into noncardiac chest pain has largely emphasised excluding coronary disease rather than facilitating clear and concrete management of the chest pain. Chest pain is one of the most usual medical problems in medical situations worldwide (Safdar et al., 2018). Cardiac heart disease is one of the most expensive healthcare conditions (Shaw et al., 2018). There is a greater need of attention to the patients' experience to place their symptoms and understand bodily changes (Busvold & Bondevik, 2018).

What does this article contribute to the wider global clinical community?

- Persons with unexplained chest pain live their lives in a balancing act of doing or avoiding physical activity.
- These persons confront ambiguity related to physical activity and need precise and individualised information based on their resources.
- Nurses can use the insights gained from this study to develop person-centred care approaches to support patients' physical activity.

To understand the individual on the body's premises, the persons sense-making activity must be explored. Lack of understanding of their condition is one aspect mentioned along with patients experiences of noncardiac chest pain (Webster et al., 2015).

There are challenges around symptom attribution, attitudes to help, and seeking a response to symptoms (Nolan, 2017). Repeated medical care consultations related to ongoing symptoms like chest pain require a large component of care cost (Safdar et al., 2018). Physical activity can be an alternative method to increase wellbeing in people with unexplained chest pain like in other cardiac diseases (Dibben et al., 2018; Khanji et al., 2018; Kaminsky et al., 2019). Physical activity in illness can be a socially constructed phenomena, including people's needs, experiences, behaviour, motives, desires and expectations.

Meta-synthesis interprets and integrates the qualitative research findings of a particular phenomenon with consideration of variations. Previous qualitative studies have examined the experiences of people with unexplained chest pain during physical activity. Despite a plethora of literature on cardiac heart diseases, there is still no comprehensive review compiling the evidence on patients with unexplained chest pain and their physical activity experience. The current Meta-synthesis will be an effort to advance current knowledge by blending together the qualitative papers studying the unexplained chest pain and physical activity. Summing up this problem, calls for further exploration of the how people with unexplained chest pain experience physical activity.

1.1 | Aim

The aim was to examine the experiences of physical activity in the patients with unexplained chest pain.

This meta-synthesis addresses the following research question:

- What are the experiences of physical activity in people with unexplained chest pain?

2 | METHODS

2.1 | Design

This review adopted a meta-synthesis approach based on the interpretative meta-ethnography method described by Noblit and Hare (1988). A meta-synthesis attempts to integrate results from interrelated qualitative studies, findings that are themselves interpretive synthesis of data. According to France et al. (2018), meta-ethnography is a complex and distinct and influential methodology and one of the most widely used qualitative evidence synthesis methodologies in health and social care research. The authors followed the enhancing of transparency in reporting the synthesis of qualitative research (ENTREQ) (Appendix S1) in reporting this meta-ethnographic study (Tong et al., 2012). Both the authors worked together throughout the research process.

2.2 | Search and selection strategy

The following databases were searched, with the final searches performed in July 2022: Cinahl (Ebsco), Academic Search Ultimate (Ebsco), Medline (Ebsco), Embase (Ovid), Cochrane Central Register of Controlled Trials (Cochrane Library), Scopus, and Web of Science Core Collection. The reference lists of the included articles were also screened to find relevant studies. The searches were also conducted on relevant websites, such as Google Scholar and the World Health Organization. Four studies were identified from websites, and no study was retrieved from organisational homepages. The first author and the librarian searched the literature together and the second author searched separately. After individual searches were performed, both authors worked together to work further on identifying eligible studies based on aforementioned criteria. Search strategy is described in Appendix A.

The search strategies consisted of search terms for unexplained chest pain or microvascular angina/cardiac syndrome x, combined with search terms for physical activity. Selected search terms related to qualitative research were also added to limit the results by study design. The search terms were found in MESH database. Since the search terms "x syndrome" and "syndrome x" for cardiac syndrome x resulted in a significant amount of references regarding metabolic syndrome x and fragile x syndrome, these were removed using the Boolean operator NOT.

The following terms used: *unexplained chest pain, non-specific chest pain, chest pain with normal coronary arteries, cardiac syndrome x, atypical chest pain, microvascular dysfunction, chest pain without obvious organic cause, chest pain and normal coronary angiogram, physical activity, exercise and exercise training.*

The following Boolean phrases yielded the most relevant results: (experience* OR perspective* OR perception*) AND ("unexplained chest pain*" OR "non-specific chest pain*" OR "chest pain with normal coronary arteries*" OR "cardiac syndrome x*" OR "atypical chest pain*" OR "microvascular dysfunction*" OR "chest pain without obvious organic cause*" OR "chest pain and normal coronary

angiogram*") AND ("physical activity*" OR exercise* OR "exercise training*") AND (qualitative OR phenomenology OR hermeneutic OR phenomenological-hermeneutic* OR "hermeneutic phenomenology" OR "nursing research" OR ethnography OR "grounded theory" OR interview* OR observation* OR "focus group*").

The inclusion criteria were peer-reviewed empirical qualitative studies that focused on the experiences of physical activity in people with unexplained chest pain. No restrictions were applied to the years searched, but the papers included were limited to English, Danish, Swedish and Norwegian publications only and published in online peer reviewed journals.

Studies involving quantitative methods, mixed-methods design, meta-synthesis and systematic reviews were excluded.

Initial searches resulted in a total of 465. All search results were exported to EndNote, where they were deduplicated ($N = 192$). Six studies were identified from the reference lists of the included articles. Out of the 10 studies identified via other methods, eight were screened. Two were excluded because of being doctoral thesis. Of these eight studies, seven studies could be included. One was excluded because of the use of mixed method.

All the 273 studies were initially selected by reading the title and abstract. In the next step, full-text versions were read to find relevant studies, which were included if the content was adequate in relation to the aim of the current study. In the last step, full-text versions of the remaining articles were read and reread to finalise eligible studies to appraise quality of the studies using CASP checklist. Of the 475 original articles, including duplicates, only nine met the inclusion criteria. A PRISMA flow diagram (Page et al., 2021) (Figure 1) was developed to illustrate the process of inclusion of relevant studies.

2.3 | Quality assessment and data extraction of included studies

The quality critical appraisal tool of the Critical Appraisal Skills Programme (CASP) Oxford (CASP, 2018) was used to assess the trustworthiness and quality of the selected studies. The data extraction template was created to record relevant study characteristics, such as purpose, research design, sampling method, sampling and sample and quality scores. Two authors (Author I and author II) independently scored the articles and classified them as low or high quality (CASP scores of 0–5 and 6–10, respectively). The quality scoring of the studies showed a high degree of agreement between the two authors, with an interrater reliability of 97%. Discrepancies were resolved by consensus discussions. All studies were of high quality, as per the CASP criteria (Long et al., 2020).

2.4 | Ethical considerations

As this is a review, ethical assessment is not relevant; however, all included studies emphasised ethical considerations.

