

# The Social Context for Psychological Distress from Iatrogenic Gynecomastia with Suggestions for Its Management

Richard J. Wassersug, PhD,\* and John L. Oliffe, PhD†

\*Dalhousie University—Anatomy & Neurobiology, Halifax, Nova Scotia, Canada; †University of British Columbia—School of Nursing, Vancouver, Canada

DOI: 10.1111/j.1743-6109.2008.01053.x

## ABSTRACT

**Introduction.** Gynecomastia (breast development in males) is a side effect of androgen deprivation therapy (ADT) for prostate cancer (PCa). Medical interventions to prevent or treat gynecomastia carry risk of additional detrimental side effects. However, untreated gynecomastia can be physically uncomfortable and psychologically distressing. Shame from gynecomastia can lead patients to stop otherwise beneficial exercise.

**Aims.** Our first aim is to explore the social context for gynecomastia and how it is interpreted by men with the condition, as well as by others, both male and female. Subsequently, we use our understanding of why gynecomastia is psychologically distressing to propose psychosocial interventions that could help men accept this side effect of ADT.

**Methods.** We draw on academic literature, media accounts, and web-based testimonials from men with gynecomastia, to understand how gynecomastia is perceived by both patients and the medical community. We examine these resources in light of gynecomastia's impact on sex roles, sexuality, and gender identity issues.

**Main Outcome Measures.** By exploring what breasts in a male mean to the individual, we produce an understanding of the social context for distress from gynecomastia. From this understanding, we derive hypotheses about who might be most distressed from gynecomastia and strategies for alleviating this distress.

**Results.** The shame and stigma of gynecomastia is linked to the objectification of women. We suggest that men fear that their breasts will marginalize and subordinate them within gender hierarchies. There is little evidence that breasts on a male erotically attract either men or women. Novel options for living with gynecomastia are contrasted with medicalized strategies including mastectomy.

**Conclusion.** Assessment instruments need to be developed to identify patients most likely to experience distress from gynecomastia and seek out medical interventions. Surgical, radiological, or pharmacological interventions may not be universally necessary if greater acceptance of gynecomastia is made available through psychosocial support programs. For example, PCa patients may learn to accept gynecomastia through reconceptualizing their breasts as autoerotic. Support programs modeled on those of the breast cancer community, including Encore and dragon boat racing, may also help to build communities to serve patients with gynecomastia while defending individuals against shame, isolation, and loss of self-esteem. **Wassersug RJ, and Oliffe JL. The social context for psychological distress from iatrogenic gynecomastia with suggestions for its management. J Sex Med \*\*;\*\*.\*\*\*-\*\*.**

**Key Words.** Prostate Cancer; Gynecomastia; Psychosocial Oncology; Sexuality and Cancer; Treatment Alternatives; Support Groups

## Introduction

The word gynecomastia comes from the merging of the Greek root for female, “gyneco-,” and the root for breast, “mast-.” Until recently, gynecomastia was a relatively rare

medical condition most commonly associated with endocrine tumors in males. Two aspects of modern life have led to an explosion in the prevalence of gynecomastia. The popular press has exposed one aspect: the obesity plaguing affluent North America [1–5]. A sedentary but otherwise healthy

preteen-ager on a high-calorie diet will begin to layer on fat. This surplus of tissue can be particularly prevalent in the chest and may lead to breast development when influenced by the hormonal changes of puberty. Breasts are now increasingly common in nonathletic North American males with very high body mass indices, as evidenced by an increasing demand by men for breast reduction surgery [6]. Anabolic steroid abuse and xenoestrogens in the form of cosmetics, pesticides, and other industrial chemicals have also been suggested as factors in the rise of gynecomastia [7,8].

In addition, gynecomastia is increasingly prevalent among advanced prostate cancer (PCa) patients treated with various hormonal therapies. Approximately 40,000 men in North America each year start on these treatments long term [9]. Because of the prostate specific antigen (PSA) test, PCa is being detected and treated at a higher rate than ever before [10–12]. When PCa cannot be cured by local therapies (e.g., excised surgically or killed in situ with radiation or brachytherapy), patients can begin hormonal treatments to deprive the body of androgens that promote prostate cell growth. These hormonal therapies all lead to varying degrees of emasculated and feminized morphology. All reduce the size of the male genitalia and lead to loss of body hair.

The most common hormone therapy for PCa is chemical castration with an luteinizing hormone-releasing hormone (LH-RH) agonist. By themselves, the LH-RH agonists do not produce much gynecomastia (i.e., estimates as low as 4.4%) [13], but in conjunction with the typically prescribed antiandrogens (flutamide, bicalutamide, and nilutamide), gynecomastia is more common (49–68%) [13]. These drugs induce enough gynecomastia for many patients to feel embarrassed and too shamed to go to the gym, swimming pool, or beach to exercise [14–16].

Reduced physical activity is particularly detrimental for these patients because the LH-RH agonists promote osteoporosis and muscle wasting that could be mitigated with exercise. Indeed, many studies have shown that muscle strength, fatigue, bone integrity, and the overall quality of life for PCa patients can be improved with regular exercise [17–20]. In addition, a much cheaper alternative to the LH-RH agonists for androgen suppression is estrogenic compounds (i.e., natural or synthetic analogues of estradiol [21,22]). Here, the side effects are much less, *except* for gynecomastia and mastodynia (breast discomfort). Estradiol costs less than a tenth what the LH-RH agonists cost, and with

parenteral administration it seems much safer than the more expensive LH-RH agonists, although it causes more gynecomastia and mastodynia [23].

Approximately half a million men in North America currently on LH-RH agonists are at increased risk of cardiovascular problems, diabetes, bone fractures, and muscle wasting [24–30]. These risks could all be reduced if these men were able to either avoid or overcome the shame associated with gynecomastia and maintain a physically active lifestyle.

There are three medical interventions available to PCa patients facing gynecomastia [24,31]. Gynecomastia can be partially prevented with prophylactic external irradiation [31–36], but this may not significantly reduce breast pain [37]. Long-term studies on the safety of this procedure have not been undertaken; however, exposure to ionizing radiation theoretically increases the risks of developing lung, breast, and soft tissue sarcoma [38,39]. Recently, cardiac toxicity has also been identified as a potential risk associated with prophylactic radiation to the breast [40,41]. The rationale for this treatment is justified not on the low risk, but on the long latency for emergence of these effects, which typically exceeds the natural life span of the average PCa patient.

