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ORIGINAL ARTICLE

Communication about physical activity to reduce vascular erectile dysfunction – A qualitative interview study among men in cardiac rehabilitation

Helle Gerbild PT PhD, Senior Lecture[1,2,3] | **Kristina Areskoug Josefsson PhD, Professor**[3,4,5] | **Camilla Marie Larsen PT PhD, Teaching Assistant Professor**[1,6] | **Birgitte Schantz Laursen RN PhD, Associate Professor**[2,7]

[1]Health Sciences Research Centre, UCL University College, Odense, Denmark

[2]Center for Sexology Research, Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

[3]Department for Behavioural Sciences, Oslo Metropolitan University, Oslo, Norway

[4]Faculty of Health Studies, VID Specialized University, Sandnes, Norway

[5]School of Health and Welfare, Jönköping Academy for Improvement of Health and Welfare, Jönköping University, Jönköping, Sweden

[6]Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark

[7]Clinical Nursing Research Unit & Sexological Centre, Aalborg University Hospital, Aalborg, Denmark

Correspondence
Helle Gerbild, Health Sciences Research Centre, UCL University College, Niels Bohrs Allé 1, 5230 Odense M, Denmark.
Email: heng@ucl.dk

Abstract

Background: Physical activity, a core intervention in cardiac rehabilitation, can reduce vascular erectile dysfunction (ED). ED is a common sensitive problem for men with cardiac diseases, decreasing their quality of life. Cardiac health professionals rarely provide information about ED or its relation to physical activity. Developing health professionals' communicative component of the complex intervention 'Physical Activity to reduce Vascular Erectile Dysfunction' (PAVED) is important. Understanding the receiver needs is essential in designing a complex intervention.

Aim: To elucidate men's perspectives on cardiac health professionals' communication about PAVED.

Ethical issues: An Institutional Data Protection Agency approved the study.

Methods: An interpretive data-driven thematic analysis was applied to individual, qualitative semi-structured interviews with 20 Danish men attending cardiac rehabilitation.

Results: The men wanted health professionals' communicating about ED, as it was perceived as a major problem diminishing masculinity and tabooed by health professionals. Men wanted help for self-help, which may be possible with the aid of competent health professionals' communication about how to prevent, reduce and cope with ED - including information about PAVED. The men wanted health professionals' communication about ED in various contexts: general information in groups, sexual counselling for individuals and couples and written material.

Study limitations: Recruitment was done from a Danish municipality's cardiac rehabilitation, and the transferability of the results may be limited to similar contexts.

Conclusion: Erectile dysfunction was experienced as a major biopsychosocial problem for the men and their partners. The men had a need for health professionals' communication about sexuality, ED and information about PAVED as well as about prevention, reduction and management of ED. The men had a need for professional communication about sexual health.

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KEYWORDS

cardiovascular disorders, communication, complex intervention, development, erectile dysfunction, interview, patients' perspectives, physical activity, sexual health, thematic analysis

INTRODUCTION

Erectile dysfunction (ED) often remains overlooked, underdiagnosed and under-treated by health professionals (HPs) [1–4] who rarely discuss ED with men [5, 6]. However, there is increasing recognition of the role of low-risk, low-cost, non-pharmacological and safe lifestyle interventions to lessen the burden of vascular ED [7–9]. A growing amount of theory and evidence demonstrates the beneficial effect of physical activity intervention to reduce vascular ED (PAVED) [8–10]. Guidelines for PAVED are required, as use of the intervention is limited [11]. Guidelines should include not only a suggested physical activity programme but also advice and guidelines for HPs' communication with men [11, 12].

ED, defined as the inability to attain or maintain a penile erection of sufficient quality to permit satisfactory sexual activity [13–15], has a negative influence on the quality of life of affected men and their partners [2, 16, 17]. Vascular ED is considered most prevalent [18, 19] and cardiovascular diseases and ED are two conditions that often coexist, since they are both consequences of systemic vascular disease and share the same pathological basis: reduced nitric oxide production [20, 21], inflammation [22] and endothelial dysfunction [23–25]. Both conditions are linked to a complex of closely interrelated modifiable cardiovascular risk factors, such as physical inactivity [26, 27], obesity [28, 29], hypertension [27], metabolic syndrome [28, 30, 31] and cardiac diseases [9, 32, 33]. ED is reported in 47%–81% of men with cardiovascular disease [34–36].

