Swedish men and smoking: Views on screening-detected abdominal aortic aneurysm

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Abstract
Abdominal aortic aneurysms (AAA), most common among elderly male smokers, often show no symptoms before rupture. To facilitate better care and counselling targeted to smoking cessation for these patients, more knowledge is required about their views. Therefore, the aim of the present study was to describe the views on AAA and smoking among male smokers with screening-detected AAA. A qualitative approach with individual interviews with 16 men with screening-detected AAA was applied. Three had quit smoking by the time of the interviews. Thematic analysis was performed, and four themes emerged: (i) accepting the course of life; (ii) the elusive AAA: a disturbing experiencing or merely a minor inconvenience?; (iii) being in safe hands; and (iv) smoking as an unexpected topic of discussion. Most of the participants felt they were in “safe hands”, although thoughts about death were also evoked. However, the information about smoking cessation was unexpected, and the relationship between AAA and smoking unclear. Presenting the connection between AAA and smoking in a clear manner and motivating smoking cessation in an individually-targeted way are important.

KEYWORDS
abdominal aortic aneurysm, interview, qualitative approach, smoking cessation, systematic text condensation

1 | INTRODUCTION

Registered nurses (RN) share a vital role in the care and counselling of patients with abdominal aortic aneurysms (AAA). The most important risk factors in the development of an AAA are history of smoking, family history of AAA, older age, and male sex (Kent et al., 2010; Wanhainen et al., 2005). AAA are typically symptomless and expand slowly before rupture. A ruptured AAA is associated with high mortality (80%), but screening for AAA among men aged 65 years has been successful in reducing AAA-related death and all-cause mortality (Lederle, 2016; Moll et al., 2011). The surveillance of growth through ultrasound and advice on smoking cessation, when appropriate, are the cornerstones in the care of men with small AAA. Elective surgery is an option when the aneurysm is at the threshold size of 55 mm in diameter and with a rapid rate of growth.

A recent large-scaled study in the UK showed that men with screening-detected AAA had a lower physical quality of life (QoL) than controls. Initially, they also had a lower mental QoL, but this returned to normal after 12 months (Bath, Sidloff, Saratzis, & Bown, 2018). QoL has been defined as “an individual’s perception of their position in life in the context of the culture and value system in which they live and in relation to their goal, expectations, standards and concerns” (WHO, 1999). In a Dutch interview study, men under AAA surveillance were content with the information provided and the ultrasound follow ups (Tomee et al., 2018).

Screening for AAA was established in Sweden in 2006, and findings among elderly men 5 years after screening showed that they generally did not express worry or concern about their condition (Wanhainen & Björck, 2011; Wanhainen et al., 2016). A screening-detected AAA has accordingly been described as “a drop in the ocean and overshadowed by other conditions” (Brännström, Björck, Strandberg, & Wanhainen, 2009, p. 72). However, Hansson, Brodersen, Reventlow, and Pettersson (2012) reported feelings of ambivalence among participants with AAA. They concluded that the invitation to...
screening should involve information about possible adverse reactions that might result from a screening-detected AAA, in order to provide better grounds for an informed decision on whether to take part in the screening (Pettersson & Bergbom, 2013). Providing information about the course of an illness is always challenging, both on content and timeliness. For instance, Letterstål, Sandström, Olofsson, and Forsberg (2004) showed that men who received an information booklet before surgery for AAA scored higher on worry than controls who did not receive such information. Their conclusion was that a supportive educational program might benefit these men.

Pettersson and Bergbom (2013) showed that participants wanted to affect the growth rate of AAA by making lifestyle changes. These participants also experienced ultrasound examinations negatively affected their well-being. A crucial factor affecting the growth of AAA is continued smoking, which can increase the size by .35 mm/year and double the risk of rupture (Sweeting, Thompson, Brown, & Powell, 2012). Thus, smoking is an important risk factor for growth and rupture. However, smoking cessation rates are generally low among patients with AAA, as having a small aneurysm might not be considered an adequate reason to quit smoking (Bohlin, Fröjd, Wanhainen, & Björck, 2014; Hansson et al., 2012; Suckow et al., 2016). Registered Nurses (RNs) have a vital role with respect to providing care, information (e.g. about smoking cessation), and emotional support for men with AAA. Web-based interventions for lifestyle changes have shown positive results in other patient groups (Kim & Kim, 2017).