The second option involves taking drugs concomitantly with androgen deprivation therapy (ADT) to reduce the amount of breast development [34,40,41]. These include anti-estrogens (i.e., selective estrogen-receptor modulators or SERMs such as tamoxifen and raloxifene) or aromatase inhibitors such as anastrozole [35,36,42,43]. These drugs may help block gynecomastia, but they have their own detrimental side effects. The LH-RH agonists commonly used for ADT (e.g., leuprolide and goserelin) can negatively affect memory, an effect that coincidentally can be reversed with estrogen [44]. Unfortunately, the reversal is, in turn, blocked by aromatase inhibitors such as anastrozole [45]. Similarly, SERMs, such as tamoxifen, can negatively impact memory [46,47]. One implication of this is that the same estrogen that causes the gynecomastia in androgen-deprived males can also have positive cognitive effects that one may not wish to block. In addition, estrogen helps prevent both osteoporosis and hot flashes in androgen-suppressed males [40].

The third treatment for gynecomastia in PCa is the same as that for obese teenagers or breast cancer patients—a double mastectomy, to remove the breasts after the fact [48,49]. Increasingly, males distressed by gynecomastia elect to have

**Table 1** Representative quotes from *Demystifying Gynecomastia* [50], which explore the issue of gynecomastia's association with gender identity, self-esteem, sexuality, and empowerment for males with this condition

---

"The worst part of having gynecomastia is the social implications. And it seems that everyone else has it better in life than you." (9)
"It's like losing a leg or any other kind of extreme deformity or change, in that it's going to have a strong impact on the . . . sense of self and the sense of being empowered and the sense of experiencing his body in a positive way." (Author, 19)
". . . gynecomastia can create confusion because of the messages that they receive from society about what gender and sexual orientation are supposed to be." (Author, 21)
"I often felt inadequate. Felt that a woman wouldn't want me because I wasn't manly enough, compared to other people." (39)
"I hated my body. I felt different, like not a real man." (46)
"My chest made me feel almost half female." (46)
"At times I felt emasculated." (81)
"I've often not felt like a man. I've felt inferior to all men." (84)
"It's embarrassing and makes you feel like less of a man (. . .) it's really a blow to your masculinity." (86)
"I don't feel like a REAL man." (94)
"I felt like I was turning into a woman." (94)
"I feel less of a man with them." (94)
"It made me feel unsure about my sexuality." (94)
"I don't feel like a man, I feel deformed, ugly, unwanted." (102)
"The worst part about having gynecomastia is feeling like I'm disabled." (97)
"Embarrassed, ashamed, maybe I'm not really a man. Maybe I was supposed to be a woman and the genes got screwed up. I hate my body." (104)
"I felt inferior to other men, always thinking that any girl I get will laugh at me and eventually want a guy with a nice manly chest." (105)

---

breast reduction surgery, with at least 14,000 such surgeries performed in 2006 according to the American Society of Plastic Surgeons [1,6].

The three treatment options situate gynecomastia as a medical condition severe enough to warrant prevention with prophylactic radiation or drugs, or post facto surgery. A book exclusively focused on gynecomastia [50] is predicated on the view that high psychological stress occurs for most, if not all, males with breasts, and supports that perspective with a wealth of testimonials (Table 1). Given the patients' presumed stress levels along with the medical community's willingness and capacity to offer (and perhaps encourage) a range of treatments, medical intervention for gynecomastia is increasingly the norm.

As with many aspects of female embodiment, breast augmentation and reduction have been highly and successfully medicalized [51–53]. However, breast reduction surgery for males is essentially a *cosmetic* procedure. In our view, this enterprise is often underpinned by the desire to

protect a man's masculinity, and is thus comparable with upper body reassignment surgery for transsexuals. Put another way, it is ostensibly a surgical treatment used to address the psychological problem of loss of self-esteem secondary to the change in body form. The procedure may be covered by a few medical insurance companies in the United States, but rarely by provincial or national health insurance programs in Canada or Europe. Many patients on ADT nevertheless choose gynecomastia treatment(s), along with the concomitant risks, over accepting and living with their breasts. Both physicians and patients favor LH-RH agonists over estrogenic compounds for ADT, in part because they induce less gynecomastia and breast discomfort. Few androgen-deprived patients opt for the lower cost and potential cognitive benefits of estrogen because of the gynecomastia and mastodynia that may accompany that treatment. Therefore, it is important to address the following questions: Why is gynecomastia not more readily accepted by men? What are the psychosocial alternatives to the aforementioned medical treatments? Given the negative aspects of both gynecomastia and its prophylaxis/treatment, the condition merits a critical psychosocial assessment, which we initiate here.

## Aims

Drawing on the academic literature and media accounts, as well as web-based testimonials, we discuss sex roles, sexuality, and gender identity issues associated with breasts in men who are treated with ADT for PCa. The desire to initiate this discussion is informed by the knowledge that for most men, gynecomastia is psychologically distressing. As Clark et al. state, ". . . the disruption of bodily integrity resulting from treatment may disrupt the maintenance of valued social identity and personal integrity" [54]. Our goal is to explore the origin of the psychological problem and offer some strategies for addressing the distress that gynecomastia may produce. We propose alternatives to the medical interventions currently used to either prevent or alleviate gynecomastia.

## Methods

We reviewed the medical literature on gynecomastia with particular attention to discussions of psychological stress in patients with this condition. Media reports on the topic of gynecomastia via Google Internet searches on "breasts + males" and

testimonials from patients with gynecomastia published in Yost [50] were examined. We also monitored, for 3 years, discussions by PCa patients and partners about their concerns with gynecomastia in four online Internet discussion groups. These were prostate cancer and intimacy (PCAI) [55], which deals with intimacy in the context of PCa; Circle [56], which offers support for patients, their partners, friends, and family; combined hormonal blockade (CHB) [57], which specifically focuses on hormonal blockade; and PPML [58], a general mailing list for concerned PCa patients. As of August 2008, these listservs had respectively 1,061, 675, 687, and 1,320 subscribers.

### Main Outcome Measures

By exploring what having breasts in a male means to the individual in terms of his interaction with other males, females, and his own self-image, we develop an understanding of the social context for distress from gynecomastia. We derive from this a hypothesis about who might be most distressed from gynecomastia as well as strategies for alleviating this distress.

### Results

We have organized our results into subsections according to those issues most often encountered in our review of the academic literature, media representations, and web-based testimonials related to gynecomastia. Although abstracted and compartmentalized here, these issues are inextricably connected.