Cardiac rehabilitation is defined as the sum of activities required to influence favourably the underlying cause of disease, as well as to provide the best possible physical, mental and social conditions [37]. Guidelines for cardiac prevention and rehabilitation recommend regular aerobic physical activity [38–40]. Currently, cardiac rehabilitation is multidisciplinary and incorporates physical activity with a healthy lifestyle, management of cardiovascular risk factors and enhancement of psychosocial well-being [38]. Information about the impact of modifiable risk factors on ED is recommended to be an obligatory part of patient educational programmes promoting physical activity and healthy lifestyle [41, 42], and it is hypothesised to be motivating for men to improve their level of physical activity [7, 43] and other lifestyle habits [9, 20, 44]. International guidelines for cardiac prevention and rehabilitation recommend the address of ED [38, 40, 45], which also applies in Denmark [39, 46]. Guidelines to managing ED for men with cardiovascular diseases recommend physical activity [1, 47, 48]; however, in cardiac clinical practice, men with cardiovascular diseases generally have poor knowledge about the impact of a sedentary life style on ED [42, 49, 50]. Men's lack of knowledge clearly shows the need for developing the intervention regarding HPs' ***i****nformation* about PAVED (i-PAVED), which is a complex intervention due to ED being a sensitive and overlooked topic.

According to The Medical Research Council (MRC), complex interventions in healthcare consist of several interacting components [51, 52]. PAVED comprises the components: HPs' communication, men's performance of physical activity and physiological mechanisms (Figure 1).

Patient assessment, regular aerobe physical activity and physical activity counselling are currently core components in multifaceted, comprehensive cardiac secondary prevention and rehabilitation [39]. However, when it comes to i-PAVED, there seems to be a gap, despite PAVED being recommended in the cardiac ward [53]. The MRC framework [51, 52] highlights the importance of recipients being involved in all stages of development of a complex intervention [51, 52]. A thorough understanding of recipient perspectives is a fundamental element that needs to be incorporated in the development process [54]; nevertheless, the perspectives of men concerning i-PAVED have not previously been explored in municipal cardiac secondary prevention and rehabilitation. Therefore, the objective of this study was to elucidate men's perspectives regarding HPs' communication about i-PAVED in order to develop a feasible, acceptable and effective intervention in future cardiac secondary prevention and rehabilitation.

AIM

To elucidate men's perspectives on cardiac health professionals' communication about PAVED.

METHODS

The study design was qualitative based on 20 individual semi-structured interviews with men with cardiac diseases. The applied interpretive data-driven thematic analysis [55] gives voice to the men [55], which is useful for the development of complex interventions from the receiver perspective [56]. The reporting followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) [57]. The following detailed methods description is to ensure dependability of the study.

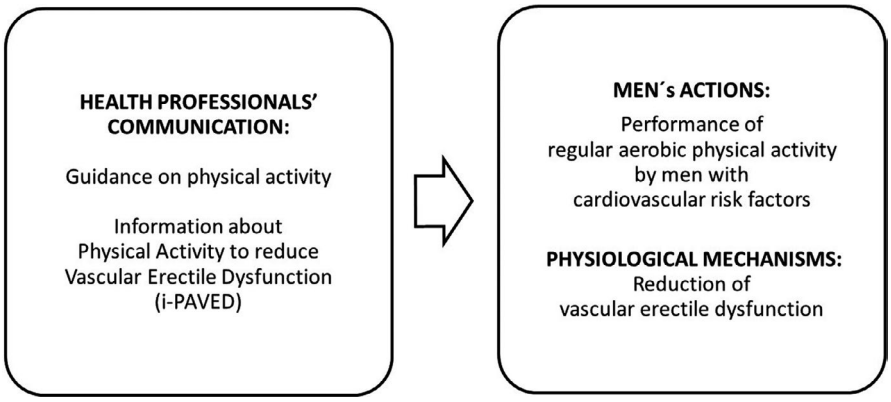

FIGURE 1 Components of the complex intervention: Physical Activity to reduce vascular erectile dysfunction (PAVED)

Participants

The participants were recruited from Danish municipal cardiac secondary prevention and rehabilitation. Excluding criteria were cognitive disabilities. The staff gave potential participants short information about the study. Subsequently, the researcher provided potential participants with verbal and written information about the purpose and procedure of the study and the researcher's profession. Men interested in participating were asked for permission to be contacted by phone. During the phone call, study information was repeated, and if the men then consented to participate, interviews were scheduled. One man chose not to participate due to his partner's lack of permission. In total, a sample of 20 men (mean age 61) participated. Participant characteristics are presented in Table 1.

