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Exploring Men's Preferred Strategies for Learning about Testicular Disorders Inclusive of Testicular Cancer: A Qualitative Descriptive Study

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Abstract

Purpose: Men's awareness of testicular disorders is lacking and their intention to seek help for testicular symptoms is sub-optimal. Studies conducted to explore and raise men's awareness testicular disorders did not address their preferred learning strategies and failed to include men who are at risk for health inequities. The aim of this study was to explore, in-depth, the preferred strategies for learning about testicular disorders inclusive of testicular cancer among men who self-identify as heterosexual, gay, or bisexual.

Methods: Maximum variation and snowball sampling were used to recruit 29 men aged 18 to 47 years. Participation was sought from community and youth organizations and a university in the Republic of Ireland. Semi-structured individual interviews and focus groups were conducted. Interviews were audio-recorded and transcribed verbatim. Inductive analysis of manifest content was used.

Results: Seventeen informants self-identified as heterosexual, 11 as gay, and one as bisexual. Four main categories emerged, namely: strategies to enhance awareness (television, internet, campaigns, print media), educational dos and don'ts (tailoring effective messages, drawbacks of national initiatives, ineffective learning strategies), implications of raising awareness (risks and benefits of increasing awareness), and learning among gay and bisexual men (learning needs and strategies).

Conclusion: Future studies promoting awareness of testicular disorders should take into account men's preferred learning strategies. National campaigns should be delivered frequently and altered occasionally in order to achieve a top-up effect. Clinicians are

encouraged to educate young men about the seriousness of testicular symptoms and the importance of seeking timely medical attention for any abnormalities.

Keywords: awareness; men’s health; qualitative research; learning; testicular cancer; testicular diseases

Exploring Men's Preferred Strategies for Learning about Testicular Disorders Inclusive of Testicular Cancer: A Qualitative Descriptive Study

1. Introduction

The location, anatomy, and physiology of the testes can put men at risk for a number of diseases ranging from painless and benign to incapacitating and malignant (Wampler, 2010). TC[1] is most prevalent among men aged 20 to 44 years in the United States (National Cancer Institute, 2016). Similarly, 91% of TC cases in Ireland are diagnosed before the age of 50 (National Cancer Registry Ireland, 2016). Although rare and curable, TC incidence is on the rise in Western European countries and in the United States (Shanmugalingam et al., 2013). Orchiectomy is the main treatment modality for TC and is often followed by chemotherapy and/or radiotherapy (Saab et al., 2016b). TC treatment is associated with a multitude of long-term complications including chronic fatigue, Reynaud like phenomena, and reduced gonadal function (Huddart et al., 2005; Rossen et al., 2009; Saab et al., 2014).

Public health initiatives promoting TSE[2] are linked to a reduced tumour size at presentation, which highlights the need to raise men's awareness of TC (McGuinness et al., 2016). In a systematic review of 25 studies exploring men's awareness of TC and its screening, Saab et al. (2016c) found that, despite having heard of TC, men were often uninformed about the different aspects of this malignancy. Subsequently, their TSE practices and their intention to seek medical help for a testicular lump were suboptimal. In addition, men's perceived risk for TC is known to be low (Roy & Casson, 2016).

Non-malignant disorders, such as testicular torsion, epididymitis, and orchitis, are more prevalent than TC, and if left untreated, can cause various complications that can be

[1] TC: testicular cancer
[2] TSE: testicular self-examination

life-threatening (Centres for Disease Control and Prevention [CDC], 2015; Ringdahl & Teague, 2006). Testicular torsion, for instance, is a medical emergency that leads to ischemia and necrosis if help-seeking is delayed by six hours or more from the onset of pain (Ringdahl & Teague, 2006). Epididymitis, often transmitted sexually among men aged less than 50, can lead to severe orchitis, sepsis, and infertility if left untreated (CDC, 2015). Like TC, men often lack awareness of benign testicular disorders and tend to delay help-seeking in the event of testicular pain, lumpiness, and/or swelling (Babu et al., 2004; Clark et al., 2011).