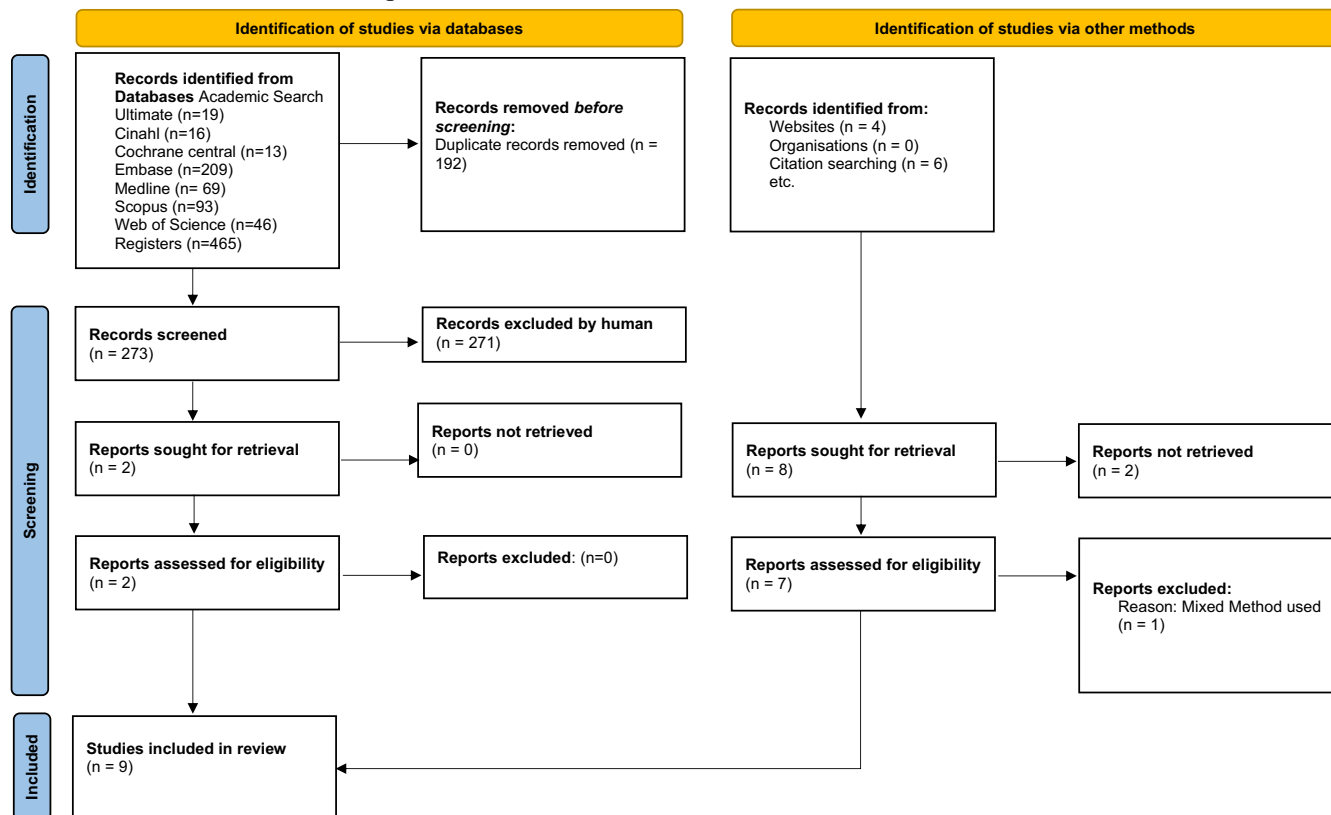


FIGURE 1 PRISMA flow diagram (Page et al., 2021)

2.5 | Analysis and synthesis of included studies

Nine qualitative studies met the inclusion criteria. Seven of the studies were from Europe, specifically the Nordic countries of Norway (Røysland et al., 2013, 2017; Røysland & Friberg, 2016) and Sweden (Fagring et al., 2005; Jerlock et al., 2005) and the United Kingdom (Price et al., 2005; Webster et al., 2015). One study was from Canada (Angus et al., 2005). Eight of the studies reported on the results of individual interviews (Fagring et al., 2005; Jerlock et al., 2005; Price et al., 2005; Røysland et al., 2013, 2017; Røysland & Friberg, 2016; Turrís & Johnson, 2008; Webster et al., 2015), one on the addition of diaries, and one with observations. One study presented the findings of focus groups (Angus et al., 2005).

Two studies aimed to describe the experience of unexplained chest pain and its influence on daily life situations and physical activity (Fagring et al., 2005; Jerlock et al., 2005). One study described the information requirements of patients with unexplained chest pain and their physical activity (Røysland et al., 2013). Another study explored how women seeking treatment for symptoms of potential cardiac illness interpreted their symptoms, made decisions about seeking treatment, and understood the experience of care in the emergency department (Turrís & Johnson, 2008). One of the studies aimed to understand the needs and experiences of rapid access chest pain clinic attenders and determine the acceptability and effectiveness of simple procedural changes (Price et al., 2005). One study examined patients' perception and experience of noncardiac chest

pain within the framework of the common sense model (Webster et al., 2015). Another study explored the experience of unexplained chest pain and physical activity (Røysland & Friberg, 2016), and one study explained the transitional process that individuals with unexplained chest pain undergo whilst participating in exercise training programs over time (Røysland et al., 2017). The data extracted from the nine studies are described in Table 1.

3 | RESULTS

All selected studies explored and described the experience of unexplained chest pain and physical activity as their main aim. These studies were conducted from different perspectives. The synthesis showed that the physical activity experience of people with unexplained chest pain can be illuminated in the metaphor "Physical activity means balancing uncertainty" with four themes: *looking for possible explanations, feeling vulnerable, feeling uncertain of consequences and being physically active may mean becoming more capable*. An overview of these themes is presented in Table 2. The synthesis based on Noblit and Hare's method inspired the development of a model for a better understanding of the objective addressed in the current review (Bondas & Hall, 2007a, 2007b, France et al., 2018). Both authors worked together on the findings. A colleague reviewed the results and was in agreement with the described themes in the results.

TABLE 1 Study characteristics

Authors (date) and country	Aim of study	Context	Study design	Population and age	Sample size	Findings what are the experiences of physical activity for people with unexplained chest pain?	CASP
Angus et al. (2005) Canada	To (1) obtain information about issues that facilitate or constrain individual efforts to implement changes to health behaviours, (2) analyse the everyday contexts within which individuals at risk live.	Community health	Focus groups	Individuals at high risk of Cardiac Heart Disease (CHD) Aged 38–71 years	22 women 13 men	Physical activity as risk modification resonated with multiple framings of the body in health. There was a need of the participants to tailored information and support according to circumstances that varied according to social positionality. The body was, paradoxically, either "backgrounded" by women because they were more intent on creating the conditions necessary for the health of others, or "foregrounded" by the prominent symptoms of health conditions other than cardiac heart disease.	H/H
Fagring et al. (2005) Sweden	To describe the experience of unexplained chest pain and its influence on daily life situation in men and women.	University hospital	Qualitative descriptive -Interviews	Inpatients for observation after reported chest pain Aged 31–62 years	nine women 11 men	Consequences of chest pain impaired the daily life situation and within this physical activity. Walking was mentioned as a recurrent and appreciated daily activity, expressed especially by women. Some of them said the first thing they did in the morning was take a walk. Few of the men, however, found walking to be a relaxing activity.	H/H
Jerlock et al., 2005 Sweden	To describe patients' experience of unexplained chest pain, and how the pain affected their everyday life.	Emergency department	Content analysis Interviews	Short after discharged from hospital Aged 18–63 years	eight women 11 men	Physical activity as well as rest could induce, exacerbate or relieve the pain. Examples of activities that these informants abstained from include swimming, playing golf, going to the gym and running. Walking was seen as much safer and many walked long distances without problems, though not when they were experiencing pain. The unpredictability of pain meant that informants felt uncertain about exerting themselves. Walking was an activity in which the informants felt they had control over their body, and this made them feel secure.	H/H

(Continues)

TABLE 1 (Continued)