#### Specialized Shame

The psychological distress produced by gynecomastia can be conceptualized as a problem with how the patient views his own surface anatomy. It is a problem rooted in what breasts signify to him and a problem complicated by how he perceives others to interpret breast tissue in a male.

Breasts are anatomically special, signifying female sexual maturity and fulfilling both practical and erotic functions. They occupy a key nutritional role in feeding infants. However, in Western cultures, they also signal adult female status and empower women in that they can be used erotically and/or provocatively to solicit the attention of others. Conversely, breasts can also attract unwanted attention that can disempower women. In addition, we are formally defined as mammals by the fact that our embryos are retained internally

and that mothers nurture their offspring through specialized secretory tissue. It is the localized swelling of these tissues that we recognize as the mammas. Thus, breasts define our core identity going back to the Triassic.

In common street parlance, men do not typically say that they have breasts, but refer instead to “moobs” (male boobs) or “bitch tits.” Both terms are compounded from English words that have multiple meanings. In reference to our own species, those meanings are clearly derogatory. Thus, with the term “moobs,” we are reminded that a boob is a “foolish or stupid person” and with “bitch tits” that a bitch is an unpleasant female.

One of the better known episodes of the TV show *Seinfeld* [59] discusses this condition and suggests humorously that perhaps men who have breasts might wish to wear apparel to accentuate their development. The wit in the episode trades on the absurdity of such garments, but also reminds us that bras, commonly worn by women in most countries, not only provide comfort by supporting breast tissue, but can also accentuate the position and size of the breasts to signal the woman’s reproductive maturity. As noted in the feminist literature [60], by elevating the breasts, brassieres also make them look more youthful. Given the shame that often accompanies gynecomastia, the idea that the men would wear a bra to accentuate their breasts, let alone support them, seems ridiculous. Indeed, the inverse seems true in everyday life, given the emergence of compression garment options for gynecomastia [61]. Typically, these are of the sports bra style [62,63], designed to compress the breasts and reduce movement and subsequent discomfort, as they do for women while exercising.

#### Man to Man

In trying to understand the stigma of gynecomastia, we first considered men’s typical interactions with others. There is little doubt that breasts are an important female signifier, and in the heterosexual world, males are attracted to females. Breasts are part of the curvatures of the female body, which ideally narrows at the waistline before broadening at the hips to signal a woman’s capacity to carry a fetus and deliver a baby. Therefore, breasts, although often singled out in commentaries (by both men and women) as the primary and most visible signifier of womanhood, are but part of a feminine body “package.” It is widely held that individual males favor specific parts of the female body in their objectification of women—and

“breast men” are espoused to exist in epidemic numbers. So, might a man’s breasts, then, attract other men?

Masculinity is embodied by specific anatomy and, although little explored in the academic literature, the presence of breasts in males with their potential to being objectified is incongruous with masculine ideals. Implicit to masculine performance is men’s “hunter” status, and *objectification* of a man’s breasts by other men, real or imagined, results in an “othering” (i.e., securing one’s own identity by stigmatizing an “other”) rarely experienced or tolerated by men. Although the resulting fear is often expressed through homophobic language (see further discussion), we know of no data showing that breasts in males in fact lead to same sex attraction. Queer theory and studies also reveal no evidence that gay men are particularly attracted to breasts in general, to breasts on a man, or to a man sporting breasts. In general, men who are attracted to men prefer their men to be fully male, i.e., devoid of female body parts. Therefore, it seems unlikely that gynecomastia solicits homosexual attention or mobilizes such desires. When sex characteristics do not align with gender, behavior becomes a more important signifier of gender [64].

What is clear and has driven first- and second-wave feminists (epitomized by the historical urban myth of bra burning [65,66]) is that breasts, as a signal of the mature female, can also serve to signify the subordinate positioning of women in the gender order. Feminist literature, discourse, and discussion about bra-wearing center on the objectification of the female and on the female as a sex object [60]. Second-wave feminism was justifiably motivated, at least in part, by women’s desire to be understood as whole people, and not the sum of their sex parts [67]. This suggests that the breasted man’s shame and stigma around other men is less about the possibility of becoming sexually attractive to other men, and more about being objectified and therefore marginalized and subordinate to other men. This positioning is accompanied by social liabilities and unequal power relations that affect interactions and increase the potential for explicit harassment, harm, and ridicule [64].

Telling examples of this concern are expressed by PCa patients on ADT. For example, on an Internet listserv, one ADT patient expressed disgust at gynecomastia because he did not “want other men whistling when he walked down the street.” In reality, the moderate amount of gynecomastia associated with ADT rarely produces

enough breast tissue to be conspicuous when fully clothed. The concern expressed by the man in this example could be interpreted as his heterosexism for which he uses homophobia as the foundation to signal what he is not (i.e., female—or flattered by, complicit in, or willingly objectified by other men mistaking him as female). This fear of gynecomastia suggests that homophobia is but a background noise in the genuine fear of being objectified with a concomitant and consequential loss of status within the gender hierarchy to which he aligns.

Although we are without supporting data, one might suspect that the men who most fear gynecomastia may be the same hypermasculine individuals who are most likely to objectify women. These are the men for whom breasts exist for their pleasure and saliently signify women’s lower status in the gender order. Thus, their own breasts can only ever signal female and the potential to be objectified. The fear of gynecomastia seems to be linked to erosion of status within a male dominated, gender hierarchy.

We hypothesize that sexism of the sort that demeans others and is explicitly tied to a person’s morphology, may be *a*, if not *the*, core issue for why males consider gynecomastia such a stigmatizing condition.

### *Man to Woman*

Another telling example from an Internet PCa discussion group came from a man on ADT, who considered his mild gynecomastia as one of the most disturbing side effects of the disease and its treatment. He explained:

Should it [the prophylactic breast irradiation] eventually fail to prevent breast tissue growth, I will then pursue breast reduction surgery. Under no circumstances would I live with “perky breasts.” . . . I need to maintain a strong image of “the man of the family” for two teenaged daughters. . . .

Father–child bonds develop well before children reach adolescence and before breasts could become an issue of social acceptance, respect, status, and authority for a household patriarch. In terms of fathering daughters, those bonds should be stable and secure well *before* either father or daughter has visible breast tissue. This man’s narrative, then, reveals a disturbing insecurity about his relationship with his daughters. This man equates gynecomastia with an inability to appear as the father and man of the house. This example shows how this man links a secondary sex characteristic to gendered behaviors and relations, the

net outcome of which, for him, is that having breasts would deny him authority and power within his family.