Saab et al. (2016b) conducted a systematic review of 11 interventions targeted at raising TC awareness and screening. A number of these interventions succeeded in improving men's knowledge of TC and in promoting TSE; examples include videos about TC and self-examination (Folkins et al., 2005; Sacks et al., 2013), a university campaign (Wanzer et al., 2014), and mass media (Trumbo, 2004). It is worth noting that none of these interventions mentioned men's education needs and preferred modes of learning a priori. Similarly, quantitative and qualitative studies that explored men's awareness of testicular diseases, seldom addressed their information needs and preferred learning strategies (Saab et al., 2016a, 2016c). Moreover, very few studies included men who are at risk for health inequities (Folkins et al., 2005; Sacks et al., 2013) and only one study reported that gay men were more likely to perform TSE than heterosexual men (Reece et al., 2010). This is quite alarming, especially that gay men are twice more likely to report a cancer diagnosis than heterosexual men (Boehmer et al., 2011). Therefore, the aim of this study was to explore, in-depth, the preferred strategies for learning about testicular disorders inclusive of TC among men who self-identify as heterosexual, gay, or bisexual.

2. Methods

2.1. Study Design

The qualitative descriptive design was used. This approach is the least theoretical among the different qualitative designs; therefore, the phenomenon of interest was described using the informants' own words and insights, rather than adhering to pre-existing theories (Guba & Lincoln, 1994). Furthermore, qualitative description is appropriate to obtain unadorned responses to specific questions; examples include: "What are the concerns of people about an event? What are people's responses toward an event? What factors facilitate and hinder recovery from an event?" (Sandelowski, 2000, p.337). The Standards for Reporting Qualitative Research (SRQR) guided the reporting of this study (O'Brien et al., 2014).

2.2. Sample Selection

Informants eligible for this study were: (i) men; (ii) aged between 18 and 50 years; (iii) residing in the Republic of Ireland; and (iv) self-identified as heterosexual, gay, or bisexual.

Snowball and maximum variation sampling approaches were used. Both strategies are subtypes of non-probability purposive sampling and are used to recruit a varied sample of information-rich key informants (Grove et al., 2013; Paton, 1990). In this study, a sample that was heterogeneous in terms of age, employment status, level of education, ethnic background, and sexual orientation was sought. In addition, informants who expressed an interest in partaking in the study were asked to invite other men to participate, hence snowball sampling. This sampling strategy serves as an efficient means to recruit hard-to-reach informants (Sadler et al., 2010). This is key as an open discussion of intimate subjects is uncommon among men, let alone young and relatively healthy men from different sociodemographic backgrounds (Saab et al., 2014).

2.3. Data Collection

This study was reviewed and approved by the Clinical Research Ethics Committee at University College Cork. Participation was sought from a youth organization, an inclusive choir, a surfing club, a family community centre, and a university in the Republic of Ireland. Potential informants were invited to participate by e-mail using a standardized letter, and study flyers were hung in a university sports centre and on campus.

Twelve semi-structured individual interviews and three focus groups were conducted concomitantly between December 2015 and February 2016. The combination of both interview approaches is known to enrich data collection in qualitative research (Lambert & Loiselle, 2008). Due to the intimate nature of the subject and in order to minimize withdrawals and refusals, men were given the choice to partake, either in focus groups or in individual interviews. They were also asked to find a suitable date, time, and location for the interview. Ten interviews took place in the primary investigator's office; one individual interview and one focus group discussion were conducted in the informants' workplace; one focus group discussion took place in a surfing club and another in a youth organization; and one informant was interviewed in a community organization. All interviews were conducted face-to-face and were audio-recorded.

The primary investigator and interviewer was male and a PhD in nursing candidate who was formally trained in oncology nursing and qualitative research; was experienced in conducting qualitative interviews; and had no previous relationship with the informants.

Informants were provided with a study information sheet and a referral form with the contact details of a cancer support hotline and free counselling services. They were then asked to sign a consent form and fill out a socio-demographic questionnaire. Questions included: whether they had a past history of a testicular disorder, whether they were previously educated about testicular disorders, and whether they intended to seek information

in relation to testicular diseases. Finally, informants were asked to rate the importance of learning about testicular diseases on a Likert scale from zero to 10; 10 being “Very Important.”

An interview protocol was developed to address the gaps identified in the reviewed literature on men’s awareness of testicular disorders (Saab et al., 2016a, 2016b, 2016c) and was guided by the aim of the present study. The opening question was: “What are your views and opinions regarding increasing men’s awareness of testicular diseases?” Probing was used to allow the informants to elaborate. Reflective field notes were taken immediately after each interview to capture non-verbal cues (Grove et al., 2013). The full interview protocol is presented in Table 1.

Interestingly, getting men to openly discuss their insights in front of others during focus groups was found to be more challenging than recruiting them into the study. As a result, a number of informants were holding back during focus groups, especially those with a past history of a testicular disorder. However, a lot of those who were silent in the beginning of the interview, seemed more relaxed and outspoken as the interview went on.