Authors (date) and country	Aim of study	Context	Study design	Population and age	Sample size	Findings what are the experiences of physical activity for people with unexplained chest pain?	CASP
Price et al. (2005) United Kingdom	To understand the needs and experiences of rapid access chest pain clinic attenders and to determine the acceptability and effectiveness of simple procedural changes	District general hospital rapid access chest pain clinic	Grounded theory Interviews	Between 1–5 weeks after clinic attendance (1) Aged 43–82 years (2) Aged 39–79 years	(1) 14 women 16 men (2) 11 women 17 men	The participants were feeling uncertain about how to help themselves. Many requested specific advice about how to manage their chest pain, such as knowing how active to be or how to respond when the pain started. There were clear opportunities for improvements in care. Changes in procedures helped patients to understand their pain, to practice self-management and to consider altering their lifestyle as being more physical active.	H/H
Turris and Johnson (2008) Canada	To explore how women seeking treatment for the symptoms of potential cardiac illness interpreted their symptoms, made decisions about seeking treatment, and understood experiences of care in the emergency department	Emergency department	Grounded theory Observations and interviews	2–6 weeks following discharge from hospital	16 women three nurses 100h naturalistic observation	Integrating experiences and knowledge: Making choices refers to women's efforts to incorporate the advice of health care professionals, in relation to lifestyle changes and among this being physically active. The view that an individual was responsible for her health status was commonly held by both the staff and the participants themselves. For women without a cardiac diagnosis, reflection on the chest pain that had occurred according to experience of lifestyle changes as physical activity were not planning to alter. However, for their lifestyles in relation to risk behaviours, these women chose to maintain the status quo.	H/H

TABLE 1 (Continued)

Authors (date) and country	Aim of study	Context	Study design	Population and age	Sample size	Findings what are the experiences of physical activity for people with unexplained chest pain?	CASP
Reytsland et al. (2013) Norway	To describe information needs among patients with unexplained chest pain and how those needs were met by health professionals during medical consultations.	Cardiac outpatient clinic at a university hospital	Qualitative design Interviews	After examined at a cardiac outpatient clinic diagnosed with unexplained chest pain	four women three men Aged 21–62 years	Physical activity was emphasised by all participants. Advice on an adequate level of activity was of interest, as was advice on how to respond when the pain starts. The pain comes and goes and is not associated with exercise. Some participants were confused by being told to exercise in spite of pain and expressed anxiety about doing exercise. The physician in the cardiac outpatient clinic told the patients that they had less chance of developing heart disease if they were in good shape. Even well-trained participants said that they had intensified their training after being told in the cardiac outpatient clinic that physical training can help them to avoid chest pain. Only one of the participants had limited exercise after the consultation and was striving to “get started”. The participants did not receive explanations of cardiac origin for their chest pain. They were still uncertain about how to exercise in a safe way and expressed anxiety about doing physical exercise. Some participants expressed avoidance of physical activity and fear of physical activity because of the chest pain they experienced.	H/H

(Continues)

TABLE 1 (Continued)

Authors (date) and country	Aim of study	Context	Study design	Population and age	Sample size	Findings what are the experiences of physical activity for people with unexplained chest pain?	CASP
Webster et al. (2015) United Kingdom	To examine patients' perceptions and experiences of noncardiac chest pain, within the framework of the commonsense model	Emergency department	Qualitative thematic analysis with semi-structured interviews	Persistent noncardiac chest pain and distress	five women two men Aged 40–76 years	Some participants reported restricting activity (e.g. running, household chores) in an attempt to control their pain or to avoid an adverse cardiac event (e.g. heart attack, death), sometimes even despite health professional advice to the contrary. This was experienced as effective for some in the short term. The lack of understanding was particularly pertinent within the cause dimension, such that participants were often accepting of psychological causes of their pain, but struggled to understand the mechanisms of this connection. Furthermore, patients also restricted their activity as a result of their chest pain.	H/H
Røysland and Friberg (2016) Norway	To achieve an understanding of the meaning of physical activity for people with unexplained chest pain	Cardiac outpatient clinic at a university hospital	Phenomenological hermeneutic approach Interviews	Diagnosed with unexplained chest pain	nine women six men Aged 21–65 years	Four themes were revealed: "awareness of the influence of previous life experiences on the decision to be physically active," "unanswered questions related to physical activity and unexplained chest pain," "intertwinement of body and mind," and "physical activity as a source of personal growth." Comprehensive understanding was formulated as "Being physically active while living with unexplained chest pain means balancing between existential uncertainty and certainty."	H/H
Røysland et al. (2017) Norway	To explain the transitional process that individuals with unexplained chest pain undergo while participating in an exercise training programme over time	Cardiac outpatient clinic/department of exercise training for patients with heart disease	Grounded theory Interviews and diaries	Diagnosed with no obstructive heart disease	seven women five men Aged 40–75 years	The core category was identified as "confronting one's vulnerability" and included three subcategories: "balancing existential uncertainty," "transforming bodily perceptions" and "becoming a more capable person."	H/H

3.1 | Looking for possible explanations

Most patients experienced illness without any signs of heart disease. The experienced symptom of chest pain was a personal feeling serving as a possible indicator of heart disease. However, no objective pathological findings were obtained from the treadmill test. The participants lacked objective signs indicating the presence of disease; hence, they did not receive a diagnosis despite experiencing severe symptoms. However, one study suggested that microvascular angina is a cause of chest pain (Røysland et al., 2017). In the studies, the participants searched for the possible causes of chest pain. They reflected on their history and daily life and practiced introspection. Their bodily perceptions of chest pain were subjective feelings of illness. The condition in which an illness exists but no disease can be found is prevalent. In the studies, the body was either “backgrounded” by the participants because they were more intent on creating the conditions that would benefit the health of others or “foregrounded” by the prominent symptoms of health conditions other than cardiac heart disease (Angus et al., 2005). The participants were aware of the influence of the blending of the body and mind (Røysland et al., 2017; Røysland & Friberg, 2016). Within this recognition was an awareness of the influence of previous experiences with chest pain. This was described as follows:

Yes. But (swallows hard) the fact that you've experienced (sighs) such cliff hangers make me react (sigh). So, it's stuff you can't manage (tearfully) to get away from ... So, so (short pause, makes an agitated gesture) it's hard to know (tearfully) to put it into words, you might say, because you feel it pressing and pushing and stabbing and well, at times. Yes. But when they can't find anything tangible, then (short pause) you just have to believe it. So (tearfully) it's simple things like (smiles a bit) you have to do, it leaves its mark.

(Røysland & Friberg, 2016)

The participants demonstrated a lack of understanding resulting from not receiving a label for a disease. Their uncertainty was expressed through different explanations of their condition. They reported difficulty in understanding how physical and psychological mechanisms can interact to cause cardiac pain (Jerlock et al., 2005; Price et al., 2005). They also lacked knowledge of pathophysiological mechanisms; however, it was obvious to them that stress may play a role (Røysland et al., 2013, 2017; Røysland & Friberg, 2016; Webster et al., 2015). The participants expressed the following:

Now I can relate it to the stress levels, whereas before I thought about it, but I didn't really relate it [...] but now I can definitely [...] I had chest pain the other evening, but I had had quite a stressful day at work.

(Webster et al., 2015)

I worry about the pain so because I get all stressed, I think this is what's happening, the pain gets worse and then I worry more.