Data collection

The interviews were conducted from a semi-structured interview guide with open questions based on the aim of the project and research in the field [58]. The first author, a female MA of sexology conducted the interviews. The interview guide was pilot tested and this first interview was subsequently considered suitable for inclusion. As an introduction, the participants were asked to present themselves and their experiences with being afflicted by a heart disease. Opening questions covered experiences related to the men's participation in the programme and the physical training. The interview focused on the participants' perspectives, needs, preferences and beliefs in relation to HPs' communication about ED and i-PAVED (Table 2).

The individual interviews allowed participants to bring up topics and express thoughts that they considered important. The interviews took place either in a meeting room at the municipal cardiac preventive or rehabilitative facilities or in the participants' private homes, according to their choice. During the interview, only the participant and the interviewer were present. Data collection continued until meaning saturation was reached [59]. The interviews were audiotaped and lasted 45–120 minutes. Data were collected during May–November 2019 and all interviews were transcribed verbatim into written form by the first author.

Data analysis

In consideration of credibility and confirmability, data were analysed by the first author in collaboration with the last author. The methodological approach of the study was interpretive descriptive, inspired by both phenomenology and hermeneutics combined in an adaptive approach [60]. In order to search for meaningful patterns (themes) across the interviews, an inductive, data-driven thematic analysis was performed [55]. Following Braun et al., the interpretation of the interviews first entailed a transcription of the verbal data (388 transcribed pages), obtaining an overview of all the interviews focusing on the men's needs, perspectives, preferences and beliefs regarding HPs' communication about i-PAVED and generation of initial codes. The themes were identified from the data, and the first step of the analysis involved initial reading and pre-coding in order to get a sense of all data material and to comprehend the overall meaning of the participants' statements. Preliminary categories and themes were subsequently identified based on the initial coding, and more structured and analytical, meaningful themes and patterns were identified. The themes were reviewed to check whether they adequately captured the contours of the coded data. In the final step, the themes were defined, named, interpreted and in consideration of credibility discussed in relation to other research and theories in the field [55]. In accordance with the adaptive approach utilised in the study, the thematic analysis process was an iterative process, and examples are illustrated in Table 3). The data were managed in NVivo 12 [61].

Ethical considerations

Ethical considerations followed the directions of the Helsinki Declaration [62]. All participants were informed and

TABLE 1 Characteristics of the participating men in the cardiac secondary prevention and rehabilitation

Number	Age	PROs ED	PROs vascular Risk factors for ED	In a relationship	Sexually active	Programme
1	48	No	Non IHD	No	No	RH
2	48	Yes	Ex-smoker, PAi, obesity, DLP, DM2, IHD, MI	Yes	No	RH
3	57	Yes	Ex-smoker, PAi, HNT, DM2, IHD, MI	Yes	No	RH
4	54	Yes	Ex-smoker, PAi, obesity, HNT, DLP, IHD, MI	Yes	No	RH
5	66	Ex	Ex-smoker, HNT, aortic bifurcation prosthesis, IHD	No	Yes	Prev & RH
6	57	Yes	Ex-smoker, PAi, obesity, HNT, DLP, IHD	Yes		RH
7	58	Yes	Ex-smoker, PAi, IHD	Yes	No	RH
8	65	Yes	PAi, obesity, HNT, type 1 diabetes, IHD	No	No	RH
9	47	Ex	Ex-smoker, PAi, obesity, HNT, DLP, aorta rupture	Yes	Yes	Prev
10	62	Yes	Ex-smoker, PAi, obesity, HNT, DLP, MetS, IHD	Yes	No	Prev
11	65	Yes	Non IHD	No	No	Prev
12	50	Yes	HNT, heart failure	No	No	RH
13	59	No	Aortic Valve Replacement	Yes		RH
14	68	No	Ex-smoker, PAi, obesity, IHD	Yes	Yes	Prev & RH
15	78	Yes	Ex-smoker, IHD	Yes	Yes	RH
16	78	Yes	Atrial fibrillation, HNT, DLP	Yes	No	Prev
17	72	Yes	Ex-smoker, PAi, HNT, DLP, IHD, COPD	No	No	Prev
18	55	No	Smoker, HNT, DLP, IHD	No	No	Prev
19	65	No	Ex-smoker, PAi, DLP, IHD	Yes	Yes	Prev
20	66	Yes	Ex-smoker, PAi, HNT, DLP, DM2	Yes	Yes	Prev

COPD, chronic obstructive pulmonary disease; DLP, dyslipidaemia; DM2, type 2 diabetes; ED, erectile dysfunction; ex, former ED; Ex-smoker, former smoker; HNT, hypertension; IHD, ischaemic heart disease; IM, myocardial infarction; MetS, metabolic syndrome; PAi, physically inactive; Prev, secondary prevention; PRO, patient-reported outcome; RH, rehabilitation; Sexually active, sexually active with a partner.

confidentiality was ensured. Recommended procedures to ensure informed consent and voluntariness were followed [63, 64]. Before obtaining the written consent, the men were informed about the study both verbally and in writing, and that their participation was voluntary. Only the involved researchers had access to the recorded and transcribed material. The study was reported to and approved by the Danish Data Protection Agency (Journal Number: UCL-2015-57-0016-040). Data were anonymised using numbers and stored securely. The researchers did not participate in the participants' healthcare.