Data saturation was achieved following seven individual interviews and three focus group discussions. Five additional individual interviews with five new informants were conducted in order to confirm data saturation (Elo et al., 2014). In total, 29 men were interviewed with each interview lasting on average, 45 minutes. Twelve men were interviewed individually, two focus groups comprised six informants each, and one focus group included five informants.

2.4. Data Analysis

Data were collected and analysed concurrently. Interviews were transcribed verbatim and identifiers were deleted to maintain anonymity. Two to three weeks following the initial

interview, a summary of the transcripts was sent to selected informants for member check. This step is crucial to ensure credibility in qualitative research (Lincoln & Guba, 1985). Member check also gives the informants the opportunity to reflect on their responses and correct misinterpretations. All the contacted informants agreed to the summaries.

Inductive analysis of manifest content was used (Elo & Kyngäs, 2008). Transcripts were read thoroughly and underlying clusters of concepts were identified and coded. Codes were later transferred to a coding sheet that was developed following an iterative discussion process among the authors. Similar codes were then assigned to sub-categories that were later gathered under generic categories. Finally, main categories that connect the various generic categories were identified. The primary investigator kept audio-recorded memos to reflect on the data analysis process (Briks et al., 2008; Gove et al., 2013).

2.5. Trustworthiness

Credibility was established through selecting a heterogeneous sample, field note-taking, the use of excerpts, and member check (Elo et al., 2014). Dependability was enhanced by having the primary investigator and two co-investigators who are experienced in qualitative research review the analysis process and agree on the findings. Audit trails were used to ensure confirmability (Graneheim & Lundman, 2004; Polit & Becker, 2012; Saldaña, 2009). Transferability was enhanced by seeking a heterogeneous sample as well as achieving and confirming data saturation (Graneheim & Lundman, 2004). Authenticity was ensured by using icebreakers and establishing rapport with the informants prior to data collection (Holloway & Wheeler, 2010). Finally, audio-recorded memos and reflective field notes were used to enhance reflexivity (Briks et al., 2008).

3. Results

3.1. Sample Characteristics

Informants were aged between 18 and 47 years (mean=33.5). Of the 29 informants, 20 were Irish, 16 were single, 20 held a university degree, and 14 were employed on a full-time basis. Seventeen informants self-identified as heterosexual, 11 as gay, and one as bisexual (Table 2). Three men reported a personal history of epididymitis, two had varicocele, two were diagnosed with testicular torsion, and one was a survivor of metastatic TC. Almost half of the men were uninformed about testicular disorders. Those who reported having heard of these disorders, did so through school, college, their physician, peers, family history, a video, a movie, a journal, and a campaign by the Irish Cancer Society. Twenty-one informants intended to seek information about testicular disorders, twenty-seven men rated education about testicular disorders as “Very Important”, and two rated it as “Important”.

Four main categories emerged from the interviews, namely: (i) strategies to enhance awareness; (ii) educational dos and don’ts; (iii) implications of raising awareness; and (iv) learning among gay and bisexual men (Table 3). Fictitious names are used to maintain the confidentiality of the informants.

3.2. Strategies to Enhance Awareness

Informants were asked to reflect on a health topic that they recently learned about and is of interest to them. They were then asked about the means through which they learned about this topic and whether the same strategy could be used to raise men’s awareness of testicular disorders. As a result, a number of media were identified including television, internet, campaigns, and to a lesser extent, print media.

3.2.1. Television

For many informants, the television served as the primary source of health information. For instance, all five informants in a focus group came across TC and its screening while watching the same television program. Of these informants, Aaron said: *“I've*

learned more about medical issues in that program than I've ever learned in my life!" when asked what drew his attention to this specific program, he said: *"It's kind of real people coming in and they make it sexy a little bit."* This was reiterated by Hans who, when asked whether he got exposed to prior information on testicular disorders, said:

"It was in a documentary about sexual health in young people and I thought it was a really good thing. They didn't actually censor anything. They sent the young people in to the doctor's. You saw full frontal, you saw everything getting checked."