(Webster et al., 2015)

3.2 | Feeling vulnerable

The participants expressed the need for information and more knowledge about the connection between chest pain and the possibility of being physically active. Vulnerability is related to the uncertainty about what might have caused the chest pain. Some participants had difficulty understanding how they could be physically active despite suffering from chest pain. For them, experiencing chest pain meant that you were suffering from heart disease. The suggested approaches to reducing uncertainty was individualised, tailored information communicated in a way that was understandable for the participants; information given in simple layperson's language without using medical terminology; and presence and support of health professionals. Descriptions of a disease indicate perceptions of an invisible, insidious nature, which is reinforced through personal observation (Angus et al., 2005). Jerlock et al. (2005) suggested that a layperson's understanding of body and health differs from that of health professionals and educators. The participants in the selected studies experienced illness despite their physicians' assurance that the chest pain had no connection to their heart health. The resulting feeling was due to them not being convinced by their physicians' explanations. The participants strongly believed that the chest pain was a symptom of something wrong in their body and that it definitely originated from their body. There is a balancing act between patients' autonomy and vulnerability (Røysland & Friberg, 2016). The participants' autonomy was reportedly supported by health professionals. There was a perceived choice and participation in the decision-making process regarding physical activity. Perceived autonomy supported the intention to be physically active. Nevertheless, there was also perceived vulnerability, which influenced the choice to be physically active.

Chest pain has an impact on daily activities and varies with daily activities; it also leads to fear of serious consequences, such as disability and death. Chest pain is unpredictable, and it can appear at any time; hence, the participants did not know the extent to which they could exert themselves (Angus et al., 2005; Fagring et al., 2005; Jerlock et al., 2005; Price et al., 2005; Røysland et al., 2013, 2017; Røysland & Friberg, 2016; Turris & Johnson, 2008; Webster et al., 2015). Pain also has psychological impact that is reflected through the emotional dimension, including worry, anxiety or concern about how one will end up with such feeling. One participant said, “While I've got this heaviness here, [in the chest] don't want to move about too much... you think if it's muscular, you're making it worse aren't you, if you do” (Webster et al., 2015). Another uttered:

Because I've been one of those women who just kind of, you know, been out hiking and we went rafting and mountain climbing—always the really active one. And then, now—now this last year [after having had chest pain] I thought, no (draws a breath) I'm a bit scared... And so I just said like—at work that now I think—I said it like that—I didn't say I had chest pain, but I said—I—now I think my age is telling me to ease off a little. But deep down it was that [the chest pains] that was doing it.

(Røysland & Friberg, 2016)

The participants felt vulnerable, and for them, being physically active meant confronting the vulnerability (Røysland et al., 2017). There was an existential dimension connected to physical activity, and it brought the participants into the vicinity of illness and even death (Jerlock et al., 2005; Price et al., 2005; Røysland et al., 2013, 2017; Røysland & Friberg, 2016). Physical activity seemed to imply a process in which existential uncertainty was challenging, as expressed in the following:

How hard shall I, you know, push myself—how much should I listen to my body, and like, that's the thing that's really quite tricky (short pause). So knowing just that would have been great—to get a bit of advice or follow-up, right? How much you should feel it (smiles a little) before you give up—and take it into account. Should you just keep going, er it's a bit like that, I, I keep going, right? But, yeah hmmm.

(Røysland & Friberg, 2016)

3.3 | Feeling uncertain of consequences

The participants were uncertain about the consequences of being physically active. They often related their experience of chest pain to the fear of worsening health due to them being physically active. The participants had no idea or understanding of how to control pain by either being physically active or avoiding exertion.

The data revealed that although the participants were informed about diverse physical activities by health professionals, they were not confident about the dose and form of physical activity because

TABLE 2 Metaphor and themes synthesised from the included articles

Metaphor	Themes
“Physical activity means balancing uncertainty”	Looking for possible explanations Feeling vulnerable Uncertain of consequences Being physically active may mean becoming more capable

of their fear of unknown consequences. The participants agreed with health professionals' advice but still felt anxious, for example,

I know that I should do some more exercise... When you have this you want to try and do something that will help you... but then I've been scared because I've thought if I do that is it going to do any harm to me. That's one thing, I don't think I've been given any information on what to do (for myself).

(Price et al., 2005)

“It just gets worse and then I have to stop running... Because I think ‘if I carry on what's going to happen?’ (laughs) you don't know... I might fall down dead (laughs).” (Price et al., 2005).

The participants searched for a secure way of being physically active (Jerlock et al., 2005; Price et al., 2005; Røysland & Friberg, 2016; Røysland et al., 2013, 2017; Webster et al., 2015). Unexplained chest pain is an idiopathic disease in which existential uncertainty is central. Idiopathic conditions can arise spontaneously or from unknown or obscure causes. Being existential, the participants strived for certainty (Røysland & Friberg, 2016). They described self-regulation and existential sense-making as corresponding to the importance of clarifying beliefs in relation to the balancing act. This experience is described as follows:

I have a, I have one of those, what d'you call it? I have the ability to totally worst-case scenario everything, everything can, yes this can happen, and that, and what then? And now, that's why I'm saying to you, I'm kind of there now—I have so many things going on at home that I feel a bit like I'm walking on eggshells. And then, then I think: “For crying out loud, I've had this thing for two years now, and things are starting to happen that I'm just getting scared about.

(Røysland & Friberg, 2016)

3.4 | Being physically active may mean becoming more capable

Some participants experienced learning to interpret bodily signs while performing physical activities (Angus et al., 2005; Røysland et al., 2017; Røysland & Friberg, 2016). Those who were physically active experienced strengthened body and mind (Angus et al., 2005; Røysland et al., 2013, 2017; Røysland & Friberg, 2016). The participants expressed a need for more knowledge to gain a feeling of safety while performing physical activities. The participants strived for a caring relationship with health professionals, whom they could trust and rely on for the correct mode of physical activity. Furthermore, learning to interpret bodily processes from health professionals was highly valued by the participants (Angus et al., 2005; Røysland et al., 2017; Røysland & Friberg, 2016). Health

professionals were regarded as brokers of important knowledge about the human body in general and the participants' own bodies in particular (Angus et al., 2005).

The participants appreciated the health professionals who focused on their individual problems and were open to addressing their need for guidance and information. According to Røysland et al. (2017), by participating in a high-intensity exercise training program, the participants learned to interpret bodily symptoms as chest pain. They felt safe as health professionals supported them and were available for questions during the training.

This was expressed as follows: "You notice that people are professionals. It's the way they are. They know what they are doing, and you see it straight away." Another pointed out the safe environment where the exercise training took place: "I said to my husband that I could not be more secure with a heart starter on the wall." (Røysland et al., 2017).

Physical activity means a stronger body and mind, in which anxiety has less space. The participants saw it as a way to rebuild the body and mind and was also described as a utility for sleep. It was important for the participants to maintain personal, social, and physical integrity to address the expectations of others and preserve their sense of themselves as capable, strong, and healthy individuals (Turris & Johnson, 2008). The perspective that an individual was responsible for his/her own health status was commonly held by the health professionals and the participants themselves.

Physical activity was also seen as the main factor in socialising with others and improving energy and well-being. Physical activity is known for its positive effects on multiple dimensions of life. Adapting habits and bringing physical activity into one's daily routine was seen as a way to become a more capable person (Røysland et al., 2017), as described in the following:

I am also a bit uplifted because I have experienced fewer symptoms of... as I think... activity in the heart region... I can't define it... but that thing (heart pain, authors' comment). I have not experienced/sensed it so much now when I train. So, I believe that... I think it (the training, authors' comment) has managed somehow to get these symptoms away in one way or another.

(Røysland et al., 2017)

3.5 | Line of argument

Four themes that determine the physical activity experience of people with unexplained chest pain emerged: (1) looking for possible explanations, (2) feeling vulnerable, (3) feeling uncertain of consequences and (4) being physically active may mean becoming more capable. These themes were again abstracted into one overall theme: physical activity means balancing uncertainty.

The underlying factors for patients with unexplained chest pain and physical activity were life history and the participants themselves. The context as surroundings and the companions of the persons with unexplained chest pain while being physically active were also factors that influenced their experiences. The participants reflected on their symptoms and how their body and mind interacted.