RESULTS

According to the men, ED was perceived as a major problem and they requested help for self-help by HPs competent in the field. An overview of these themes and related subthemes are presented in Table 4.

Erectile Dysfunction – a major problem

Erectile dysfunction was as a major problem, because it was perceived to diminish the men's masculinity, affect their relationship and be an unsolved problem, tabooed by HPs.

Diminished masculinity

The men perceived the ability to have an erection as the very symbol of manliness and manhood:

TABLE 2 Interview guide for the men's perspectives on HPs' communication about i-PAVED.

Research question	Interview topics
What are men's perspectives, needs, perceptions, preferences and beliefs regarding cardiac HPs' communication about sexuality, ED and i-PAVED?	Please tell me about your cardiac disease and related symptoms (increased blood pressure, increased cholesterol, etc.) Are you aware that ED is common for men with (symptoms of) cardiac disease? Have you communicated about ED at the municipal programme or with other HPs? If not - brief 'information' about the link between vascular dysfunction and ED: What does that information mean to you? Has your erectile function changed in relation to your cardiac disease? How is your erectile function? What does it mean to you to be able to get an erection/to have ED? Did the HPs inform about physical activity to reduce ED? Do you know anything about this? After some brief information about how and why physical activity can reduce vascular ED, how would it be for you if the HPs provided these links? Could it affect your motivation to be physically active? Did the HPs at the municipal programmes address sexual issues? How and when were issues regarding sexuality addressed? Examples? How and when would you prefer sexuality and ED to be addressed by HPs? Which information would you like your partner to receive? Examples? Are there issues of importance for you that we have not discussed? Thank you for your participation

> -If you can get an erection, you are a real man. [1]

Typically, sexual activity was identical to having penetrative intercourse with their partner, expressed as being able to 'take' their woman. That was very important for the men's masculinity. ED was perceived as diminishing their masculinity, a vulnerability and defencelessness exposing the men to the possibility of being emotionally harmed, causing emotional distress and pain:

> -A part of being a man is that 'it' works. Men do not talk about it [ED] because being a man is, 'of course, I can "fix" my woman'. That is a man's vulnerability. It hurts me not to be able to get an erection. [10]

The diminished masculinity was related to feelings of inadequacy and insufficiency, which resulted in abandoned sexual activities to avoid defeat. Thus, ED was a distressing, frustrating and major problem that the men want to change and solve, and HPs to address:

> -When a man becomes … his pride… All men know that. Because your manhood gets a crack. We all descend from primitive people and have thoughts like, 'now she must have a good lay'. If you cannot, then you suffer a severe blow. Regardless if you want to admit it or not. If you have experienced many times that it has not worked, then the thought comes: I cannot bear to try again. Your pride gets a crack. Inside – I think you want to solve that problem. Because when you have that problem, it is really a problem. [7]

Affected relationship

Men's perception of ED as a distressing problem was also due to a lack of knowledge, diagnosis and explanation of potential causes of their ED:

> -I don't know what causes my erection problems. [4]

Men preferred HPs to address the potential causes of ED, because lacking this knowledge was related to an uncertainty that, in turn, negatively affected both the men and their relationship. Not knowing the cause of ED meant that it was inexplicable and mysterious – a concern connected with self-blame and feelings of guilt, shame and sorrow for the men and their partner:

> -My wife guesses just as much about what the cause of my ED is and whether it is her fault.

TABLE 3 Examples of thematic analysis

Research questions	Themes	Subthemes	Codes	Illustrative quotes
Men's perspectives regarding cardiac HPs' communication about i-PAVED	Erectile dysfunction - a major problem	Diminishes masculinity	Masculinity	'A part of being a man is that "it" works. Men do not talk about it [ED] because being a man is, 'of course, I can "fix" my woman'. That is a man's vulnerability. It hurts me not to be able to get an erection." [10]
	Help for self-help	Content of communication	How to prevent / reduce ED	'Information that physical activity can prevent ED will be motivating for exercising, and I think it is important to tell us in general about all the positive effects it has to exercise and be in good shape'. [1]
	Competent health professionals	Trust, safety and competence	Professionalism	'I would like to have someone to talk to who has both the education and the empathy in relation to it [ED]'. [3]

i-PAVED, information about physical activity to reduce erectile dysfunction.