3.2.2. Internet

The internet in general, and social media in particular, were perceived by many as the best methods to deliver health information to younger men. This was evident in the following excerpt by Ziad: *"A lot of young people are always on social media, so Snapchat, viral videos, Facebook viral videos, YouTube viral videos."* Similarly, Kevin believed that awareness of testicular disorders can be raised using social marketing; he said: *"We're a Facebook, Twitter generation.… The 20s, 30s and 40s are going to be on Facebook or Instagram."* Mobile applications were also identified as methods to promote awareness. For instance, William found out about free HIV testing through an advertisement on a gay dating mobile application; he said: *"I actually think that they probably would do it for free because that's how I found out about the first prick test, from Grindr (gay dating mobile application)."*

3.2.3. Campaigns

A number of informants stated that awareness of testicular disorders could be enhanced via campaigns in schools, colleges, sports clubs, and workplaces. For instance, the "Movember" campaign was identified by many as an effective method to raise men's awareness of testicular diseases. Of these informants, Ross said: *"Most people would be*

aware of Movember. Like oh yes, prostate cancer. It's men's health. Like that part of it and it happens every year. There's some kind of a novelty." to which Daniel responded: *"For Movember, you had all the Irish rugby team all of a sudden growing beards. Jeez! the whole country had beards!... You had a couple of good-looking guys playing rugby for Ireland and all of a sudden, it's trending."*

More than half of the informants believed that, unlike men in the workplace, young males in schools and universities are easily accessible. This was evident in the following excerpt by Tom: *"You need people talking in universities and schools, because fundamentally that's where you're going to find people because once again, into adulthood, you're not going to really get the same kind of level of attention."* This was reiterated by Shane who said: *"I think when you're in school or you're in college, you're in a collective audience and maybe you'll get exposure to information about health on some level… But as soon as you go into the workplace, it doesn't really seem to happen."* In order to address this issue, Patrick proposed targeting men in large firms and involving the human resources department within large organizations in promoting the wellbeing of their male employees.

A number of informants recommended delivering educational messages to young men attending Gaelic Athletic Association (GAA) sports clubs. For instance, Luke said: *"I would think groups or organizations that would be focused on young men if they had some sort of a campaign running focusing on these groups like a lot of the GAA would have men you know 18 to 30 group if you could go up to their clubs…"* Of note, GAA is known as Ireland's largest sporting organization promoting Gaelic games such as hurling and Gaelic football (Lane et al., 2016).

3.2.4. Print media

Leaflets, posters, and booklets were suggested by very few informants as tools to raise awareness of testicular disorders. For instance, Juan believed that the leaflets used to promote breast cancer awareness can be used to promote TC awareness and screening; he said: *"Sometimes when I go to the medical doctor, I don't find one of these brochures there, which says, 'Check your testicles'. Something like the breast cancer thing that is always there"*; he laughed and added: *"I mean I don't have breasts, but I know how to check!"*. Juan did, however, warn from flyers that are of a promotional nature; he said: *"You need to check if this is like from a pharmaceutical or this is from the government, who is guiding the thing (flyer) because you feel like they are trying to sell you something."* Tom on the other hand, suggested putting together and distributing a booklet that covers all male specific diseases.

3.3. Educational Dos and Don'ts

When asked about the strategies that can be adopted to educate men about testicular disorders, informants recommended approaches that might work and warned from others that they thought are ineffective in fostering learning.

3.3.1. Tailoring effective messages

Many informants perceived an effective educational intervention as being brief, visually stimulating, innovative, positively worded, and delivered frequently using light and simple language. For instance, Patrick who recommended using creative messages, said: "*You could have some sort of a catchphrase, like you know, a ball in the hand or that kind of thing… Sort of a play on words… People will laugh and they'll gather and they'll talk to each other about it."* To grab men's attention, Henry recommended advertisements that lighten the mood and that are visually appealing; he said: "*I think if a man saw an ad that kind of lightened his mood, rather than brought him down, it'd be more inclined to get his attention… But if it was just figures and words, they'd be like inclined to change channel, but if it was a*

funny ad, they'd be more inclined to watch it, rather than switch over." He also believed that men are visual rather than book learners; he added: *"We're not book learners. I mean some people are. But I think we're a lot more visual and hands-on in how we get educated. So I think it has to be more of that approach rather than just words."* Similarly, Luke recommended messages that are light and positively rather than negatively worded; he said: *"Make it light-hearted… Make it look like it's part of your monthly routine… Make it come across that it's something because you are doing this doesn't mean you are going to find something you are doing this because everybody else is doing it."*

Antonio who had an interest in media and marketing said that educational messages must be repeated otherwise they *"will wear thin"*; he added: "*You need to change approach every couple of years, regardless of what the message is."* This, according to Kevin, would help achieve a "*top-up effect."* Ziad and Daniel believed that "*brief and frequent messages"* as well as "*very snappy, and appealing"* messages are more likely to be effective in raising awareness of testicular diseases. Furthermore, Hans and Jack believed that, for an educational strategy to be effective, it must be delivered *"in small chunks on a regular basis"* in order to avoid "*overloading people."*

