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Review article

Gynecomastia and psychological functioning: A review of the literature

D. Luis Ordaz*, J. Kevin Thompson

Department of Psychology, University of South Florida, Tampa, FL, USA

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ABSTRACT

Gynecomastia is defined as excess glandular growth of breast tissue in males. It is a noticeable physical difference that commonly affects males in adolescence and old age. While often transient in nature, gynecomastia persists indefinitely in 10% of cases. Much of the literature on gynecomastia has focused on etiology and management. Little research has been done regarding the impact of gynecomastia on one's mental health and quality of life; however, some studies have suggested various psychosocial and psychological consequences related to gynecomastia. These consequences include but are not limited to depression, anxiety, disordered eating, body dissatisfaction, and reduced self-esteem. The aims of this paper are to review the current gynecomastia literature, bring awareness to an understudied but troubled population, and discuss directions for future work, including offering extant models of body image to guide researchers.

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Introduction

Gynecomastia is excess glandular growth of breast tissue in males that can affect either one (unilateral) or both (bilateral) sides of the chest. Gynecomastia is a normal and common occurrence that is estimated to affect 30–70% of males at some point in their life with three distinct periods of increased incidence: neonatal period, adolescence, and old adulthood (Cakan & Kamat, 2007; Gikas & Mokbel, 2007; Johnson, Kermott, & Murad, 2011; Nordt & DiVasta, 2008; Nydick, Bustos, Dale, & Rawson, 1961). In a recent review of evaluation and treatment options, Johnson et al. (2011) found prevalence rates of 60–90% in neonates, 50–60% in adolescents, and 70% in older men (ages 50–69). Despite its high prevalence rates, gynecomastia corrects itself in approximately 90% of cases within 3 years of onset (Cakan & Kamat, 2007; Gikas & Mokbel, 2007; Nydick et al., 1961). However, even if 90% of cases resolve on their own within a few years, there are still roughly 3–6% of males who develop permanent breasts to varying degrees, and it is possible that even temporary development of opposite sex characteristics could have lasting psychosocial and psychological consequences. Psychological aspects of gynecomastia have received limited review and integration, therefore the current paper will highlight this literature and provide future directions for investigation, guided by current theoretical models in the area

* Corresponding author at: Department of Psychology, University of South Florida, 4202 East Fowler Avenue, PCD4118G, Tampa, FL 33620, USA. Tel.: +1 813 974 0367.
E-mail address: Dordaz@mail.usf.edu (D.L. Ordaz).

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of body image. Gynecomastia is not limited to adolescence; however, because much of the psychological literature in this area has been done with adolescent males, most of the information in this review will pertain to adolescents, with other populations being less represented.

Diagnosis

True gynecomastia consists of excess glandular breast tissue rather than sub-areolar fat without breast tissue enlargement. The proliferation of glandular breast tissue is what differentiates gynecomastia from pseudogynecomastia, a similar condition characterized by excess fatty tissue in the chest. The first step in diagnosing gynecomastia involves physical examination in which the patient lies flat with hands behind his head, and the physician feels for a rubbery, soft, or firm disk underneath the areolas to indicate gynecomastia (Braunstein, 2007). If gynecomastia is present, severity is often determined by amount of breast enlargement, skin excess, and sagging with severity ranging from minimal breast enlargement to marked breast enlargement with skin excess and sagging (Rohrich, Ha, Kenkel, & Adams, 2003; Simon, Hoffman, & Kahn, 1973). If there is no such disk upon physical examination, the condition may be attributable to pseudogynecomastia, and if there is a hard disk outside of the areola, a mammogram is often required to rule out breast cancer (Braunstein, 2007). However, a major factor contributing to the large range in prevalence rates of gynecomastia is the lack of uniform diagnostic criteria. Studies examining prevalence rates have used varying criteria for gynecomastia ranging from presence of any firm, sub-areolar disk, to glandular breast tissue that is greater than 2 cm (Abaci & Buyukgebiz, 2007). All men have some breast tissue, so it may be diagnostically beneficial to determine a cut off for normal breast development in men. Prevalence may not be as high if uniform diagnostic criteria are established and take into account normal breast tissue development.