Caring for men under surveillance for small AAA who need information, support, and advice on smoking cessation is challenging. Thus, there is an increasing need for comprehensive knowledge about concerns and viewpoints of men with this condition in relation to the process of discontinuing smoking. Therefore, the aim of the present study was to describe views on AAA and smoking among male smokers with screening-detected AAA (Table 1).

### 2 METHODS

#### 2.1 Design

A descriptive study with a qualitative approach was conducted. This approach was adopted because it is a useful way to investigate people's thoughts, experiences, and perceptions of different phenomena (Patton, 2015). Individual interviews were carried out with 16 men with screening-detected AAA, to elucidate their views and experiences. A systematic text condensation, according to Malterud (2012), with an inductive approach was conducted. This approach was chosen as there are no particular theories or models applicable for guiding the analysis in this research field.

#### 2.2 Sample and setting

The study was conducted at university hospital in mid Sweden. Men >65 years of age were initially invited by letter to a population-based screening for AAA using ultrasonography at a vascular outpatient clinic. When an AAA of 30–50 mm was detected, an ultrasound technician informed the patients about the enlargement, and they were invited to a nurse–patient consultation within 4 weeks after detection. The purpose of this consultation was to offer information about AAA, surveillance, and treatment. Those who were smokers received additional information about the advantages of smoking cessation. Furthermore, smokers were offered individually-delivered smoking cessation counselling services at the university hospital's Department of Pulmonary Diseases.

Men under surveillance for a screening-detected AAA at the outpatient clinic were identified from the local patient register and invited by telephone and letter to participate in the study. Criteria for inclusion were an aortic aneurysm of 30–50 mm in maximal diameter and active smoking at the time the AAA was detected. A purposeful sample of 16 men with a maximum variation in time from diagnosis, aortic diameter, and geographic location were interviewed to capture a rich picture of the studied phenomenon. We included both men who had been recently diagnosed and men who had lived with their AAA for some years. Their median age was 67.5 years (range: 65–70), with four living in urban areas and 12 in rural areas. Four of the participants were interviewed 2–4 weeks after detection, and 12 1–5 years after detection (median 1.5 years after detection). The median diameter of the AAA was 32 mm. Three participants had quit smoking between the screening and the time of the interviews. When data seemed saturated, four more interviews were conducted. As no new themes emerged, data collection was ended.

#### 2.3 Data collection

Semistructured interviews, conducted in 2014–2015, were used to gather information about the participants' views on AAA and smoking. Our research team developed a semistructured interview guide using evidence from literature reviews and advice from experts on AAA and interview studies. The interviews, performed by the second author and varying in length from 25 to 55 mins, focused on the following questions:
1. What is an AAA to you?
2. How does it appear to you?
3. What is your opinion of the effects of smoking on AAA?
4. What is your view on smoking cessation on the risk of developing an AAA?
5. What can health-care professionals do to help with smoking cessation?

Probing and follow-up questions were asked (e.g. "What does this mean to you?" and "Could you please give me an example?") for further information. The data were rich with vivid expressions and had satisfactory information power (Malterud, Siersma, & Guassora, 2016).

2.4 | Ethical considerations

Ethical permission was issued by the Regional Ethical Review Board in Uppsala, Sweden (no. 2013/406). The investigation conformed to the principles outlined by the World Medical Association in the Declaration of Helsinki (2008). The participants received oral and written information about the study, and were informed that participation was voluntary and that withdrawal was possible at any time without any consequences for their care and treatment. They were also informed of the confidential nature of the interviews, and were given time for consideration before accepting or declining. Some of the participants, who had unanswered questions that were necessary to attend to after the interview was over, received additional information.