The influencing factors were collated in a comprehensive model, and a flow diagram was established to illustrate the antecedents and succedent of the physical activity experience of patients with unexplained chest pain. For healthcare professionals encountering a patient with unexplained chest pain, the flow diagram shows the factors that antecede and shape the encounter. It also shows the factors of the encounter itself that matter and the factors that determine how patients subsequently experience the encounter. A cohesive model of different dimensions is illustrated in Figure 2.

4 | DISCUSSION

This meta-ethnography aimed to gain an understanding of the physical activity experience of people with unexplained chest pain. Only studies that only included qualitative data were considered in this meta-synthes. Chest pain is common in medical settings and may be a symptom of heart disease. Physical activities are recommended according to guidelines, but they are avoided in this population (Thesen et al., 2021).

The essential component for people with unexplained chest pain, as confirmed in the qualitative studies, was that being physically active may mean becoming more capable. The main theme indicated that the participants felt vulnerable and that engaging in physical activity meant balancing uncertainty. They expressed information needs, a request for further examinations, and the need for the supervision of healthcare professionals when they are physically active. One example is being part of a supervised high-intensity exercise training group with other patients with unexplained chest pain (Røysland et al., 2017). Adapting to exercise training was conceptualised as an ongoing personal transition as the participants with unexplained chest pain managed and adapted to a multitude of changes precipitated by the chest pain and its treatment. The model that emerged from the findings may help nurses and other health professionals identify and address antecedence and areas in need of improvement.

The findings illustrated in the model highlight that patients feel vulnerable and uncertain toward their experience of chest pain and physical activity. These results imply that a mere provision of information might not help all patients with unexplained chest pain. There is a factor of uncertainty that health professionals must consider. There is a need for more knowledge regarding the cause of chest pain and the preventive effect of physical activity on heart disease. Nevertheless, it is also necessary to address the uncertainty and for health professionals to identify underlying factors as and the influence of context. It seems that

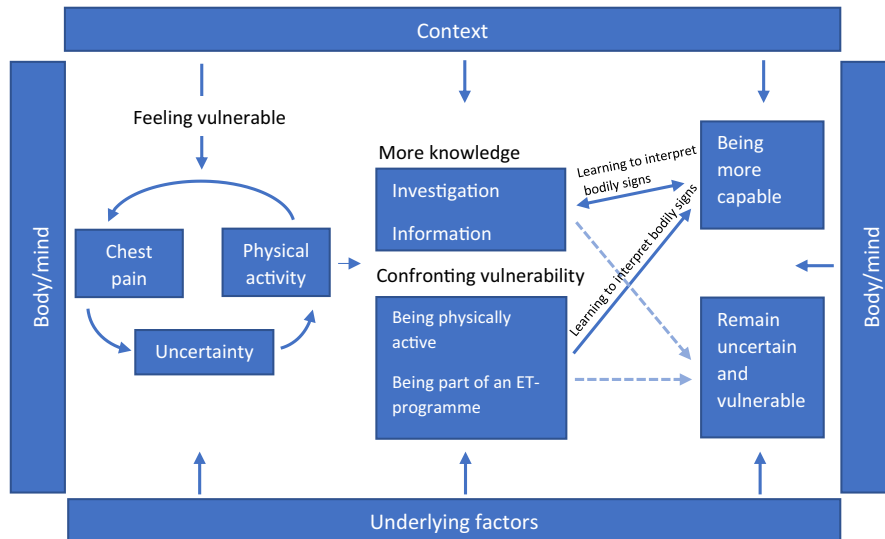


FIGURE 2 Influencing factors: Experiences of physical activity for people with unexplained chest pain

patients with unexplained chest pain confronted vulnerability by being physically active and participating in high-intensity exercise training programs. These actions helped them learn to interpret bodily signs when engaging in physical activity. Patients may experience increased capability and a strengthened body and mind, or they may experience the opposite and avoid physical activity. This model might also illustrate the antecedents and succedent of the physical activity experience of patients with known causes of chest pain (Moola, 2020; Rogerson et al., 2012).

In this meta-ethnography, French philosopher Paul Ricoeur's theory of the capable person "homo capax" is chosen to discuss the synthesised results as this theory describes a person beyond the one-sidedness and rather as a complex intertwined (Kristensson Ugglå, 2011). Furthermore, this theory stresses the importance of dialectical movement between doing and avoiding physical activity in uncertainty. According to Ricoeur, a capable person is someone who has the ability to make rational choices and reflect on them. In addition, capable persons are responsible for their own actions. The participants in the studies in the present synthesis exemplified this, indicating significant human potential. Rational choices were made about doing or avoiding physical activity, what the pain meant, and what to do.

Physical activity is perhaps the best physiological approach to exploit the adaptive capacity of the coronary vascular bed and evoke a number of functional and structural changes (Tremblay et al., 2018). A recent study indicated that being physically active has a protective effect on the occurrence of disability for people with what they label as noncardiac chest pain in the six months following an emergency department visit (Castonguay et al., 2020). These results highlight the importance of further exploration of the benefits of physical activity in this population.

There is no specifically accepted or widely used treatment for patients with unexplained chest pain. Cognitive behavioural treatment (CBT) is a psychological intervention aimed at improving negative emotions by developing skills intended to identify and modify cognitive distortions and associated maladaptive

behaviours. CBT, in which physical exercise is included and encouraged, is a recommended treatment for patients with anxiety and coronary artery disease (Sardinha et al., 2011). Kisely et al. (2015) concluded in a Cochrane review that CBT is a promising treatment for noncardiac chest pain but that further randomised controlled trials are needed. According to Jonsbu et al. (2011), there were significantly larger improvements in a three-session program of manualised CBT, including exposure to physical activity, fear of bodily sensations, avoidance of physical activity, depression and some domains of heart-related quality of life at the end of the treatment and at the 3- and 12-month follow-up. A recent study of internet-assisted CBT for noncardiac chest pain, namely, a pilot and feasibility study, yielded promising results regarding feasibility, clinical effects and patient satisfaction (Thesen et al., 2021). Statistically significant and clinically relevant improvements in cardiac anxiety, fear of bodily reactions and depression were observed during the study. In a review, Goulding et al. (2010) claimed that some cognitive behavioural and counselling/educational interventions can be effective in changing beliefs for people with coronary heart disease. However, the effects of these changes on outcomes are unclear.

To support patients' capabilities, a person-centred approach is suggested. This approach refers to a shift from viewing patients as passive targets in care and treatment to including them and those close to them, such as active partners (Ekman et al., 2014; McCormack & McCance, 2016). Ekman et al. (2011) anchored the person-centred approach described by Ricoeur (1990) as a philosophy of ethics. From this perspective, health professionals are obligated to recognise and acknowledge the fragility of the self and coherence in life. According to Ricoeur (Kristensson Ugglå, 2011), the capable person with personal growth and self-esteem is dependent on establishing a point of reference about the "good life" that is worth living. This finding indicates that discussions with health personnel should include beliefs, suspicions and questions. In addition, participation in a high-intensity exercise training program over time, including extended investigations, is highly appreciated.

Ricoeur (Kristensson Ugglå, 2011) further argued that a good life is the nebula of ideals and dreams of achievements regarding which a life is more or less fulfilled or unfulfilled.

Ricoeurs' philosophy of ethics (Ricoeur, 1990) describes a suitable collaboration and partnership in which the expertise and knowledge of everyone in the team is appreciated and recognised. Similarly, the experience of illness and well-being of people with unexplained chest pain must be recognised and valued in all health and care processes. The participants in this review expressed uncertainty about the clinical aspects that mark the diagnosis and treatment of disease. For them, this meant having less information than they would have ideally liked. As a result, they requested more information to confidently consider whether it was safe and good for their health to engage in physical activity. This strongly indicates that health professionals must be prepared to meet both verbalised and implicitly posed information requirements. It also highlights the need for structured communication in consultations as a healthcare plan.