A number of informants recommended having a celebrity who appeals to the masses deliver the educational messages. For instance, Mark said: "*If you get those people who are looked up to, like you've soccer stars, rugby stars, GAA stars, you know, if they're talking about it, people might talk about it."* This was echoed in the interview with Harry who believed that having an idol teach men about TSE helps "*remove some of the embarrassment"*. Similarity, Kevin believed that having a celebrity discuss testicular diseases "*immediately takes away the stigma"*; he added: "*People only really like shock tactics, so there's no point in you coming out and talking about testicular diseases after having never had one because nobody would care."*

3.3.2. Drawbacks of national initiatives

According to a number of informants, campaigns such as “Movember” became more about growing facial hair rather than raising awareness of male cancers. For instance, Patrick stated: *“It (Movember) just seems to be an excuse to grow a moustache and look funny because I see a load of people doing it, but I never hear them actually talking about getting checked themselves…”* Connor nodded in agreement and said: *“I'd say a lot of people have lost the message of Movember.”* Ziad, on the other hand, believed that national campaigns are a waste of resources and are conducted to tick a box, rather than to raise awareness; he said:

“With national campaigns, you feel as if they are just a waste of money because this is just my own general personal feeling, is that oh, we have to do something, we are a charity, we have this amount of money, we have to spend it, we just do it because we have to do it, we tick a box so it's done.”

Targeting the wrong age group was also perceived as a drawback of national initiatives; for instance, as he was recalling a television campaign by the Irish Cancer Society, Tom said *“I remember the advertisement being typically targeted at older men rather than younger men, as a result, I lost interest automatically.”*

3.3.3. Ineffective learning strategies

Strategies that were perceived by many informants as ineffective in fostering awareness include print media as well as messages containing medical jargon. At first Tom was recommending a booklet that includes the most common male diseases; he then hesitated and said: *“I think I have read one study on that actually and it did say that people don't look at the booklets, basically. About 15% to 20% of people do and then the other 80% don't.”* This was reiterated by Henry who believed that no one is going to pay attention to leaflets as

well as Ziad who said that he will be disaffected by people giving him flyers about TC; he said: *"I won't read them, even if it's something that I'm interested in."*

As one of the informants in a focus group was recommending leaflets to teach men about testicular disorders, Donal interrupted saying: *"Just giving leaflets to people? I don't think so… Well, it is useful, but there's probably better ways in this age."* Similarly, Rami said: "*The classical way of giving a brochure and putting paintings in hospitals saying, 'Look'… They didn't really mark me."* He also warned from the use of an academic tone; he said: *"Not a rigid academic tone and seriousness. This is not going to work. It should be something that teenagers will accept and not see as condescending."* This was reiterated by Mark who believed that the use of medical jargon would *"take away the human element out of it (educational intervention) and would make a man feel like a test subject."*

3.4. Implications of Raising Awareness

Informants were asked to reflect on the potential risks and benefits of raising men's awareness of testicular disorders. They were then probed as to whether the benefits outweighed the risks or vice versa.

3.4.1. Risks of increasing awareness

Very few men stated that increased awareness can lead to emotional worry and can increase the likelihood of false positives. For instance, despite being supportive of educating men about testicular symptoms, Adam stated that increased awareness would cause people to become "*needlessly or overly concerned."* Similarly, Harry warned from the dangers of over-scanning and panicking people; he said:

"There are false positives, aren't there? So there's always the risk of over-scanning people, there's a risk of panicking people and there's also, whenever you do any kind of scanning, there are false positive dangers."

3.4.2. Benefits of increasing awareness

The majority of the informants believed that there were no risks from increasing awareness of testicular disorders since, according to Hans, *"awareness of every disease, no matter where it is, is a good thing."* This was reiterated by Kevin who believed that initiatives targeted at raising awareness of testicular symptoms, serve as an opportunity to promote men's heath; he said:

"I think there are potential benefits around that (raising awareness) for improving men's health in terms of their knowledge of how to deal with the situation and their knowledge of how to mind their own health and to be a bit independent."

3.5. Learning Among Gay and Bisexual Men

The informants' views regarding the learning needs of gay and bisexual men were explored. Informants were then probed as to whether the same educational strategies can be used to raise awareness of testicular disorders among heterosexual, gay, and bisexual men.