The quote also raises the issue of how women in general view breasts in others, be they male or female. Once again, we can find no study of this topic. The rationale for heterosexual men to be attracted to women's breasts makes good Darwinian sense, as the emergence of this secondary sex trait typically indicates that a woman has come of reproductive age. One might then suppose that a woman who is attracted to another woman is attracted to her for reasons *other* than her reproductive potential as signified by her breast size or shape.

Our informal impression based on several hundred listserv messages among the partners of PCa patients on ADT is that they love their husbands no less because of gynecomastia. These intimate Internet correspondences also reveal though that the wives' reassurances are often not adequate for the men. Despite the spouses' best efforts, differing views between the husband and wife on the significance of gynecomastia can lead to conflict. The problem may be that any proclamation she makes that his breasts do not matter to her only remind him of the breasts themselves. Sincere and well-meaning reassurances can therefore disable an adaptive strategy used by many men who experience physical change from PCa treatment, namely denial [14,68].

As illustrated by the quotes in Table 1, men with gynecomastia express feelings of humiliation and lost virility. These problems seem to be intrinsic to the men, and do not necessarily reflect women's perceptions or interpretations. It seems that many women can accept male partners with gynecomastia. In the extreme, champion Japanese sumo wrestlers garner much positive attention from the opposite sex despite their obesity and gynecomastia. In general, high social status can compensate for almost any departure from the ideal masculine morphology.

### *Autogynephilia*

If a man's breasts erotically attract neither other men nor women, that does not preclude the possibility that they could be erotic to the individual himself. According to one controversial theory, late-transitioning nonhomosexual transsexuals are often motivated by autogynephilia [69–71]: here, the male self-eroticizes his own feminized body. If a man can be sexually aroused by a woman's breasts, the autogynephilia model supposes that he

might be sexually aroused by having breasts on his own body. In the following excerpt, Yost [50] espouses this as a legitimate possibility:

One of the best options for a man with gynecomastia is to eroticize his chest, the breasts, and nipples. This is a lot easier if the partner is willing to participate and encourage. Men whose nipples are erotic or sensitive will find this to be a particularly enjoyable option. Men's nipples are often erogenous zones; communicating this to a partner can certainly increase sexual pleasure. (p. 37)

There is limited evidence in support for this autoerotic option, as it pertains specifically to breasts in heterosexual males. Blanchard [72] uses a quote from Karpman [73] to illustrate how autogynephilic interests might play out for a couple. To Blanchard, "if a married man insists in his relations with his wife in occupying the succubus position . . . [and] . . . at the same time demands of her that she massage his breasts . . ." he eroticizes his breasts. The attention solicited by the husband for his breasts affirms their erotic potential to the man.

A multitude of pitfalls and problems make it complicated for a heterosexual male with gynecomastia to expect his partner to eroticize his breasts. As noted previously, there is little evidence that heterosexual women especially eroticize breast tissue in others. The emotional minefield that might emerge could be defused with open and intimate communication. Unfortunately, all too often, spousal communication is handicapped by the emotional trauma of the sexual impairments common to PCa treatments [14,74–77].

For a heterosexual male with gynecomastia to accept his breasts as erotic and to incorporate them into sex play required some degree of sex-role reversal. The man would have to view his breasts as erogenous zones and a site of pleasure. Here, the pleasure would not be premised on male domination, but rather female empowerment, because the female partner would initiate erotic and sexual stimulation of his breasts. For the male to enjoy this, he would have to extend his own erotic topography beyond phallogentrism. In the extreme, he would straddle the middle ground of a she-male identity—if only in those intimate moments.

We readily admit that reconstructing one's sexual identity and accepting one's new morphology in this context are likely to be particularly challenging to men in their 60s and 70s (i.e., the age of the average PCa patient on ADT). Here, both the patient and his partner would need to remodel their intimate gender relations and sexual

scripts: this may not be easily done if they have been ritualized over decades. For the women's part, motivation to facilitate this transformation in sexual performance might come with the knowledge that, among PCa patients, the transformations caused by ADT can be deleterious to their relationship and reduce the quality of life for both of them [14,54,78–80].

If men and their partners accept their breasts as “new” or renewed sexual sites within their intimate interactions, could that be the epiphany for overcoming the stigma, perceived and/or real, of gynecomastia? Perhaps, but there is a peculiar irony here. According to contemporary sociocultural Western norms, breasts as erotic tissue should be covered up in public. Therefore, a man's route to personal and potentially public acceptance of his breasts—namely, through eroticization—is also a route that demands that his breasts be hidden from the public. Clearly, a double life—public vs. private—remains salient here. As Charmaz [81] and Oliffe [82] have previously noted, men typically have private and public personas in issues related to self-health and illness. Their findings suggest that no matter how well-positioned, dominant ideals of both sex and gender are unlikely to privilege or applaud the atypical: this clearly includes men who dare to reveal their gynecomastia in public. That said, we cautiously proffer the autogynephilic option as a potential escape from the psychological distress of gynecomastia and from the medical treatments used to prevent it.

### *On Breast Cancer and Mastectomies*

There is an alternative model for gynecomastia acceptance already in place, taken from a different cancer population, namely women who face mastectomies for breast cancer. There is much literature examining the range of responses women have to mastectomies [83–86]. The level of psychological trauma they report depends in part on the connection between a woman's sexuality, self-esteem, and her surface topography. What matters most is the extent to which breasts define her as a female, by operating as erogenous zones and/or affirming femininity through others' erotic attraction to her breasts. As the breast cancer community has become stronger and more vocal, they have taken action toward helping women accept the challenges associated with mastectomy. Many of their strategies might be applied to help PCa patients accept the converse—gynecomastia.