The perspective of health professionals when giving advice and recommending rehabilitation for patients with unexplained chest pain involves an ethical aspect. Some patients diagnosed with non-cardiac chest pain could later mistakenly attribute chest pain with a true cardiac aetiology as psychological and delay appropriate medical treatment. An example here is an approach involving CBT.

A hallmark of person-centred care is the subjective experience of individuals, their sensibilities, commitments, values and experiences of will as authorising feelings. Our study reflects what the participants expressed as a sense of vulnerability and how chest pain affected the life they regarded as worth living. In person-centred care, listening to patients' narratives, and trying to understand how, for example, pain influences their daily life, dignity and capability are emphasised (Ekman et al., 2011).

The unpredictability of pain meant that the participants felt uncertain about exerting themselves. Walking was an activity in which they felt that they had control over their body, which made them feel secure. Therefore, walking can be a suitable activity when creating activity programs for these patients. The use of illness narratives in nursing care would give nurses an opportunity to gather knowledge about how an individual's life problems are created, controlled and made meaningful. Furthermore, this provides information about how patients perceive and monitor their own body and label and categorise bodily symptoms.

5 | CONCLUSION

In summary, an essential component for people with unexplained chest pain is being physically active, which can mean becoming more capable. The participants felt vulnerable, and for them, physical activity meant balancing uncertainty. A comprehensive model illustrates the antecedents and succedent of the physical activity experience of patients with unexplained chest pain.

6 | RELEVANCE TO CLINICAL PRACTICE

Physical activity is recommended for individuals with unexplained chest pain; however, it is avoided because of uncertainty. Therefore, it is important for nurses to understand an approach to care must be accompanied by a biomedical perspective (Brink & Skott, 2013). A person-centred approach can be used to encourage people to become more capable to confront their vulnerability to become physically active and nurses need more knowledge to understand their situation. The leaders in the healthcare system should allocate more resources on educating the health professionals involved in caring for people with unexplained chest pain to meet the patient's experiences, better understanding of individual's preferences and advise them accordingly to get rid of fear and increase self-efficacy for physical activity.

FUNDING INFORMATION

This research received no specific grants from any funding agency in the public, commercial or not-for-profit sectors.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data sharing not applicable—no new data generated Data sharing is not applicable to this article as no new data were created or analyzed in this study.

ORCID

Ingrid Ølfarnes Røysland  <https://orcid.org/0000-0003-4920-7785>

Harshida Patel  <https://orcid.org/0000-0002-6038-1031>

REFERENCES

- Angus, J., Evans, S., Lapum, J., Rukholm, E., St Onge, R., Nolan, R., & Michel, I. (2005). "Sneaky disease": The body and health knowledge for people at risk for coronary heart disease in Ontario, Canada. *Social Science and Medicine*, 60(9), 2117–2128.
- Bondas, T., & Hall, E. O. C. (2007a). A decade of metasynthesis research in health sciences: A meta-method study. *International Journal of Qualitative Studies on Health and Well-Being*, 2(2), 101–113. <https://doi.org/10.1080/17482620701251684>
- Bondas, T., & Hall, E. O. C. (2007b). Challenges in approaching Metasynthesis research. *Qualitative Health Research*, 17(1), 113–121. <https://doi.org/10.1177/1049732306295879>
- Brink, E., & Skott, C. (2013). Caring about symptoms in person-centred care. *Open Journal of Nursing*, 3(8), 563–567.
- Busvold, K. I. H., & Bondevik, H. (2018). Medically unexplained physical symptoms, misunderstood and wrongly treated? A semiotic perspective on chronic pain. *Physiotherapy Theory and Practice*, 34(6), 411–419.
- Chambers, J., Marks, E., & Hunter, M. (2015). The head says yes but the heart says no: What is non-cardiac chest pain and how is it managed? *Heart*, 101(15), 1240–1249.
- Castonguay, J., Turcotte, S., Fleet, R. P., Archambault, P. M., Dionne, C. E., Denis, I., & Foldes-Busque, G. (2020). Physical activity and