3.5.1. Learning needs

Informants unanimously believed that heterosexual, gay, and bisexual men have the same learning needs. For instance, Scott said: "*Gay men don't need to know anything more than anyone else, unless they are doing things to their testicles that straight men do which I'm highly doubtful of."* This was echoed in the interview with Harry who said: *"I try to treat everyone the same unless there's a really good reason for not doing."* Rami, on the other hand, warned from the dangers of addressing the needs of gay and bisexual men differently; which, according to him, would lead to discrimination.

3.5.2. Educational strategies

As for the strategies used to raise awareness, responses were divided between those who believed that educational messages should be the same for heterosexual, gay, and bisexual men and those who believed that health marketing should be different. According to Luke, educational strategies *"could be quite standardized"*, when asked to elaborate he said: *"Because like that now if you see those programs on telly… people have the same reaction and I don't think whether you are straight or gay or whatever you'd need a different approach."* Similarly, Henry believed that there should be a strategy that *"fills all areas, rather than having several different ones because if you're having several different ones, that's kind of inferring a difference between them (heterosexual, gay, and bisexual men)"*; he laughed and added: *"Like testicles are testicles!"*

On the other hand, Tom stated that *"what's going to work for a straight man isn't going to work for a gay man"*, when probed about the reason; he said:

"I would say that it should be something more, how would I put it? More nuanced… A gay man has potentially the benefit of a partner with the same, you know, biological structure. So it's a case of using that to your advantage if you were targeting gay men… I mean gay men are more likely to get STDs (sexually transmitted diseases) than straight men. So obviously if there's that much of a difference between the two groups, it makes sense to separate the kind of health marketing out."

Similarly, Ziad and Kevin who self-identified as gay, stated that they would not identify with an advertisement that is targeted towards heterosexual men only. For this reason, they recommended, either inclusive marketing strategies or strategies that are exclusive to gay men. For instance, Kevin said:

"For the gay community, probably something more vain and for the straight community, probably something more macho. So if someone showed me a soccer player telling me that he

was checking his testes, he would want to be a cute soccer player for me to pay interest in him... But if it was more to do with vanity or sexual prowess, I would be more likely to listen."

4. Discussion

The present study aimed at exploring men's preferred strategies to raise awareness of testicular disorders. Almost half of the men were uninformed about testicular disorders, especially the non-malignant ones. They did, however, express their interest in learning about these diseases through a number of means, including television shows, campaigns, fundraisers, the internet, and to a lesser extent, print media. In fact, many informants recommended moving away from conventional print messages that contain medical jargon. This recommendation is echoed in the literature on men's preferred learning strategies. For instance, while exploring gender differences in learning style preferences among college students, Wehrwein et al. (2007) found that, unlike females, males preferred multimodal learning using auditory and kinaesthetic strategies rather than diagrams, charts, and graphs. Similarly, Thornton (2015) found that interventions using written materials to promote TSE among young men were unsuccessful in doing so.

Many informants believed that social media and mobile phone applications are instrumental in fostering awareness of testicular disorders among young men. These means are commonly used among youths who spend, on average, 7.5 hours online every day (Rideout et al., 2010). Moreover, evidence suggests that adolescents in the United States and the United Kingdom acquire most of their health information from the internet especially when it comes to health topics that are of a private nature (Gray et al., 2005). Also, the internet serves as the primary source of information on HIV and STIs among gay and bisexual men (Holloway et al., 2014). For instance, social networking sites, such as Facebook

and YouTube, were instrumental in engaging gay men with information on sexual health (Pedrana et al., 2013). Another common method of acquiring health information, is through mobile dating applications such as Grindr (Hooper et al., 2008). This echoes findings from the present study, whereby one of the informants learned about free HIV testing through an advertisement on Grindr and recommended the same approach to get men to check their testes and to seek help for any abnormalities.

School and university campaigns were also perceived as ideal to promote awareness. These findings are echoed in two systematic reviews whereby 16 of 25 studies exploring men's awareness of TC and self-examination (Saab et al., 2016c) and five of 11 studies aimed at enhancing TC awareness and screening (Saab et al., 2016b) were conducted among school and university students. Moreover, educational campaigns that were conducted in colleges (Wanzer et al. 2014) and schools (Jones et al. 2015) have shown to be instrumental in raising men's awareness of TC and promoting TSE. In contrast, many informants believed that men who work are hard to reach, and are therefore underrepresented in health promotion initiatives. The same concern was highlighted in the Irish National Men's Health Policy (Department of Health and Children, 2008).