The Encore breast cancer support program [87] is an example of one such program structured

to help women overcome mastectomy-induced stigma and embodiment issues. Encore is a version of a patient support group for breast cancer survivors, which incorporates meetings, lectures, and group exercise. Women in this program attend the gym as a group at times when only other postsurgical breast cancer patients are present. Social support is drawn from the other participants with similar, surgically modified, torso topography. This is a community-building exercise, as much as it is a fitness and physical therapy program. Belonging to an Encore group helps reduce the potential for shame, social isolation, and the loss of self-esteem that can accompany a mastectomy. Other breast cancer programs more aggressively pursue societal acceptance of breast cancer surgery by promoting self-health through public events. Best known are the dragon boat races, team paddling events where breast cancer survivors train and race together. Dedicated to raising breast cancer awareness and research monies, dragon boat racing also helps to reduce lymphedema in postmastectomy women. Several studies have confirmed the effectiveness of these programs [88–90]. One might thus suppose that similar programs could be set up for PCa patients with gynecomastia. As with female dragon boat participants, males in such programs would promote social acceptance by acknowledging en masse their modified masculine morphology. They would be bravely pushing to center stage the many challenges that men and their families face once impacted by PCa treatments.

We know of only one example where men with gynecomastia acted as a group to explicitly inform the public of the effects of androgen deprivation. This was during a pride parade in Halifax Canada in 2006 and the men went bare chested, while members of their group handed out literature on PCa. Such a carnivalesque performance in that rarefied setting cannot be considered equivalent to general-audience, everyday-life acceptance. For the latter to happen, men might require, or at least benefit from, the guidance and support of the breast cancer community. Women are often the driving force for social group formation and structure in the PCa community [91]. With their encouragement, men experiencing distress as a result of gynecomastia might be able to affirm courageously, rather than deny and hide, their altered masculine identities. For example, acceptance might be easiest all around if men with gynecomastia were invited to join in a dragon boat race.

### *Medicalization and Gynecomastia*

Any stigma can be exacerbated by a physician's presumption that gynecomastia is an intolerable condition to be prevented when possible, and treated when not. Clearly, some patients (and certainly, autogynephilic transsexuals and voluntary eunuchs [92]) can accept gynecomastia without feeling a strong need for medical intervention. We do not know what social and psychological factors may predispose an individual to accept breasts developed as part of PCa treatment. However, it is less than ideal medical practice to assume that the condition must *always* be prevented or treated. The medical community should be encouraged to develop criteria for assessing, in advance, which patients (and partners) are most likely to be distressed by gynecomastia as a sequela to cancer treatments. In the vein of "do no harm," doctors could triage PCa patients at risk of psychological distress from gynecomastia. Those patients identified ahead of time as able to adapt to gynecomastia need not be treated for the condition, prophylactically or otherwise.

What is clear is that much of the psychological distress of gynecomastia may be related to unanticipated change and loss of security in one's gender identity. The perceived loss is not necessarily proportional to the extent of the anatomical and physiological change experienced by individuals. The degree of distress may vary greatly, as might the degree of physical change. Various psychological parameters could be measured to assess which PCa patients have the most to lose or are facing the greatest change. For instance, narcissism is a measurable trait and is correlated with high levels of androgen [93]. Men who have high titers of testosterone prior to starting ADT might experience the greatest change and thus may be most distressed by gynecomastia. In a similar vein, men who have a high body mass index and some baseline, preexisting gynecomastia may experience less change and perhaps less loss of body identity. A working hypothesis is that men who score high on narcissism (as measured by, say, the Narcissistic Personality Inventory [NPI] [94,95]) may be most threatened by the risk of gynecomastia. The NPI has several subscales for narcissism. Based on our discussion previously, we speculate that certain subscales (e.g., superiority, entitlement, and exploitativeness) may be particularly relevant as predictors of distress from gynecomastia. Again this is uninvestigated, but as a hypothesis, it begs investigation. In a similar vein, with careful prospective studies, it may be possible to identify pre-

dictive indicators of patients more or less likely to experience and/or be bothered by mastodynia.

### **Conclusion**

In and of itself, gynecomastia is a cosmetic problem. If it does not lead to any physical or psychological disability and has little or no increased risk of mortality or comorbidity, there is little justification for aggressive medical treatment. However, without psychological support or psychosocial intervention, the cosmetic concern could become sufficiently debilitating to require intervention. Greater effort should be put into identifying, in advance of any ADT, the individuals who are most likely to be greatly distressed by gynecomastia. This can only be accomplished with prospective empirical research on this topic.

We also propose here that more effort be put into interventions of a psychosocial, rather than medical nature, for those cases warranting some intervention. If we can understand what the problem—the distress—is really about, we may be able to offer psychosocial support, without having to resort to pharmacological, radiological, or surgical treatments. Models for acceptance of gynecomastia taken from the breast cancer community's strategies for adapting to mastectomies may be a good starting point.

**Corresponding Author:** Richard Wassersug, PhD, Dalhousie University—Anatomy & Neurobiology, 5850 College Street, Halifax, Nova Scotia B3H 1X5, Canada. Tel: (902) 494-2244; Fax: (902) 494-1212; E-mail: tadpole@dal.ca

*Conflict of Interest:* None declared.