> Thus, my wife is just as affected by it [ED] as I have been and am, and I have indeed experienced my wife sad. [3]

Men considered HPs' address of ED as needed and necessary, while at the same time, the men deliberately tried to ignore ED. Focusing on other 'masculine' activities, pushing away and neglecting their partner, they tried to lessen the confrontation and avoid losing face – although this self-defence also leads to painful distance and diminished communication, and closeness, as well as decreasing the physical and emotional intimacy in the relationship:

> -That is why I keep it [ED] away. Displace it. Pack it away. I keep myself occupied with other interests. I do everything I can not to turn on my wife as a defence. I push her away, though it is painful too. Now I have tried so much to keep her away and I just succeeded. Eventually she will just stay away. [10]

Tabooed by health professionals

Although men had several vascular risk factors for ED, no HPs had initiated communication with them about the links between risk factors and ED. Unaware that ED could be caused by disease-related factors, typically, the men had not raised their ED problems. This two-way taboo was perceived as silencing ED and neglecting men's need for HPs to initiate communication about potential disease-related ED:

> -You do not get to know that anywhere in the healthcare system! Nobody has talked about it, neither the doctor nor anybody else. I did not know, although I have had high blood pressure for a long time. Unfortunately, no one has asked about it (ED) and I could not address it. [6]

The men had experienced that a nurse at the cardiac secondary prevention and in a group session had communicated about cardiovascular disease and ED in a brief and superficial way. The men needed information and advice about potential possibilities to reduce ED. This was not discussed – apart from oral pharmacological medication called PDE5i and among laypeople called 'the blue pill', which is the most common choice used to compensate for ED. Typically, the men had tried oral medication; however, they had negative experiences that frustrated them. In general, the men did not use oral medication, and it gave rise to unsolicited sharing of experiences:

> -Then we came to the topic of sex. However, she did not say 'what can be done, then'. That would be very nice to know. She just said 'the blue pill',

TABLE 4 Overview of themes and subthemes regarding health professionals' communication

Health professionals' communication concerning i-PAVED - perspectives of men in cardiac rehabilitation			
Themes	Erectile dysfunction – a major problem	Help for self-help	Competent health professionals
Subthemes	Diminishes masculinity Affects relationship Tabooed by health professionals	Content of communication Context of communication	Permissible communication Trust, safety and competence

i-PAVED, information about physical activity to reduce erectile dysfunction.

> and then it came: We have tried it; it does not help at all. [14]

In the men's perspective, ED was a taboo topic for HPs, but communication about ED was needed because the men experienced ED as a huge problem diminishing their masculinity and leading to an unsolved, uncertain, inexplicable mystery that negatively affected their relationships.

Help for self-help

The men preferred help for self-help in the form of HPs' communication about i-PAVED to reduce and to cope with ED. The content of that was needed to be communicated in the various contexts: in groups, individually, for couples and through written material.

Content of communication

For men without ED i-PAVED was equally important because of the preventive effect of physical activity on ED, the importance of maintaining the erectile function as well as their motivation to comply with the recommendations in the cardio training programme:

> -Information that physical activity can prevent ED will be motivating for exercising, and I think it is important to tell us in general about all the positive effects of to be in a good shape and exercise. [1]

As the men were uninformed about PAVED and vascular risk factors for ED, they needed HPs' information and explanations on that subject to improve knowledge and understanding. Since ED was experienced as a vulnerability and a tabooed topic, the men believed that HPs' simple, theoretical and physiological explanations on how and why PAVED and other lifestyle changes work could be a helpful way of overcoming the sensitive ED-related topics:

> -I think they have to explain about the blood vessels, that is, give a kind of theoretical and technical explanation of it (ED), and that it (ED) may be remedied with exercise and dietary changes. [20]

The men who wanted to solve their problems with ED needed HPs' comprehensive, general information about what can be done about ED, what men themselves can do to reduce ED and which available aids can compensate for ED:

> -What can be done about it (ED)? I do not use those ED pills; however, there must be something else. What about pelvic floor exercises, a penis ring or some other aids? There is too little information about what can be done about it. [17]

The men believed that HPs' communication about sexual response, anatomy, physiology and vascular risk factors would be comprehensive and manageable, and they had a need for HPs communicating about how to cope with ED as well as how to resume and maintain sexual intimacy when living with ED:

> -Make us aware of factors regarding sexual desire, erectile function, blood circulation, atherosclerosis and swelling bodies. It is purely practical, functional, understandable and manageable. Then there is the second part, saying being intimate together does not necessarily mean 'give her the bone' – intimacy can be many other things. [2]