- disability in patients with noncardiac chest pain: A longitudinal cohort study. *BioPsychoSocial Medicine*, 14(1), 1–8.
- Critical Appraisal Skills Program qualitative research checklist (CASP). https://casp-uk.b-cdn.net/wp-content/uploads/2018/03/CASP-Qualitative-Checklist-2018_fillable_form.pdf
- Dibben, G. O., Dalal, H. M., Taylor, R. S., Doherty, P., Tang, L. H., & Hillsdon, M. (2018). Cardiac rehabilitation and physical activity: Systematic review and meta-analysis. *Heart*, 104(17), 1394–1402.
- Ekman, I., Norberg, A., & Swedberg, K. (2014). Tilämping av personcentrering inom hälso- och sjukvård. In I. Ekman (Ed.), *Personcentrering inom hälso- och sjukvård: från filosofi till praktik*. Stockholm.
- Ekman, I., Swedberg, K., Taft, C., Lindseth, A., Norberg, A., Brink, E., ... Sunnerhagen, K. S. (2011). Person-centered care—Ready for prime time. *European Journal of Cardiovascular Nursing*, 10(4), 248–251.
- France, E. F., Cunningham, M., Ring, N., Uny, I., Duncan, E. A., Jepson, R. G., ... Noyes, J. (2018). Improving reporting of meta-ethnography: The eMERGe reporting guidance. *Journal of Advanced Nursing*, 75, 1126–1139. <https://doi.org/10.1111/jan.13809>
- Garroni, D., & Fragasso, G. (2018). Heart or mind? Unexplained chest pain in patients with and without coronary disease. *Heart and Mind*, 2(1), 5–11.
- Goulding, L., Furze, G., & Birks, Y. (2010). Randomized controlled trials of interventions to change maladaptive illness beliefs in people with coronary heart disease: Systematic review. *Journal of Advanced Nursing*, 66(5), 946–961.
- Fagring, A. J., Gaston-Johansson, F., & Danielson, E. (2005). Description of unexplained chest pain and its influence on daily life in men and women. *European Journal of Cardiovascular Nursing*, 4(4), 337–344.
- Jerlock, M., Gaston-Johansson, F., & Danielson, E. (2005). Living with unexplained chest pain. *Journal of Clinical Nursing*, 14(8), 956–964. <https://doi.org/10.1111/j.1365-2702.2005.01195.x>
- Jonsbu, E., Dammen, T., Morken, G., Moum, T., & Martinsen, E. W. (2011). Short-term cognitive behavioral therapy for non-cardiac chest pain and benign palpitations: A randomized controlled trial. *Journal of Psychosomatic Research*, 70(2), 117–123.
- Kaminsky, L. A., Arena, R., Ellingsen, Ø., Harber, M. P., Myers, J., Ozemek, C., & Ross, R. (2019). Cardiorespiratory fitness and cardiovascular disease—the past, present, and future. *Progress in Cardiovascular Diseases*, 62(2), 86–93.
- Kaski, J.-C., Crea, F., Gersh, B. J., & Camici, P. G. (2018). Reappraisal of ischemic heart disease: Fundamental role of coronary microvascular dysfunction in the pathogenesis of angina pectoris. *Circulation*, 138(14), 1463–1480.
- Kaski, J. C., Eslick, G. D., & Merz, C. N. B. (2013). *Chest pain with normal coronary arteries: A multidisciplinary approach*. London: Springer.
- Khanji, M. Y., van Waardhuizen, C. N., Bicalho, V. V., Ferket, B. S., Hunink, M. M., & Petersen, S. E. (2018). Lifestyle advice and interventions for cardiovascular risk reduction: A systematic review of guidelines. *International Journal of Cardiology*, 263, 142–151.
- Kisely, S. R., Campbell, L. A., Yelland, M. J., & Paydar, A. (2015). Psychological interventions for symptomatic management of non-specific chest pain in patients with normal coronary anatomy. *Cochrane Database of Systematic Reviews*, 6, CD004101. <https://doi.org/10.1002/14651858.CD004101.pub5>
- Kristensson Uggla, B. (Eds.). (2011). *Homo capax: texter av Paul Ricœur om etik och filosofisk antropologi*. Göteborg: Daidalos. (Partly based on: Originally published as Ricœur, P. [2004]. *Parcours de la reconnaissance*. Stock: Trois études. Translated to Swedish by Backelin, E.).
- Long, H. A., French, D. P., & Brooks, J. M. (2020). Optimising the value of the critical appraisal skill programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Research Methods in Medicine & Health Sciences*, 1(1), 31–42.
- McCormack, B., & McCance, T. (Eds.). (2016). *Person-centred practice in nursing and health care: Theory and practice*. John Wiley & Sons.
- Moola, F. J. (2020). Passive on the periphery: Exploring the experience of physical activity among children and youth with congenital heart disease using the draw-and-write technique. *The Arts in Psychotherapy*, 69, 101662.
- Nelson, N., & Churilla, J. R. (2015). Physical activity, fear avoidance, and chronic non-specific pain: A narrative review. *Journal of Bodywork and Movement Therapies*, 19(3), 494–499.
- Noblit, G. W., & Hare, R. D. (1988). *Meta-ethnography*. SAGE Publications, Inc.
- Nolan, S. (2017). *An exploration of the help-seeking experiences of men and women referred to a rapid access chest pain clinic (a cardiac physiologist-managed clinic)* (Doctoral dissertation). University of Westminster.
- Ockene, I. S., Shay, M. J., Alpert, J. S., Weiner, B. H., & Dalen, J. E. (1980). Unexplained chest pain in patients with normal coronary arteriograms: A follow-up study of functional status. *New England Journal of Medicine*, 303(22), 1249–1252.
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., Stewart, L. A., Thomas, J., Tricco, A. C., Welch, V. A., Whiting, P., & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Systematic Reviews*, 10(1), 89.
- Price, J. R., Mayou, R. A., Bass, C. M., Hames, R. J., Spriggs, D., & Birkhead, J. S. (2005). Developing a rapid access chest pain clinic: Qualitative studies of patients' needs and experiences. *Journal of Psychosomatic Research*, 59(4), 237–246.
- Ricoeur, P. (1990). *Time and narrative*. University of Chicago press.
- Robertson, N. (2006). Unexplained chest pain: A review of psychological conceptualizations and treatment efficacy. *Psychology, Health and Medicine*, 11(2), 255–263. <https://doi.org/10.1080/13548500500330528>
- Rogerson, M. C., Murphy, B. M., Bird, S., & Morris, T. (2012). "I don't have the heart": a qualitative study of barriers to and facilitators of physical activity for people with coronary heart disease and depressive symptoms. *International Journal of Behavioral Nutrition and Physical Activity*, 9(1), 1–9.
- Røysland, I. Ø., Dysvik, E., Furnes, B., & Friberg, F. (2013). Exploring the information needs of patients with unexplained chest pain. *Patient Preference and Adherence*, 7, 915–923.
- Røysland, I., & Friberg, F. (2016). Unexplained chest pain and physical activity—balancing between existential uncertainty and existential certainty. *Qualitative Health Research*, 26, 215–226.
- Røysland, I. Ø., Friberg, F., Støre Brinchmann, B., Nordeide Svello, S., Valborgland, T., & Larsen, A. I. (2017). Confronting one's vulnerability—patients with chest pain participating in a high-intensity exercise programme. *Journal of Clinical Nursing*, 26(13–14), 2006–2015.
- Safdar, B., Ong, P., & Camici, P. G. (2018). Identifying myocardial ischemia due to coronary microvascular dysfunction in the emergency department: Introducing a new paradigm in acute chest pain evaluation. *Clinical Therapeutics*, 40(11), 1920–1930.
- Sardinha, A., Araujo, C. G., Soares-Filho, G. L., & Nardi, A. E. (2011). Anxiety, panic disorder and coronary artery disease: Issues concerning physical exercise and cognitive behavioral therapy. *Expert Review of Cardiovascular Therapy*, 9, 165–175. <https://doi.org/10.1586/erc.10.170>
- Shaw, L. J., Goyal, A., Mehta, C., Xie, J., Phillips, L., Kelkar, A., Knapper, J., Berman, D. S., Nasir, K., Veledar, E., Blaha, M. J., Blumenthal, R., Min, J. K., Fazel, R., Wilson, P. W. F., & Budoff, M. J. (2018). 10-Year Resource Utilization and Costs for Cardiovascular Care. *Journal of the American College of Cardiology*, 71(10), 1078–1089.
- Simonj, C. P., Pedersen, B. D., Dreyer, P., & Birkelund, R. (2015). Dealing with existential anxiety in exercise-based cardiac rehabilitation: A phenomenological-hermeneutic study of patients' lived experiences. *Journal of Clinical Nursing*, 24(17–18), 2581–2590.

- Suhrs, H. E., Kristensen, A. M., Rask, A. B., Michelsen, M. M., Frestad, D., Mygind, N. D., ... Prescott, E. (2018). Coronary microvascular dysfunction is not associated with a history of reproductive risk factors in women with angina pectoris—An iPOWER substudy. *Maturitas, 107*, 110–115.
- Thesen, T., Jonsbu, E., Martinsen, E. W., Himle, J. A., Thorup, F., Launes, G., ... Walseth, L. T. (2021). Internet-assisted cognitive behavioural therapy for non-cardiac chest pain: A pilot and feasibility study. *The Cognitive Behaviour Therapist, 14*, 1–18.
- Tong, A., Flemming, K., McInnes, E., Oliver, S., & Craig, J. (2012). Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Medical Research Methodology, 12*(1), 1–8.
- Tremblay, M.-A., Denis, I., Turcotte, S., Fleet, R. P., Archambault, P., Dionne, C. E., & Foldes-Busque, G. (2018). Heart-focused anxiety and health care seeking in patients with non-cardiac chest pain: A prospective study. *General Hospital Psychiatry, 50*, 83–89.
- Turris, S. A., & Johnson, J. L. (2008). Maintaining integrity: Women and treatment seeking for the symptoms of potential cardiac illness. *Qualitative Health Research, 18*(11), 1461–1476.
- Webster, R., Thompson, A. R., & Norman, P. (2015). 'Everything's fine, so why does it happen?' A qualitative investigation of patients' perceptions of noncardiac chest pain. *Journal of Clinical Nursing, 24*(13–14), 1936–1945.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Røysland, I. Ø., & Patel, H. (2022). Experiences of unexplained chest pain and physical activity: A Meta-Ethnography. *Journal of Clinical Nursing, 00*, 1–17. <https://doi.org/10.1111/jocn.16496>

APPENDIX A

The search strategies and terms used for the searches are as followed:

A.1. | Cinahl with Full Text

13.07.22

Interface–EBSCOhost Research Databases Search Screen–Advanced Search Search modes–Boolean/Phrase.