### **Statement of Authorship**

#### *Category 1*

##### **(a) Conception and Design**

Richard J. Wassersug; John L. Oliffe

##### **(b) Acquisition of Data**

Richard J. Wassersug; John L. Oliffe

##### **(c) Analysis and Interpretation of Data**

Richard J. Wassersug; John L. Oliffe

#### *Category 2*

##### **(a) Drafting the Article**

Richard J. Wassersug; John L. Oliffe

##### **(b) Revising It for Intellectual Content**

Richard J. Wassersug; John L. Oliffe



## Category 3

## (a) Final Approval of the Completed Article

Richard J. Wassersug; John L. Oliffe

## References

- 1 Kuczynski A. A sense of anxiety a shirt won't cover. *The New York Times*, June 14, 2007.
- 2 Watrous MA. Masculine taboo. *The Seattle Times*, Aug 26, 2007.
- 3 His Miles R. Boobs! Her belly! More to come! *Maclean's*, Sept 10 2007.
- 4 Bennett J. Off their chests. *Newsweek*, Nov 8 2007. Available at: <http://www.newsweek.com/id/69002> (accessed January 23, 2008).
- 5 Handwerk B. Men with breasts: Benign condition creates emotional scars. *National Geographic News*, Aug 11 2006. Available at: <http://news.nationalgeographic.com/news/pf/12695591.html> (accessed January 30, 2008).
- 6 American Society of Plastic Surgeons. Briefing paper: Plastic surgery for teenagers. [http://www.plasticsurgery.org/media/briefing\\_papers/Plastic-Surgery-for-Teenagers-Briefing-Paper.cf](http://www.plasticsurgery.org/media/briefing_papers/Plastic-Surgery-for-Teenagers-Briefing-Paper.cf). (accessed March 27, 2008).
- 7 Degen GH, Bolt HM. Endocrine disruptors: Update on xenoestrogens. *Int Arch Occup Environ Health* 2000;73:433-41.
- 8 Nebesio TD, Pescovitz OH. Historical perspectives: Endocrine disruptors and the timing of puberty. *Endocrinologist* 2005;15:44-8.
- 9 Aucoin MW, Wassersug RJ. The sexuality and social performance of androgen-deprived (castrated) men throughout history: Implications for modern day cancer patients. *J Soc Sci Med* 2006;63:3162-73.
- 10 Meng MV, Grossfeld GD, Sadetsky N, Mehta SS, Lubeck DP, Carroll PR. Contemporary patterns of androgen deprivation therapy use for newly diagnosed prostate cancer. *Urology* 2002;60:7-11.
- 11 Cooperberg MR, Grossfeld GD, Lubeck DP, Carroll PR. National practice patterns and time trends in androgen ablation for localized prostate cancer. *J Nat Cancer Inst* 2003;95:981-9.
- 12 Barry MJ, Delorenzo MA, Walker-Corkery ES, Lucas FL, Wennberg DC. The rising prevalence of androgen deprivation among older American men since the advent of prostate-specific antigen testing: A population-based cohort study. *BJU Int* 2006;98:973-8.
- 13 O'Connor KM, Fitzpatrick JM. Side-effects of treatments for locally advanced prostate cancer. *BJU Int* 2005;97:22-8.
- 14 Navon L, Morag A. Advanced prostate cancer patients' ways of coping with the hormonal therapy's effect on body, sexuality, and spousal ties. *Qual Health Res* 2003;13:1378-92.
- 15 Navon L, Morag A. Liminality as biographical disruption: Unclassifiability following hormonal therapy for advanced prostate cancer. *Soc Sci Med* 2004;58:2337-47.
- 16 Oliffe JL. Embodied masculinity and androgen deprivation therapy. *Social Health Illn* 2006;28:410-32.
- 17 Segal RJ, Reid RD, Courneya KS, Malone SC, Parliament MB, Scott CG, Venner PM, Quinney HA, Jones LW, Slovynec D'Angelo ME, Wells GA. Resistance exercise in men receiving androgen deprivation therapy for prostate cancer. *J Clin Oncol* 2003;21:1653-9.
- 18 Schneider CM, Hsieh CC, Sprod LK, Carter SD, Hayward R. Cancer treatment-induced alterations in muscular fitness and quality of life: The role of exercise training. *Ann Oncol* 2007;18:1957-62.
- 19 Monga U, Garber SL, Thornby J, Vallbona C, Kerrigan AJ, Monga TN, Zimmermann KP. Exercise prevents fatigue and improves quality of life in prostate cancer patients undergoing radiotherapy. *Arch Phys Med Rehabil* 2007;88:1416-22.
- 20 Culos-Reed SN, Robinson JL, Lau H, O'Connor K, Keats MR. Benefits of a physical activity intervention for men with prostate cancer. *J Sport Exerc Psychol* 2007;29:118-27.
- 21 Hedlund PO. 2000 Side effects of endocrine treatment and their mechanisms: Castration, anti-androgens, and estrogens. *Prostate Suppl* 2000;10:32-7.
- 22 Sprenkle PC, Fisch H. Pathologic effects of testosterone deprivation. *Curr Opin Urol* 2007;17:424-30.
- 23 Norman G, Dean ME, Langley RE, Hodges ZC, Ritchie G, Parmar MK, Sydes MR, Abel P, Eastwood AJ. Parenteral oestrogen in the treatment of prostate cancer: A systematic review. *Br J Cancer* 2008;98:697-707.
- 24 Guise TA, Oefelein MG, Eastham JA, Cookson MS, Higano CS, Smith MR. Estrogenic side effects of androgen deprivation therapy. *Rev Urol* 2007;9:163-80.
- 25 Kumar RJ, Barqawi A, Crawford ED. Adverse events associated with hormonal therapy for prostate cancer. *Rev Urol* 2005;7(5 suppl):S37-43.
- 26 Kumar RJ, Barqawi A, Crawford ED. Preventing and treating the complications of hormone therapy. *Curr Urol* 2005;6:217-23.
- 27 Higano C. Androgen deprivation therapy: Monitoring and managing the complications. *Hematol Oncol Clin North Am* 2006;20:909-23.
- 28 Higano CS. Androgen-deprivation-therapy-induced fractures in men with nonmetastatic prostate cancer: What do we really know? *Nat Clin Pract Urol* 2008;5:153-80.
- 29 Keating NL, O'Malley AJ, Smith MR. Diabetes and cardiovascular disease during androgen deprivation therapy for prostate cancer. *J Clin Oncol* 2006;24:4448-56.