2.5 | Data analysis

The interviews were transcribed verbatim and then processed as texts. A thematic analysis with a systematic text condensation (STC), according to Malterud (2012), was conducted. STC was developed as a pragmatic analytical procedure, inspired by the steps in Giorgi's phenomenological analysis method (e.g. Giorgi, 1997).

The analysis was done in four steps. The first step included getting an overall impression of the data and identifying preliminary themes. According to Malterud (2012), the analysis benefits from being conducted by more than one researcher, to create a wider analytical space. Therefore, the first, second, and last authors read the interviews several times and established preliminary themes.

The second step entailed the identification and sorting of meaning units arising from the preliminary themes. This coding was done separately by two of the authors (SB, CF) who identified, classified, and sorted meaning units potentially related to the preliminary themes established in step 1. During the development of the codes, a decision trail and tacit rules were formed, whereby the distinctions between the codes were identified and meaning units could be sorted accordingly.

The third step was condensation, which involved having meaning units de-contextualized and classified into subgroups. During this step, three of the researchers (IKH, SB, CF) discussed the themes and subgroups until consensus was reached. Preliminary theme headings were then set and reviewed and discussed by all authors.

The fourth step included a synthesis. The subgroups were reviewed for their place in the system, after which they were discarded and the narrative synthesis was written as an analytic text, including quotations as illustrative examples.

2.6 | Rigor and trustworthiness

Our aim was to uphold criteria for qualitative studies: transferability, credibility, confirmability, and dependability (Lincoln & Guba, 1985). Credibility involves the truth of the data and the analysis. Dependability involves the stability of the data over time. In the present study, an audit trail was conducted, and we critically reflected on the data-collection and analysis procedures. For example, the recruitment of the participants and the methods of data collection and analysis were chosen to correspond to the aim. The authors’ goals were to make it possible for the readers to understand the logic of the findings. In addition, to ensure confirmability, quotes are used to illustrate that the analysis and findings are grounded in the data. Finally, we attempted to describe the context and sample in a way that allows the reader to judge the transferability of the findings.

3 | RESULTS

Four themes emerged from the analysis of the views of men with screening-detected AAA and its relationship to smoking: (i) accepting the course of life; (ii) the elusive AAA: a disturbing experiencing or merely a minor inconvenience?; (iii) being in safe hands; and (iv) smoking as an unexpected topic of discussion (Table 2).

3.1 | Accepting the course of life

Some participants talked about growing old and about accepting that changes come with age and retirement. They described it as entering a new phase of life, adopting a focus centered on the positive aspects in life:

I'm retired. I don't have time to be sick. I have more fun things to do. (Participant 13)

They described that it was also important to think of other things than illness and dying, and most importantly, remain calm under stressful circumstances:

Getting all worked up for nothing...I don't bother anymore. The older you get, the cooler you become. (Participant 5)

Even if thoughts about AAA and dying suddenly materialized, the participants reported that it was even worse to get very old, be alone, and be deprived of QoL. If things were to change, however, the participants noted that it was important to know about these changes and what to expect from the future. They stated that, at this point in life, family, friends, and acquaintances could become ill or even die. Initial AAA screening could cause uncertainty among the male participants, as well as the thought that it might be their turn soon, followed by a feeling that this time they escaped death. Some of the participants
TABLE 2  Examples of the analysis process according to the steps of the systematic text condensation