#	Query	Results
S10	S8 not S9	16
S9	"metabolic syndrome x" or "fragile x syndrome"	14,118
S8	S6 AND S7	176
S7	qualitative OR phenomenolog* OR hermeneutic* OR "nursing research" OR ethnograph* OR "grounded theory" OR interview* OR observation* OR "focus group"	642,172
S6	S4 AND S5	2430
S5	(MH "Exercise+") OR (MH "Sports+") OR "physical activit*" OR sport* OR exercis* OR fitness	386,813
S4	S1 OR S2 OR S3	16,167
S3	"x syndrome" OR "syndrome x" OR "microvascular dysfunction*" OR "microvascular angina"	15,394
S2	("normal coronar*" OR ([without OR no OR lack*] W2 "obvious organic cause*")) AND (((chest OR thora*) W0 (pain* OR discomfort)) OR angina)	384
S1	(unexplained OR non-specific OR nonspecific OR atypical) N3 ((chest OR thora*) W0 (pain* OR discomfort))	486

A.2. | Academic Search Ultimate

14.07.22

Interface–EBSCOhost Research Databases Search Screen–Advanced Search Search modes–Boolean/Phrase.

#	Query	Results
S10	S8 not S9	19
S9	"metabolic syndrome x" or "fragile x syndrome"	3623
S8	S6 AND S7	26
S7	qualitative OR phenomenolog* OR hermeneutic* OR "nursing research" OR ethnograph* OR "grounded theory" OR interview* OR observation* OR "focus group"	1,873,526
S6	S4 AND S5	463
S5	"physical activit*" OR sport* OR exercis* OR fitness	1,124,162
S4	S1 OR S2 OR S3	7344

#	Query	Results
S3	"x syndrome" OR "syndrome x" OR "microvascular dysfunction*" OR "microvascular angina"	6235
S2	("normal coronar*" OR ([without OR no OR lack*] W2 "obvious organic cause*")) AND (((chest OR thora*) W0 (pain* OR discomfort)) OR angina)	569
S1	(unexplained OR non-specific OR nonspecific OR atypical) N3 ((chest OR thora*) W0 (pain* OR discomfort))	688

A.3. | Medline

14.07.22

Interface–EBSCOhost Research Databases Search Screen–Advanced Search Search modes–Boolean/Phrase.

#	Query	Results
S10	S8 not S9 Limiters - language: English, Norwegian, Swedish	69
S9	"metabolic syndrome x" or "fragile x syndrome"	7553
S8	S6 AND S7	86
S7	qualitative OR phenomenolog* OR hermeneutic* OR "nursing research" OR ethnograph* OR "grounded theory" OR interview* OR observation* OR "focus group"	1,664,116
S6	S4 AND S5	1654
S5	(MH "Exercise+") OR (MH "Sports+") OR "physical activit*" OR sport* OR exercis* OR fitness	852,798
S4	S1 OR S2 OR S3	16,833
S3	"x syndrome" OR "syndrome x" OR "microvascular dysfunction*" OR "microvascular angina"	13,041
S2	("normal coronar*" OR ([without OR no OR lack*] W2 "obvious organic cause*")) AND (((chest OR thora*) W0 (pain* OR discomfort)) OR angina)	2658
S1	(unexplained OR non-specific OR nonspecific OR atypical) N3 ((chest OR thora*) W0 (pain* OR discomfort))	1821

A.4. | Embase (Ovid) <1974 to 2022 July 13>

14.07.22

#	Searches	Results
1	((unexplained or non-specific or nonspecific or atypical) adj4 ((chest or thora*) adj (pain* or discomfort))),ti, ab, kf.	3185

#	Searches	Results
2	(normal coron* or ([without or no or lack*] adj3 obvious organic cause*)):ti, ab, kf. and (((chest or thora*) adj (pain* or discomfort)):ti, ab, kf, hw. or angina,ti, ab, kf.)	4247
3	(x syndrome or syndrome x or microvascular dysfunction* or microvascular angina).ti, ab, kf, hw.	113,419
4	1 or 2 or 3	119,882
5	exp physical activity/ or exp sport/ or (sport* or exercis* or fitness).ti, ab, kf.	1,067,926
6	4 and 5	13,123
7	(qualitative or phenomenolog* or hermeneutic* or "nursing research" or ethnograph* or grounded theory or interview* or observation* or focus group*).ti, ab, kf, hw.	2,178,311
8	6 and 7	927
9	(metabolic syndrome or fragile x syndrome).ti, ab, kf.	101,513
10	8 not 9	263
11	limit 10 to (english or norwegian or swedish)	251
12	limit 11 to (conference abstracts or "preprints [unpublished, non-peer reviewed]")	42
13	11 not 12	209

A.5. | Cochrane Library

14.07.22

ID	Search	Hits
#1	((unexplained OR non-specific OR nonspecific OR atypical) near/4 ((chest OR thora*) next (pain* OR discomfort)):ti, ab, kw	88
#2	((normal next coronar*) OR ([without OR no OR lack*] next/3 "obvious organic cause*")) AND (((chest OR thora*) next (pain* OR discomfort)) OR angina):ti, ab, kw	164
#3	("x syndrome" OR "syndrome x" OR [microvascular next dysfunction*] OR "microvascular angina"):ti, ab, kw	4318
#4	#1 or #2 or #3	4511
#5	[mh exercise] or [mh sports] or ([physical next activit*] or sport* or exercis* or fitness):ti, ab, kw	147,897
#6	#4 and #5	1155

ID	Search	Hits
#7	qualitative OR phenomenolog* OR hermeneutic* OR "nursing research" OR ethnograph* OR "grounded theory" OR interview* OR observation* OR (focus next group*)	138,833
#8	#6 and #7	83
#9	("metabolic syndrome x" or "fragile x syndrome"):ti, ab, kw	3845
#10	#8 not #9	13

All results were from the Cochrane Central Register of Controlled Trials.

A.6. | Scopus

14.07.22

((TITLE-ABS-KEY((unexplained OR non-specific OR nonspecific OR atypical) W/3 ("chest pain*" OR "chest discomfort" OR "thora* pain*" OR "thora* discomfort"))) OR (TITLE-ABS-KEY("normal coronar*" OR ([without or no or lack*] PRE/2 "obvious organic cause*")) AND TITLE-ABS-KEY("chest pain*" OR "chest discomfort" OR "thora* pain*" OR "thora* discomfort" OR angina)) OR TITLE-ABS-KEY("x syndrome" OR "syndrome x" OR "microvascular dysfunction*" OR "microvascular angina")) AND TITLE-ABS-KEY("physical activit*" OR sport* OR exercis* OR fitness) AND TITLE-ABS-KEY(qualitative OR phenomenolog* OR hermeneutic* OR "nursing research" OR ethnograph* OR "grounded theory" OR interview* OR observation* OR "focus group*")) AND NOT TITLE-ABS-KEY("metabolic syndrome" OR "fragile x syndrome") AND (LIMIT-TO [LANGUAGE,"English"])

93 results

A.7. | Web of Science Core Collection

14.07.22.

((TS = ((unexplained OR non-specific OR nonspecific OR atypical) NEAR/3 ("chest pain*" OR "chest discomfort" OR "thora* pain*" OR "thora* discomfort")) OR (TS = ("normal coronar*" OR ([without or no or lack*] NEAR/2 "obvious organic cause*")) AND TS = ("chest pain*" OR "chest discomfort" OR "thora* pain*" OR "thora* discomfort" OR angina)) OR TS = ("x syndrome" OR "syndrome x" OR "microvascular dysfunction*" OR "microvascular angina")) AND TS = ("physical activit*" OR sport* OR exercis* OR fitness) AND TS = (qualitative OR phenomenolog* OR hermeneutic* OR "nursing research" OR ethnograph* OR "grounded theory" OR interview* OR observation* OR "focus group*")) NOT TS = ("metabolic syndrome" OR "fragile x syndrome"))

49 results, 46 after limiting to English language. No results in Norwegian or Swedish.