Typically, ED was experienced as a major problem. However, few of the men had the personal resources to handle ED by believing in their ability of maintaining sexual intimacy and other ways to have a close intimate relationship with their partner:

> -For a long time, it was a nuisance to me because … well, it is some idea I had that if the woman didn't get a penis inside her, then you could not satisfy the woman, but that's more in the background now. After all, there are other ways to do it. Most people my age also accept that when you are older … well, then, there are some other values taking over. [20]

Context of communication

The men had a wish that communication in groups should only include general information and illustrative teaching regarding ED and i-PAVED:

> -Teaching and meaningful information. Posters of the vascular system can illustrate how the body is affected by physical exercise, and for comparison, pictures of the blood circulation in connection with sexual [excitement] can be showed. [8]

The men emphasised a need for HPs' professionalism in providing general information about sensitive topics like ED and i-PAVED to avoid embarrassment:

> -A professional can provide general information and to go in depth with it without the other person feeling obliged to say that I have a problem. [3]

The men had different perspectives on whether women should participate in the group sessions. Some of the men stated that HPs' communication about sexual problems was also relevant for their partner and for women at the cardiac programme:

> -Yes, the wives should be involved, and the women with cardiac disease must have [sexual] problems too? [17]

Likewise, some of the men believed that women's communication could facilitate and improve the group conversation about a sensitive and vulnerable topic like ED:

> -When talking about vulnerability in a man, to men in a group, then nobody wants to speak first. We could have had much better talks if women had participated. [10]

On the other hand, some of the other men thought that women being present could be a barrier for men's conversation about sensitive topics like ED, as men's protection of their own vulnerability and masculinity make them reluctant to expose themselves when women were present:

> -You should separate men and women, because then the men dare speak up. As long as women are present, then men are reluctant to speak up. A man does not want to be open in front of a woman. [17]

Because of the men's vulnerability in relation to ED, they had a need for HPs' to provide individual sessions and sessions for couples addressing specific issues related to sexuality and ED:

> -It is obvious that the dialogue could be followed up with individual conversations where the partner is also invited. When you know that there may be some disease-related sexual problems, and it is not certain that the wife is aware of all that. That is why I think it is important and very relevant to involve the partner. [15]

Written material regarding disease-related risk factors for ED was considered as potentially helpful to improve the understanding of ED and meet the partner's potential guilt and shame, and thereby improve the couple's feelings for and understanding of each other:

> -She could benefit from a pamphlet called 'understand that I have a problem, and it is not your fault that I cannot get an erection'. [4]

Written material was considered as useful in understanding causes of different types of ED as well as how and why PAVED and other modifiable lifestyle factors may influence ED:

> -You get so many other pamphlets about the heart, but they say nothing about ED. It just says you have to quit smoking, eat green and exercise. We need a booklet on erectile function and physical activity. [6]

In relation to the contents and context of HPs' communication, the men only wanted general information in group sessions about sexuality, (vascular) risk factors for ED, i-PAVED and intimacy, which could provide them with knowledge and understanding of ED. HPs should give permission to address these sensitive issues as well as general information regarding self-help on how to prevent, reduce, compensate for and cope with ED. More specific and personal counselling was considered better suited in individual sessions, either alone or together with their partner. Available written material regarding ED and i-PAVED was also believed to be beneficial.

Competent health professionals

Communication in relation to sexuality, ED and i-PAVED should be provided by competent HPs.

Permissible communication

The men were frustrated that their attempt to solve ED with oral medication failed. They felt ignored and rejected when the doctor prescribed the oral medication to them during a superficial, time-limited routine consultation:

> I saw the doctor and I got these 'Viagra'. I think he is very superficial. He was busier getting me out of the door again, so I do not talk very well with him. [7]

Instead, the men with ED wanted communication about ED to be permissible. Because ED is a tabooed topic that is difficult to talk about, the men with ED had a need for HPs to initiate the communication saying out loud that ED is common and can be perceived as a major problem:

> -You just have to start by saying that it is a general or a huge problem that no one talks about – because you do not. [7]

Trust, safety and competence

Communication about ED was perceived as a potential exposure of the men's vulnerability and defencelessness, at the same time as the men had felt rejected due to insufficient communication about ED. Therefore, HPs' ability to communicate about sexuality, ED and PAVED in an open-minded, confident, assertive way was crucial:

> -The person must be 'straightforward', so that you get a relationship of trust, even if you do not know the person, so you feel safe. [9]

Communication about ED requires the HPs to be empathetic, educated and competent in providing relevant and beneficial information and dialogue:

> 'I would like to have someone to talk to who has both the education and the empathy in relation to it [ED]'. [3]

The men believed that any type of HP profession should communicate about i-PAVED; however, the men stressed that HPs should be educated, knowledgeable and have a good understanding in the field of sexuality, ED and i-PAVED.