Etiology and Treatment

Gynecomastia has often been attributed to an imbalance in estrogens and androgens (Abaci & Buyukgebiz, 2007; Johnson & Murad, 2009). Estrogens have a stimulating effect on breast tissue while androgens have an inhibitory effect; thus, higher ratios of estrogens to androgens have been thought to cause gynecomastia (Abaci & Buyukgebiz, 2007). Not only have systematic concentrations of these hormones been implicated in gynecomastia, but localized concentrations in breast tissue may also play a large role in gynecomastia (Abaci & Buyukgebiz, 2007; Nordt & DiVasta, 2008). Localized concentrations of estrogens in male breast tissue have been thought to increase due to aromatization (conversion of androgens to estrogens), increased estrogen sensitivity, and changes in hormone receptors (Abaci & Buyukgebiz, 2007). Nordt and DiVasta (2008) also report that Leptin, a hormone that may affect the estrogen to androgen ratio, may also be associated with gynecomastia as a recent study found significantly higher levels of Leptin in adolescent males with gynecomastia versus controls (Dundar, Dundar, Erci, Bober, & Buyukgebiz, 2005). Though not an exhaustive list, other conditions such as adrenal and testicular neoplasms, Klinefelter's syndrome, thyrotoxicosis, cirrhosis, primary hypogonadism, malnutrition, and aging have been associated with gynecomastia (Gikas & Mokbel, 2007). Certain drugs have also been associated with gynecomastia. These drugs, among others, include hormonal drugs, psychoactive drugs, cardiovascular drugs, antiandrogens, and drugs of abuse (Nordt & DiVasta, 2008). Lastly, the cause of gynecomastia is not always identifiable, and when that is the case, it is termed idiopathic gynecomastia.

Little is done in terms of treatment for adolescents with gynecomastia. Given that most cases of gynecomastia will self-correct within three years, the preferred form of treatment for gynecomastia during adolescence is sympathetic reassurance (Cakan & Kamat, 2007; Nordt & DiVasta, 2008; Nydick et al., 1961). Sympathetic reassurance usually entails a primary care doctor reassuring the male with gynecomastia that most cases go away on their own, within a few years. Subsequent primary care visits are then used to monitor the course of gynecomastia, and in cases in which breast tissue does not subside over time, patients are often referred to a cosmetic surgeon. When gynecomastia is persistent, cosmetic surgery is the treatment of choice. Most commonly, gynecomastia is treated through glandular excision of excess breast tissue, liposuction, or both (Gikas & Mokbel, 2007; Johnson & Murad, 2009; Nordt & DiVasta, 2008). Despite scarring, surgical correction has been shown to produce positive results (El Noamani, Thabet, Enab, Shaeer, & El-Sadat, 2010; Rosen et al., 2010). However, major barriers to treatment are the high cost of the procedure and lack of insurance coverage (Kinsella et al., 2012; Nuzzi et al., 2013). Interestingly, Nuzzi et al. (2013) compared rates of insurance coverage in their institution for breast reduction in males to treat gynecomastia and breast reduction in females to treat macromastia (excessive breast growth in females). They found that gynecomastia surgeries were covered in only 35% of cases (37 out of 103 cases) from 2009 to 2011 compared to 85% of cases for macromastia surgeries in females.

Though surgical correction is the treatment of choice, pharmacological treatment has also been suggested for gynecomastia in its early stages before dense fibrous tissue development; however, the research regarding pharmacological treatment is limited. Potential pharmacological treatments include androgens, antiestrogens, aromatase inhibitors, and danazol (Gikas & Mokbel, 2007; Nordt & DiVasta, 2008). Though studies have shown positive results from various medications (Derman, Kanbur, & Kutluk, 2003; Lawrence, Faught, Vethamuthu, & Lawson, 2004; Zachmann, Eiholzer, Muritano, Werder, & Manella, 1986), these studies have been limited by small sample size or lack of control groups. Future research should address these limitations as pharmacological treatments have the potential to produce better cosmetic results by avoiding scarring.

Psychosocial and Psychological Factors

Though gynecomastia has been linked to negative psychosocial and psychological consequences, including body image issues, there has been relatively little systematic research done in this area. Findings from the available research have suggested the presence of depression (Kinsella et al., 2012; Schonfeld, 1962; Storch et al., 2004), anxiety (Kinsella et al., 2012; Storch et al., 2004), low self-esteem (Davanco et al., 2009; Kinsella et al., 2012; Nuzzi et al., 2013), disordered eating (Fisher & Fornari, 1990; Nuzzi et al., 2013), and gender issues such as feeling inadequate as a male or being dissatisfied with male status (Money & Lewis, 1982; Schonfeld, 1962; Wassersug & Oliffe, 2009). Some studies have also found an increased rate of homosexual and bisexual status in this population (Money & Lewis, 1982; Schonfeld, 1962), presence of maladaptive coping mechanisms (Kinsella et al., 2012; Money & Lewis, 1982; Schonfeld, 1962; Storch et al., 2004), reduced quality of life (Davanco et al., 2009; Nuzzi et al., 2013), and reduced erectile function attributed to gynecomastia (El Noamani et al., 2010). Although little work has focused on the measurement of body image, findings from some studies also suggest that body image concerns are present and related to psychological distress and psychosocial functioning. The literature suggests that boys and men with gynecomastia often experience emotional distress related to their