Another strategy that was perceived as ideal to reach out to younger men, was through their local sporting clubs. These clubs (e.g. GAA) serve as a hub for over one million youths in Ireland (GAA, 2016). In recent years, GAA clubs have been making efforts to foster a culture of health promotion. To better understand this culture, Lane et al. (2016) surveyed 16 GAA clubs about their health promotion policy, ideology, practice, and environment. Overall, clubs perceived health promotion as an integral part of their work, yet they scored low on policy and coaching health promotion activities. It is worth noting that health promoting sports clubs are not exclusive to Ireland as they are common in other countries including Denmark (Persson, 2008), Sweden (Engström, 2008), Belgium (Frisch et al., 2009), Finland

(Kokko et al., 2006), the United Kingdom (Flintoff, 2003, 2008), as well as the United States (Daniels, 2007), Canada (Fraser-Thomas et al., 2005, 2008), and Australia (Casey et al., 2009).

In contrast, not all informants perceived national campaigns, including the internet campaign Movember, as instrumental in raising men's awareness of testicular disorders. In fact, many were sceptical about the effectiveness of this strategy and believed that men lost the message behind it. These findings are supported by evidence from a Canadian study whereby Bravo and Hoffman-Goetz (2016) analysed 4,222 tweets about Movember and found that there were significantly fewer health-related than non-health-related tweets. It was also found that men were engaged in activities such as growing a moustache, rather than discussing the health implications of the campaign. These findings concur with those of a larger study conducted by Jacobson and Mascaro (2016), whereby an analysis of 1,879,994 tweets showed that young men were engaged with Movember as a branded movement rather than a health promotion campaign.

A number of informants recommended having a survivor of a testicular disorder deliver health promoting messages. Examples include comedians Tom Green and Des Bishop, cyclist Lance Armstrong, as well as GAA player Noel McGrath. Having celebrities teach men about testicular disorders is not uncommon in the literature on TC. For instance, Daley (2007) found that men who were knowledgeable about TC often linked it to cyclist Lance Armstrong. Moreover, a television show featuring comedian Tom Green's journey with TC (Trumbo, 2004), and a high school campaign delivered by young cancer survivors (Jones et al., 2015) were successful in raising TC awareness and promoting TSE.

According to many informants, for a learning strategy to be effective, it must be tailored to meet the needs of younger men. Therefore, it must be visually appealing, original,

humorous, and delivered frequently using simple, brief, and positively worded messages. This was reiterated in the study by Gold et al. (2012) who designed an intervention to promote sexual health among at-risk groups, namely men aged 16 to 29 years and gay men. This intervention was delivered using social network sites. One arm of this intervention was targeted at gay men and was delivered in the form of a short series that was uploaded on Facebook and YouTube (Pedrana et al., 2013). Participants were prompted to discuss sexual health issues online between episodes. Overall, men felt comfortable watching the series, were able to identify with the characters, found that the information were easy to understand, and perceived the interactive part of the intervention as ideal to initiate open discussions about sexual heath with their peers (Pedrana et al., 2013). This echoes the responses of a number of informants who believed that health promoting strategies targeting gay men should be nuanced or inclusive rather than generic, as well as those who perceived a successful intervention as one that features real people discussing real health issues.

4.1. Implications

Findings from the present study stress the need to address awareness of testicular disorders in research, education, and clinical practice. Researchers should be cognizant of men's preferred modes of learning. They are also advised to adopt strategies that appeal to young men; these include but are not limited to, mobile phone applications, interactive websites, and virtual reality. For instance, the use of virtual reality is gaining popularity in research. In recent years, this technology has been used in a number of fields including rehabilitation (Laver et al., 2012), mental health (Hone-Blanchet et al., 2014), and education (Bailenson et al., 2008). In contrast, very little is known as to the effectiveness of virtual reality in health promotion, let alone its use in promoting men's health.

National initiatives, including Movember, should stress the health implications of their campaigns in order to avoid the messages getting lost. In addition, these campaigns should be delivered frequently to achieve a top-up effect, must be altered occasionally so that young men would not lose interest, and should cater to the needs of men who are at risk for health inequities. Such campaigns are best delivered in schools, universities, and sports centres to reach out to a wide audience and normalize topics that are often perceived as taboo. Men who work must not be excluded from such initiatives, for this reason, a number of strategies should be put in place to instigate health promotion in the workplace; these include partnerships with employers, unions, governmental bodies (Department of Health and Children, 2008).