- 30 Smith MR. Androgen deprivation therapy for prostate cancer: New concepts and concerns. *Curr Opin Endocrinol Diabetes Obes* 2007;14:247–54.
- 31 Braunstein GD. Clinical practice: Gynecomastia. *N Engl J Med* 2007;357:1229–37.
- 32 Tyrrell C, Payne H, Tammela T, Bakke A, Lodding P, Goedhals L, Van Erps P, Boon T, Van De Beek C, Andersson S. Prophylactic breast irradiation with a single dose of electron beam radiotherapy (10 Gy) significantly reduces the incidence of bicalutamide-induced gynecomastia. *Int J Radiat Oncol Biol Phys* 2004;60:476–83.
- 33 Di Lorenzo G, Perdona S, De Placido S, D'Armiento M, Gallo A, Damiano R, Pingitore D, Gallo L, De Sio M, Autorino R. Gynecomastia and breast pain associated with bicalutamide after radical prostatectomy in patients with prostate cancer: The role of tamoxifen and radiotherapy. *J Urol* 2005;174:2197–203.
- 34 Di Lorenzo G, Autorino R, Perdona S, De Placido S. Management of gynecomastia in patients with prostate cancer: A systematic review. *Lancet Oncol* 2005;6:972–9.
- 35 Fradet Y, Egerdie B, Andersen M, Tammela TL, Nachabe M, Armstrong J, Morris T, Navani S. Tamoxifen as prophylaxis for prevention of gynecomastia and breast pain associated with bicalutamide 150 mg monotherapy in patients with prostate cancer: A randomized, placebo-controlled, dose-response study. *Eur Urol* 2007;52:106–14.
- 36 Van Poppel H. Editorial comment on: Tamoxifen as prophylaxis for prevention of gynecomastia and breast pain associated with bicalutamide 150 mg monotherapy in patients with prostate cancer: A randomized, placebo-controlled, dose-response study. *Eur Urol* 2007;52:115.
- 37 Bland LB, Garzotto M, DeLoughery TG, Ryan CW, Schuff KG, Wersinger EM, Lemmon D, Beer TM. Phase II study of transdermal estradiol in androgen-independent prostate carcinoma. *Cancer* 2005;103:717–23.
- 38 Cardis E, Vrijheid M, Blettner M, Gilbert E, Hakama M, Hill C, Howe G, Kaldor J, Muirhead CR, Schubauer-Berigan M, Yoshimura T, Bermann F, Cowper G, Fix J, Hacker C, Heinmiller B, Marshall M, Thierry-Chef I, Utterback D, Ahn Y-O, Amoros E, Ashmore P, Auvinen A, Bae J-M, Bernar Solano J, Biau A, Combalot E, Deboodt P, Diez Sacristan A, Eklof M, Engels H, Engholm G, Gulis G, Habib R, Holan K, Hyvonen H, Kerekes A, Kurtinaitis J, Malker H, Martuzzi M, Mastauskas A, Monnet A, Moser M, Pearce MS, Richardson DB, Rodriguez-Artalejo F, Rogel A, Tardy H, Telle-Lamberton M, Turai I, Usel M, Veress K. Risk of cancer after low doses of ionising radiation: Retrospective study in 15 countries [online]. *BMJ* 2005; 331:77.
- 39 Eistein AJ, Henzlova MJ, Rajagopalan S. Radiation dose to the breast and estimated breast cancer risk in women from 64-slice CT coronary angiography: Insights from the Biological Effects of Ionizing Radiation (BEIR) VII report. *J Nucl Cardiol* 2007;14:S59.
- 40 Nieder C, Pawinski A, Andratschke NH, Molls M. Does prophylactic breast irradiation in patients with prostate cancer influence cardiac toxicity? *J Natl Cancer Inst* 2007;99:1646–7.
- 41 Nieder C, Pawinski A, Andratschke NH, Molls M. Can prophylactic breast irradiation contribute to cardiac toxicity in patients with prostate cancer receiving androgen suppressing drugs? [online]. *Radiat Oncol* 2008;3:2.
- 42 Nuttall MC, Harris JP, Dawkins GP. The role of tamoxifen in reducing bicalutamide-induced gynecomastia and breast pain. *BJU Int* 2007;99: 243–4.
- 43 Sieber PR. Treatment of bicalutamide-induced breast events. *Expert Rev Anticancer Ther* 2007; 7:1773–9.
- 44 Beer TM, Bland LB, Bussiere JR, Neiss MB, Wersinger EM, Garzotto M, Ryan CW, Janowsky JS. Testosterone loss and estradiol administration modify memory in men. *J Urol* 2006;175:130–5.
- 45 Cherrier MM, Matsumoto AM, Amory JK, Ahmed S, Bremner W, Peskind ER, Raskind MA, Johnson M, Craft S. The role of aromatization in testosterone supplementation: Effects on cognition in older men. *Neurology* 2005;64:290–6.
- 46 Castellon SA, Ganz PA, Bower JE, Petersen L, Abraham L, Greendale GA. Neurocognitive performance in breast cancer survivors exposed to adjuvant chemotherapy and tamoxifen. *J Clin Exp Neuropsychol* 2004;26:955–69.
- 47 Bender CM, Sereika SM, Berga SL, Vogel VG, Brufsky AM, Paraska KK, Ryan CM. Cognitive impairment associated with adjuvant therapy in breast cancer. *Psycho-Oncology* 2006;15:422–30.
- 48 Tashkandi M, Al-Qattan MM, Hassanain JM, Hawary MB, Sultan M. The surgical management of high-grade gynecomastia. *Ann Plast Surg* 2004;53:17–20.
- 49 Handschin AE, Bietry D, Banic A, Constantinescu M. Surgical management of gynecomastia—a 10-year analysis. *World J Surg* 2008;32:38–44.
- 50 Yost MJ. Demystifying gynecomastia: Men with breasts. Available at: <http://www.gynecomastia.org>, 2006 (accessed January 15, 2008).
- 51 Tiefer L. Beyond the medical model of women's sexual problems: A campaign to resist the promotion of 'female sexual dysfunction. *Sex Rel Ther* 2002;17:127–35.
- 52 Tiefer L. *Sex is not a natural act, and other essays*. Boulder, CO: Westview Press; 2004.
- 53 Tiefer L, Hall M, Tavis C. Beyond dysfunction: A new view of women's sexual problems. *J Sex Marital Ther* 2002;28(1 suppl):225–32.
- 54 Clark JA, Wray N, Brody B, Ashton C, Giesler B, Watkins H. Dimensions of quality of life expressed