<table>
<thead>
<tr>
<th>Quote</th>
<th>Condensed text</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>It comes like one blow after another and the fear that I would die...I don’t know...I feel I’ve lived close to the edge for a while now. It does not affect me so much, this aorta thing. Well, yes, it’s 33 mm, and every second year they’ll check it. Maybe I don’t live 2 years from now. It might be other things that...anything could happen really...If you were 65 you might also see it in a different way. It’s a good thing that it’s age related, and that youngsters don’t get it...It’s genetic and what should I do about that?</td>
<td>It comes with age, one blow after another. I don’t know if I will live 2 years from now. I have a genetic disease, and it could be slowed down but not stopped. There is nothing to do about it.</td>
<td>Accepting the course of life</td>
</tr>
<tr>
<td>My AAA is a borderline case....It’s not something to be bothered about, but at the same time, I know that my dad had it. He had surgery and the put in a graft. So it might be like 10 years. If it grows like a millimeter per year, it will be a long time before I’m there as well. And they told me it wasn’t explosive in my case. I can lift heavy stuff and live as usual, as this does not affect it.</td>
<td>My AAA is a borderline case and nothing to worry about. I know they can be explosive, and it runs in the family. For me it can take up until 10 years before surgery is needed, and I can live as usual.</td>
<td>The elusive AAA: a disturbing experiencing or merely a minor inconvenience?</td>
</tr>
<tr>
<td>But I feel safe because I’m under surveillance. I was not extremely worried, but I thought about it for some time. And after that some minor thoughts, but it’s notting which upset me or anything.</td>
<td>I feel safe as I’m under surveillance. I do not think much about it.</td>
<td>Being in safe hands</td>
</tr>
<tr>
<td>I’m surprised that this conversation was so much about smoking. I got this brochure and a lot of advice...I didn’t think about this meeting as an antismoking campaign. It kind of derailed and it was all about smoking...I felt I had gotten the information I needed, but it was so much about smoking.</td>
<td>It was unexpected to me that this encounter should have such a strong focus on smoking. I got a lot of information.</td>
<td>Smoking as an unexpected topic of discussion.</td>
</tr>
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had come close to experiencing death. Furthermore, some had other troublesome conditions, which were considered a daily struggle and were more relevant than the AAA:

It comes like one blow after another and the fear that I would die...I don’t know...I feel I’ve lived close to the edge for a while now. (Participant 1)

3.2  The elusive abdominal aortic aneurysm: A disturbing experiencing or merely a minor inconvenience?

Most of the participants focused on the fact that the AAA was asymptomatic. They often described it in millimeters and as an aneurysm, a marble, a tumor, a widening, a small deviation, or even a normal condition of aging:

This has no physical effects, not yet...I can’t feel it, so you can go around with this for quite a while obviously. (Participant 3)

Other participants used metaphors, such as "main electrical supply" or "barrel", to describe the blood vessel. The participants sometimes expressed a view or feeling of this condition as either innocuous or as a potentially lethal condition, sometimes in the same sentence. One participant had the feeling that this was deviant, but he had no symptoms and did not suffer from his aneurysm, although he had heard of someone who had died from a ruptured aneurysm ("the explosive kind"). Therefore, the participant described it as more of a condition lacking substance. In recent years, his AAA had not grown much, so from his perspective, worrying about it was unnecessary.

Yes, it’s a bit wider. I can’t feel it. Not that I know of anyway. [Laughing]. Yeah, but you can’t feel your liver or kidneys either...they just work. (Participant 9)

Sometimes, however, the AAA could present itself as a more intrusive or disturbing thought, leading to changes in daily physical activity:

Knowing that, hell, you have a weakening of the aorta, which might “pop”. It’s a subconscious barrier to heavy work. I’m subconsciously cautious. (Participant 7)

Rupture of the aneurysm was viewed as a serious condition and associated with death, whereas surgery was considered differently among the participants in terms of something to avoid, but also as a final option:

I’m not worried (that) there’s a difference...it might grow and that’s when you get a bit more worried...if you must have surgery or not. (Participant 12)

3.3  Being in safe hands

The interviewed men stated that they felt taken care of by responsible and trustworthy health-care professionals. As the participants could not feel whether their AAA was growing, they had difficulty in determining whether their health was deteriorating. Consequently, they had to put their trust in health-care professionals with whom they
The participants mentioned check-ups as something that regularly and expectantly take place. Thus, the participants had a generally positive perception of the health services. One participant had had thoughts of death until he was informed that the AAA was an indolent process, that is, it grows very slowly, which meant it was not an immediate threat:

“But this wasn't dangerous”, she said, so I was very grateful to be there and have a check-up anyway, cos it's better to be a day early than a day late.