From a clinical perspective, recent evidence suggests that it is important to ask men about their sexual orientation and gender identity in health care settings (Center for American Progress, 2013). Moreover, collecting data about sexual orientation and gender identity is thought to help reduce lesbian, gay, bisexual, and transsexual (LGBT) invisibility in health care and is perceived as the key to end LGBT health disparities (Cahill & Makadon, 2013). For this reason, clinicians, including nurses, are encouraged to address the individual needs of young men while educating them about the seriousness of testicular symptoms and the importance of seeking timely medical attention for any abnormalities. To do so, and for feasibility purposes, clinicians can make use of print media including infographics and flyers that are colourful, written in large fonts, and easy to comprehend among men with low health literacy (Wanzer et al., 2014).

4.2. Limitations

Findings from this study must be considered in light of a number of limitations. For instance, the sample recruited cannot be considered to be representative of all the men in

Ireland. Nevertheless, transferability was enhanced through seeking a heterogeneous sample. Also, self-selection bias could have occurred due to the fact that only those who provided consent to participate were interviewed. Moreover, accidental alteration of the data could have occurred. This was accounted for through performing member check and having the primary investigator and co-investigators independently review and agree on the analysis. Given the intimate nature of this topic, some of the informants could have concealed a few aspects of their experiences. For this reason, a number of icebreakers were used before each interview. Finally, having an experienced male interviewer conduct the interviews, facilitated open discussions about a subject that is seldom spoken about.

5. Conclusion

The present qualitative study addressed men's preferred strategies to raise awareness of testicular disorders. Findings from this study suggest that men prefer brief, visually appealing, and creative messages over conventional approaches like leaflets and brochures. Interventions that account for men's preferred learning strategies and the needs of men who are at risk for health inequities, may be promising in promoting awareness of both, malignant and benign testicular diseases.

To the best of the authors' knowledge, this is the first study to explore the educational needs of men with regard to testicular disorders and to purposely include men who self-identify as gay and bisexual. Given the sampling strategies (e.g. maximum variation and snowball sampling), findings may be transferrable to different contexts.

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Table 1
Interview protocol

Key questions	Probing questions
What are your views and opinions regarding increasing men's awareness of testicular diseases?	• Is it important? Why? • What do you think about its risks and benefits? • What helps men become more aware of testicular diseases? (prompts: knowledge, skills, tools)
Think of your awareness of another health-related topic that you remember in detail, and is of interest to you	• What is the topic? • How did you learn about it? • What drew your attention to it/what makes it interesting? • Could the same method be used to raise awareness of testicular disorders? If no, why? If yes, how? • What do you think about the learning needs of gay, bisexual, and transsexual (GBT) people? • Do GBT people have different educational needs? Why? If yes, how can they be addressed? • Could the same method be used to raise awareness of testicular disorders among GBT people?
Are you personally interested in learning more about testicular diseases?	• Why? Can you please elaborate? • If yes, how confident are you in your ability to learn about testicular diseases? • What would you like to know about testicular disorders? • How would you like to learn about them?

Table 2
Socio-demographic characteristics of the informants (n=29)

Age (years)	
Range	18-47
Mean(standard deviation)	33.5(8.8)
Nationality	
Irish	20
Other European	4
Dual citizenship	3
Lebanese	1
Mexican	1
Sexual orientation	
Heterosexual	17
Gay	11
Bisexual	1
Marital status	
Single	16
In a relationship/partnered	6
Married	5
Separated/divorced	2
Highest level of education	
Primary	1
Secondary	2
High school	6
University	20
Occupation	
Employed (full-time)	14
Employed (part-time)	2
Self-employed	1
Student and employed (part-time)	2
Student	6
Intern	1
Unemployed	3

Table 3

Sub-categories, generic categories, and main categories

Sub-category	Generic category	Main category
• Health programs	Television	Strategies to enhance awareness
• Documentaries		
• Advertisements		
• Social media	Internet	
• Mobile applications		
• Schools	Campaigns	
• Colleges		
• Sports centers		
• Workplaces		
• Leaflets	Print media	
• Booklets		
• Posters		
• Innovative and creative	Tailoring effective messages	Educational dos and don'ts
• Visually stimulating		
• Brief, simple, and lighthearted messages		
• Survivors and/or celebrities as educators		
• Lost messages	Drawbacks of national initiatives	
• Print media are too old	Ineffective learning strategies	
• Medical jargon		
• False positives	Risks of increasing awareness	Implications of raising awareness
• Emotional worry		
• Promoting community and men's health	Benefits of increasing awareness	
• Early detection		
• Same for heterosexual, gay, and bisexual men	Learning needs	Learning among gay and bisexual men
• Similar to those of heterosexual men	Educational strategies	
• More nuanced for gay and bisexual men		