> -A health professional who has an education in the field. That would be okay. [3]

Health professionals should be able to communicate about sexuality, ED and i-PAVED in a permissive, empathetic, trustful and emotionally safe way and be knowledgeable, educated and competent in this field.

DISCUSSION

This is, to our knowledge, the first study focusing on men's perspectives on HPs' communication about i-PAVED. The study has generated insight into men's perspectives, needs, preferences, beliefs and perceptions on cardiac HPs' communication about i-PAVED, which inspired by Hoffmann et al. [65] is discussed in relation to why, what, how and which regarding HPs' communication.

The men had several reasons for *why* HPs should communicate about ED and i-PAVED. However, the men's needs were unmet, and sexual healthcare information is found to be rarely addressed [66, 67]. ED was a major problem for the men, affecting their masculine identity and manliness, causing emotional distress and pain. Such psychological ED-related problems are also found in men treated for prostate cancer [68, 69] and in general for men with ED [70, 71]. The men lacked knowledge on cardiovascular risk factors for ED and an examination and diagnosis explaining ED. As ED was experienced as inexplicable, it became an uncertainty and a mystery to men and their partners that negatively affected their intimacy and relationship. Previous studies have found social consequences of ED [67, 70, 72, 73] as well as gaps in integrating sexual counselling for cardiac patients and their partner [41, 67, 74, 75]. ED problems were unsolved by oral medication, which has been found to be the case for many men and among the most prevalent barriers to utilise this medication. The men searched for meaning and solutions for their ED, which is nothing new [70]. As the men had a broad range of problems related to ED, a multidisciplinary, integrative and biopsychosocial approach in communication about ED, covering all facets of the men's ED concerns was interpreted to meet the needs of men and their partners, cf. [76–78]

In the men's perspective on *what* HPs' communication should entail, help for self-help was preferred. Hospital sexual rehabilitation consisting of physical activity and psychoeducation can empower patients to self-help [53]. The men's lack of knowledge and unawareness of PAVED and other links between lifestyle factors and ED have been found before [49, 67, 79] – especially concerning the physical inactivity factor [42]. There was a call for HPs' communicating about simple theoretical, anatomical and physiological explanations of ED, and how and why PAVED and other lifestyle factors work and possibly prevent and reduce ED. The richness of these results and men's needs regarding i-PAVED are new, albeit patients' need for explanations regarding cardiovascular risk factors and advise on how to deal with ED is not [42, 49, 67, 80]. That content seems to promote both the understanding, meaningfulness and manageability of ED, as well as men's motivation to be physically active, as previously assumed [7, 9, 43]. Comprehensive general information on (1) what can be done about ED, (2) what the men can do themselves, (3) what aids are available; and (4) how to cope with ED and improve intimacy can further complement the field of knowledge [67, 74, 80]. As the men perceived ED as major problem, ED can be interpreted as a stressor. The men's need to cope with the stressor of ED, may indicate that HPs' communication about various aspects of ED, i-PAVED and sexual health make ED