(Participant 12)

However, the constant guidance and control procedures were described as having to be dependent on health-care professionals. To discover changes in the aorta, the participants had to rely on regular controls and the reassurance of health-care professionals:

When an aneurysm reaches 55 mm, it can be repaired with an intervention, but it was 30 something, neither negligible nor alarming, they thought...and with today's technical advances, shouldn't it be possible to fix this?

(Participant 7)

3.4 | Smoking as an unexpected topic of discussion

The topic of smoking was perceived as unexpected, given the participants' medical condition. However, the participants reported that it was common for health-care professionals to explain the dangers of smoking on health. The participants reported that, in recent years, every health-care professional, regardless of setting, had brought up the negative health effects of smoking and the damage to health caused by tobacco use. However, the consultation with the RN after the AAA diagnosis was mostly perceived as antismoking information.

Three participants had quit smoking at the time of the interviews. Their reasons for quitting varied; one participant said that he had quit because he simply forgot to smoke, another quit because of leg cramps, and one quit after being hospitalized for a critical illness unrelated to the AAA. Some participants stated that it was hard to evaluate the significance of smoking on health, in that there are many other toxins in the environment, as well as constant reporting in the media on other dangers. Furthermore, they expressed that there must be other key factors accounting for the formation of an aneurysm (e.g. genes):

It's not specifically associated with being a smoker. I don't think so, but it's kind of a male, aging problem, maybe. (Participant 8)

According to some of the participants, moderate smoking should not seriously harm the body. The information they received from the RN did not clarify the link between smoking and AAA, as shown in the following statement:

Yeah, I don't think it's that important. I think it continues to grow anyway. It's not going back and getting well because you stop smoking, I don't think it will.

(Participant 11)

It took time for some of the participants to consider smoking cessation, as smoking seemed to affect the growth rate of AAA, but could not reverse it. The participants wanted proof of the benefits of quitting smoking or to be threatened or motivated enough to quit:

You need to transform information to a will...an action. They should have scared me some more! I am surprised that this conversation was so much about smoking. (Participant 4)

4 | DISCUSSION

The main findings of the present study are that the participants with screening-detected AAA accepted their medical condition as a natural and inevitable part of growing older, as having an insubstantial condition, and as being safe but somewhat dependent on health-care professionals. Moreover, the participants felt that smoking was not intrinsically connected to their medical problem. The latter is the most striking finding of the study, namely because they did not understand that they could reduce the elevated risk of AAA rupture by smoking cessation.

The first theme contained expressions of what might be existential thoughts of how to handle one's life course, similar to those described previously (Brännström et al., 2009; Hansson et al., 2012; Pettersson & Bergbom, 2013). Knowledge about such existential thoughts are important for all health-care professionals who provide care and information to patients with screening-detected AAA. Health-care professionals might need to ask for the patient's view and emotional reaction in order to tailor the communication to the unique characteristics of the individual patient. People's perspective on how life changes when confronted with information about health status might differ.

The men in the present study described few negative aspects of being diagnosed with an AAA, which fits with recent findings from the UK and the Netherlands (Bath et al., 2018; Tomee et al., 2018). The descriptions of living with AAA in our study are comparable with previous findings (Hansson et al., 2012; Pettersson & Bergbom, 2013). For some men, AAA can cause disturbing thoughts, sometimes connected to worries and anxieties when performing heavy work or strenuous exercise, even though they are informed that they should live as they normally would. Some of the men in the present study reflected over the opportunity to have some influence over the timing of their surgery. However, the participants' views of having a somewhat mild condition were more common. This could also be interpreted as being in denial of having a potentially-lethal condition, which might call for further exploration by health-care professionals.