- by men treated for metastatic prostate cancer. *Soc Sci Med* 1997;45:1299–309.
- 55 Available at: <http://www.prostatepointers.org/mailman/listinfo/pcai>, 2005 (accessed August 14, 2008).
  - 56 Available at: <http://www.prostatepointers.org/mailman/listinfo/circle>, 2005 (accessed August 14, 2008).
  - 57 Available at: <http://www.prostatepointers.org/mailman/listinfo/chb>, 2005 (accessed August 14, 2008).
  - 58 Available at: <http://listserv.acor.org>, 2005 (accessed August 14, 2008).
  - 59 CNET Networks Inc. *Seinfeld: The Doorman*. Available at: [http://www.tv.com/seinfeld/the-doorman/episode/2344/summary.html?tag=ep\\_list;title;17](http://www.tv.com/seinfeld/the-doorman/episode/2344/summary.html?tag=ep_list;title;17) (accessed March 31, 2008).
  - 60 Young IM. *On female body experience: "throwing like a girl" and other essays*. New York, NY: Oxford University Press; 2005:75–96.
  - 61 Marina. *Welcome patient: Gynecomastia garments*. Available at: <http://www.gynecomastiagarments.com/?idev=16829>. (accessed January 21, 2008).
  - 62 007 Breasts. *Men and bras*. Available at: <http://www.007b.com/bra-men.php> (accessed January 23, 2008).
  - 63 Bumgardner W. *Is there a sports bra for men?* Available at: <http://walking.about.com/od/sportsbras/a/sensmensbra.htm> (accessed January 23, 2008).
  - 64 Dozier R. *Beards, breast, and bodies: Doing sex in a gendered world*. *Gend Soc* 2005;19:297–316.
  - 65 Lewis JJ. *Bra-burning feminists: NOT*. Available at: [http://womenshistory.about.com/od/mythsowomenshistory/a/bra\\_burning.htm?p=1](http://womenshistory.about.com/od/mythsowomenshistory/a/bra_burning.htm?p=1) (accessed January 22, 2008).
  - 66 Mikkelson B, Mikkelson DP. *Red hot mamas*. Available at: <http://www.snopes.com/history/American/burnbra.asp> (accessed January 22, 2008).
  - 67 Anonymous. *Sexual objectification*. Available at: [http://en.wikipedia.org/wiki/Sexual\\_objectification](http://en.wikipedia.org/wiki/Sexual_objectification) (accessed April 1, 2008).
  - 68 Gray RE, Wassersug RJ, Sinding C, Barbara AM, Trosztmer C, Fleshner N. *The experiences of men receiving androgen deprivation treatment for prostate cancer: A qualitative study*. *Can J Urol* 2005;12:2755–63.
  - 69 Blanchard R. *The classification and labeling of non-homosexual gender dysphorias*. *Arch Sex Behav* 1989;18:315–34.
  - 70 Blanchard R. *The concept of autogynephilia and the typology of male gender dysphoria*. *J Nerv Ment Dis* 1989;177:616–23.
  - 71 Lawrence AA. *Becoming what we love: Autogynephilic transsexualism conceptualized as an expression of romantic love*. *Perspect Biol Med* 2007;50:506–20.
  - 72 Blanchard R. *Early history of the concept of autogynephilia*. *Arch Sex Behav* 2005;34:439–46.
  - 73 Karpman B. *Dream life in a case of transvestism with particular attention to the problem of latent homosexuality*. *J Nerv Ment Dis* 1947;106:292–337.
  - 74 Boehmer U, Clark JA. *Communication about prostate cancer between men and their wives*. *J Fam Pract* 2001;50:226–31.
  - 75 Schover LR. *Sexuality and cancer: For the man who has cancer and his partner [Brochure]*. New York, NY: American Cancer Society; 2001.
  - 76 Soloway CT, Soloway MS, Kim SS, Kava BR. *Sexual, psychological and dyadic qualities of the prostate cancer 'couple'*. *BJU Int* 2005;95:780–5.
  - 77 Hawes SM, Malcarne VL, Ko CM, Sadler GR, Bantuaia R, Sherman SA, Varni JW, Schmidt J. *Identifying problems faced by spouses and partners of patients with prostate cancer*. *J Oncol Nurs Forum* 2006;33:807–14.
  - 78 Couper J, Bloch S, Love A, Macvean M, Duchesne GM, Kissane D. *The psychosocial adjustment of female partners of men with prostate cancer: A review of the literature*. *Psycho-Oncol* 2006;15:937–53.
  - 79 Gustavsson–Lilius M, Julkunen J, Keskivaara P, Heitanen P. *Sense of coherence and distress in cancer patients and their partners*. *Psycho-Oncol* 2007;16:1100–10.
  - 80 Northouse LL, Mood DW, Montie JE, Sandler HM, Forman JD, Hussain M, Pienta KJ, Smith DC, Sanda MG, Kershaw T. *Living with prostate cancer: Patients' and spouses' psychosocial status and quality of life*. *J Clin Oncol* 2007;25:4171–7.
  - 81 Charmaz K. *Identity, dilemmas of chronically ill men*. In: Sabo D, Gordon DF, eds. *Men's health and illness: Gender, power and the body*. Thousand Oaks, CA: Sage Publications; 1995:266–91.
  - 82 Oliffe JL. *Positioning prostate cancer as the problematic third testicle*. In: Broom A, Tovey P, eds. *Men's health: Body, identity and social context*. London: John Wiley & Sons Ltd; 2009.
  - 83 Bloom JR, Cook M, Fotopoulis S, Flamer D, Gates C, Holland JC, Larry L, Murawski B, Penman D, Ross RD. *Psychological response to mastectomy: A prospective comparison study*. *Cancer* 1987;59:189–96.
  - 84 Schover LR. *Sexuality and body image in younger women with breast cancer*. *J Natl Cancer Inst Monogr* 1994;16:177–82.
  - 85 Schover LR, Yetman RJ, Tuason LJ, Meisler E, Esselstyn CB, Hermann RE, Grundfest–Broniatowski S, Dowden RV. *Partial mastectomy and breast reconstruction: A comparison of their effects on psychosocial adjustment, body image, and sexuality*. *Cancer* 1995;75:54–64.
  - 86 Payne DK, Sullivan MD, Massie MJ. *Women's psychological reactions to breast cancer*. *Semin Oncol* 1996;23(1 Suppl. 2):89–97.

- 87 YMCA Encore. What is YWCA encore? Available at: <http://www.ywcaencore.org.au/> accessed March 10, 2008).
- 88 Sabiston CM, McDonough MH, Crocker PR. Psychosocial experiences of breast cancer survivors involved in a dragon boat program: Exploring links to positive psychological growth. *J Sport Exerc Psychol* 2007;29:419–38.
- 89 Mitchell TL, Yakiwchuk CV, Griffin KL, Gray RE, Fitch MI. Survivor dragon boating: A vehicle to reclaim and enhance life after treatment for breast cancer. *Health Care Women Int* 2007;28:122–40.
- 90 Parry DC. The contribution of dragon boat racing to women's health and breast cancer survivorship. *Qual Health Res* 2008;18:222–33.
- 91 Bottorff JL, Oliffe JL, Halpin M, Phillips M, McLean G, Mroz L. Women and prostate cancer support groups: The gender connect? *Soc Sci Med* 2008;66:1217–27.
- 92 Brett MA, Roberts LF, Johnson TW, Wassersug RJ. Expectations, consequences, and adjustments to castration among voluntary eunuchs. *J Sex Med* 2007;4:946–55.
- 93 Porcerelli JH, Sandler BA. Narcissism and empathy in steroid users. *Am J Psychiatry* 1995;152:1672–4.
- 94 Raskin R, Terry H. A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *J Pers Soc Psychol* 1988;54:890–902.
- 95 Reidy DE, Zeichner A, Foster JD, Martinez MA. Effects of narcissistic entitlement and exploitativeness on human physical aggression. *Pers Individ Dif* 2008;44:865–75.