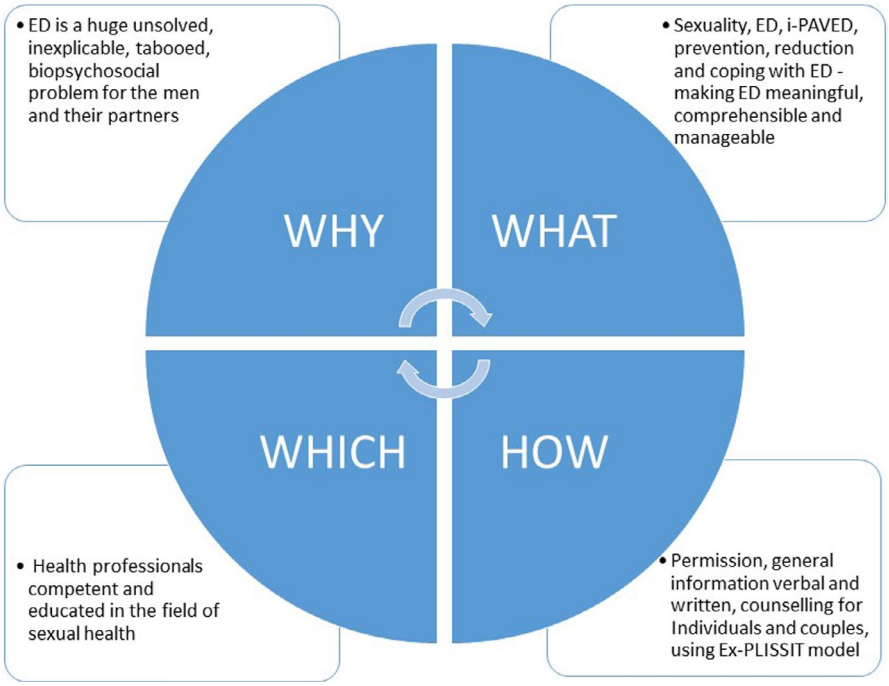

FIGURE 2 Men's perspectives on why, what, how and which regarding HPs communication about i-PAVED

more meaningful, comprehensible and manageable. Thus, applying the theoretical framework Sense of Coherence can be considered [78, 81].

The men had experienced ED as a taboo topic for HPs, which is a frequent finding [82, 83]. In relation to *how* HPs should communicate, the men wanted them to initiate and give explicit permission for discussion of ED, which is a recommendation [41, 82, 84] that can also apply to i-PAVED. When HPs address ED and i-PAVED, applying the ex-PLISSIT model [85] is considered to sharpen their awareness of giving **P**ermission, which is a core feature in the four levels of PLISSIT-intervention [85]. In relation to the level of **L**imited **I**nformation, the men preferred HPs' verbal communication, patient education, illustrative teaching and dialogue regarding general information as well as written material [67, 80]. Regarding the level of **S**pecific **S**uggestions, individual sessions and sessions for couples, addressing specific information related to sexuality and ED were perceived as relevant and important, and it is in line with patient-centred rehabilitation [3, 74, 86].

In contrast, insufficient consultations can lead to men's feelings of rejection that can produce feelings of shame and embarrassment. Social bonds, interaction [83] and trust are essential in the patient-professional relationship [87], which can be threatened, destroyed or broken due to patients' feelings of rejection [87]. Regarding *which* HPs should provide counselling, the men believed that in principle, i-PAVED can be handled by any type of HPs. However, in concern for men's experience of vulnerability, they stressed that HPs should be competent, educated and professional in the field of sexual health. This requirement was a strong finding; and in relation to the purpose of the study, the men's requirements were surprising – and a requirement that is currently not met [66]. Being professional means working and communicating in a way that is competent and respectful. Professionalism is defined in the Three Ps model - a model developed from practical experience [88]. The **P**rofessional part relates to responsibilities, education and competences. The **P**ersonal part recognises the individual's uniqueness; thus, sharing experiences and preferences may help to create a professional connection. The **P**rivate part refers to the area of life that is only shared with close relatives; thus, inappropriately sharing something from the private self may leave the HPs feeling vulnerable and the patients feeling intimidated. Following the men's perspectives and the Three Ps model, HPs' address of sexuality, ED and i-PAVED has to be based on professionalism and education in the field of sexual health. To ensure this, the HPs' educational programmes should include basic knowledge about disease-related impact on sexual health and how to promote sexual health [89–91].

The results of the analysis are discussed focusing the questions of the why, what, how and which regarding HPs communication about i-PAVED. These discussions are essential aspects in the development phase of an intervention [54] as illustrated in Figure 2.

Study strengths and limitations

Considerations of credibility, dependability, confirmability and transferability strengthen the trustworthiness of this qualitative study. However, researchers cannot free themselves of their theoretical and epistemological commitments, and data are not coded in an epistemological vacuum [55]. Due to her background, the interviewer may not have been completely able to put her preconceptions in parentheses, and a researcher

with a different background might achieve different nuances in terms of results. Recruitment was done from a Danish municipal cardiac secondary prevention and rehabilitation, and the transferability of the results may be limited to similar contexts.

CONCLUSION

Erectile dysfunction was experienced as a major biopsychosocial problem for the men and their partners. The men had a need for health professionals' communication about sexuality, ED and information about physical activity to reduce ED as well as about prevention, reduction and management of ED. The men had a need for the health professionals' permission for conversation about sexuality, general information, oral and written, individual counselling and sessions for couples provided by health professionals educated and competent in the field of sexual health.

ORCID

Helle Gerbild https://orcid.org/0000-0003-0699-4264
Kristina Areskoug Josefsson https://orcid.org/0000-0002-7669-4702
Camilla Marie Larsen https://orcid.org/0000-0003-4691-3609
Birgitte Schantz Laursen https://orcid.org/0000-0003-4300-4645

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