The focus of AAA screening is discovering the disease, preventing rupture, and ultimately averting premature death (Moll et al., 2011). Smoking cessation is a central health-promoting measure, with positive effects on the aneurysm, as well as many other health issues. Despite this, only three of 16 participants had quit smoking. Similar to previously reported findings (Hansson et al., 2012; Pettersson & Bergbom, 2013), it appears the participants assessed what they perceived to be the benefits of smoking, and based on that assessment, decided not to quit. At the
same time, they wanted to slow down the growth of the AAA. An earlier study from the same setting, but with a quantitative approach and a larger sample, found that smoking cessation rates were low, despite information about the benefits of improving health and preventing illness (Bohlín et al., 2014). Surprisingly, some of the men in the present study reported dissatisfaction with surveillance and not having options for medical treatment of small AAA, but did not consider smoking cessation to be part of the treatment plan. According to Murray and Harris (2014), smoking is a sensitive issue to discuss with many men with AAA, and therefore having a non-judgmental and non-confrontational approach is essential. The transtheoretical model (TTM), or stages of change, developed by Prochaska, DiClemente, Velicer, and Rossi (1993), suggests that detecting the readiness to change and examining the psychosocial and behavioral factors involved might be a useful tool in supporting the process of smoking cessation. They described that readiness to change smoking habits could include five stages – precontemplation, contemplation, preparation, action, and maintenance – and that intervention approaches should be tailored according to these stages (Prochaska et al., 1993). The TTM also acknowledges the emotional reaction to lifestyle changes, which seems to be particularly suitable in this situation. However, RNs might need training in how to approach the issue of smoking cessation using appropriate techniques (e.g. motivational interviewing) (Casey, 2007). Nurse interventions can have long-term benefits on health outcomes, but the effectiveness of nurse interventions on smoking cessation is still inconclusive (The Joanna Briggs Institute, 2010).

Moreover, health promotion in a standardized way, such as smoking cessation counselling, and person-centered care, should be balanced against each other to best meet the needs of each individual. Personalized care plans might decrease worry, as shown in a recent Cochrane Review (Coulter et al., 2015), and person-centered care is advocated as a high-quality care approach (Ekman et al., 2011).

4.1 | Limitations

Semistructured interviews and systematic text condensation (Malterud, 2012) were deemed suitable for the present study because our primary aim was to capture men’s viewpoints on screening-detected AAAs and smoking. The sample was purposeful and represents the participants’ attitudes towards AAA over time. Furthermore, despite the small sample, the data were rich in experiential content with detailed descriptions. Some of the participants were diagnosed 5 years before the interview, and there is a potential recall bias. However, they were still living with their AAA and provided vivid descriptions of their experiences. The research group included both RNs and physicians, some with extensive experience of AAA care and some with no experience. This allowed for both emic and etic perspectives. As with all qualitative studies, the findings are not generalizable, but transferrable to similar settings and patient groups. The Swedish context and health-care setting might be a limitation.

4.2 | Conclusions

The participants in this study were generally not overly concerned about their AAA, experiencing it instead as a normal process of aging. However, they also sought to have control over the size, growth, and rupture of the AAA, but few had considered the relationship between their condition and smoking. In addition, only a handful of the participants were willing to quit smoking, despite their medical condition and being recommended to do so. Health-care professionals need to explore each individual’s perceptions of their AAA, to provide optimal support and reduce unnecessary anxiety. Further support and a clear presentation of the connection between AAA and smoking and motivating smoking cessation in an individually-targeted way are important challenges for health-care professionals.

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AUTHOR CONTRIBUTIONS
Study design: I.K.H, S.B, A.W, M.B, and C.F.
Data collection: I.K.H, S.B, and C.F.
Data analysis: I.K.H, S.B, and C.F.
Revisions for important intellectual content: I.K.H, S.B, A.W, M.B, and C.F.

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