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The Journal of Sex Research

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/hjsr20

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To cite this article: Sarah E. Johns & Nerys Bushnell (2023): What Drives Sex Toy Popularity? A Morphological Examination of Vaginally-Insertable Products Sold by the World's Largest Sexual Wellness Company, The Journal of Sex Research, DOI: 10.1080/00224499.2023.2175193

To link to this article: https://doi.org/10.1080/00224499.2023.2175193

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Published online: 07 Feb 2023.

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THE JOURNAL OF SEX RESEARCH
https://doi.org/10.1080/00224499.2023.2175193

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What Drives Sex Toy Popularity? A Morphological Examination of Vaginally-Insertable Products Sold by the World's Largest Sexual Wellness Company

Sarah E. Johns and Nerys Bushnell

School of Anthropology and Conservation, Division of Human and Social Sciences, Marlowe Building, University of Kent

ABSTRACT

There is limited research into the morphology of sex toys, and specifically into (the often phallic-shaped) vibrators and dildos and what they may represent in terms of user preferences for male genital morphology. This study provides insight into consumer preference around vaginally insertable sex toys, their features, and what contributes to their popularity. Using a data set compiling information from the world's largest online sexual wellness retailer Lovehoney, we examined the dimensions, price, and morphological features of 265 sex toys designed for vaginal insertion to determine what contributes to item popularity. Using regression models, we found that realistic features did not predict item popularity, whereas price ($p < .001$) and circumference ($p = .01$) significantly predicted the overall popularity of a toy. It appears that consumers show a preference for insertable sex toys that are not direct replicas of the male penis, which suggests they are not seeking a realistic partner substitute. Further, we found that the length of the toy did not significantly predict popularity which is consistent with other work showing that women do not place considerable emphasis on large phallus size. Our results can contribute to future product design and marketing, as well as reveal preferences toward particular characteristics of the phallus (whether real or toy).

A significant aspect of human sexuality, and one which requires further exploration, is the use of insertable objects for sexual pleasure (Döring & Pöschl, 2018; Rosenberger et al., 2012). The majority of sex toys (dildos and vibrators – dildo as a term may come from both the Italian *diletto*, which translates as "to delight" (Das, 2014) and the English *dally*, to toy [with] (Kelly, 1974)) typically replicate the general shape of human male genitalia, although they can come in many forms, shapes, and sizes (Döring & Pöschl, 2018).

Since the appearance of Anne Summers' shop in London in 1970 (Malina & Schmidt, 1997), there has been a shift toward female friendly, sexually empowering, and publicly visible spaces to purchase sex toys (Crewe & Martin, 2017; Malina & Schmidt, 1997), and there appears a widespread support and acceptance of sex toys among feminists (Döring, 2021).

The online market, and its accessibility, has also significantly contributed to the "increasing normalcy" of sex toy use (Daneback et al., 2011, p. 108), especially for women, who are seen as the "superior sexual consumers" when compared to men (Ronen, 2021, p. 16). The Internet has created a large, diverse, affordable, and accessible sex toy market (Daneback et al., 2011), and thanks to this technological boom, sex toys have become easier to access in efficient and discrete ways (Crewe & Martin, 2017; Döring et al., 2017).

Sexual Health

Several studies have found that masturbation, both with and without sexual aids, can improve women's self-esteem, body image, and increase general sexual pleasure (Coleman & Bockting, 2013; Shulman & Horne, 2003). Although sex toys were not originally used, as is commonly thought, to medically treat female hysteria (Lieberman & Schatzberg, 2018), they are used during clinical practice to help treat sexual dysfunctions and improve sexual intimacy (Rullo et al., 2018; Zamboni & Crawford, 2003). Their use is also inclusive, with this being reported across multiple sexual identities, including heterosexual, bisexual, and queer women (Herbenick et al., 2009; Schick et al., 2011, 2012). Marketing of these products has also shifted toward highlighting their use for improving sexual health and well-being. For example, actress Gwyneth Paltrow's high-end GOOP website (www.goop.com, n.d.) presents sex toys (both through descriptions of items that can be directly purchased and in articles under the "wellness" category) as desirable, "influencer-approved" items. Sex toys are now sold and advertised as stylish lifestyle goods (Attwood, 2005; Smith, 2007).

Stigma, Taboos, and Criticism

Although there is increasing normalization of sex toys (Döring, 2021), there is still some degree of taboo or stigma surrounding their purchase and use (Waskul & Anklan, 2020). For example, a sex toy endorsement by British celebrity YouTuber Zoe Sugg's brand website Zoella resulted in her being dropped from the General Certificate of Secondary Education (GCSE) Assessment and Qualifications Alliance (AQA) Media Studies syllabus and prompted conversations

CONTACT Sarah E. Johns s.e.johns@kent.ac.uk School of Anthropology and Conservation, Division of Human and Social Sciences, Marlowe Building, University of Kent, Canterbury, Kent CT2 7NR, UK

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about female sexual pleasure and sex education (Clarkson, 2021), while sex toy manufacturer, Lora DiCarlo, had an industry award for a new vibrator revoked at the 2018 Consumer Electronics Show for breaking organizer rules around obscenity and profanity (Dubé et al., 2022). Incidents such as these demonstrate that the stigma and controversy around female masturbation, in general, and the acceptability of mainstream sex toy use, remain. Criticisms also exist regarding the trend to market sex toys as sexual health and wellness products as this may create a new standard for sexual satisfaction and could pressure people into "improving" their sexual health (Gupta & Cacchioni, 2013). However, despite lingering taboos, the increase in online marketing and increasing sex toy usage has resulted in an industry that made 30.48 billion US dollars in 2021 alone, and this is projected to rise (Grand View Research, 2022). The demand for the online purchase of sex toys also increased during the COVID-19 pandemic, for both single people and separated couples, due to lockdowns and two-meter contact bans (Döring, 2020; Grand View Research, 2022).

Notwithstanding their significant cultural history and continuous rising popularity, sex toys are under documented and under researched (Döring & Pöschl, 2018). Much sexual research in academia focuses on pornography (e.g., Bridges et al., 2010; Vaillancourt-Morel et al., 2019) rather than sex toys. There were apparently fewer than 100 studies of material (rather than virtual) erotic technology prior to 2021 (Döring, 2021), highlighting how relatively unexplored they are (Döring & Pöschl, 2018). Furthermore, there is limited research into the features and morphology of the sex toys themselves and, given the often-phallic shape and structure, specifically into vaginally insertable vibrators and dildos and what they may represent in terms of user preferences for male genital-like morphology.

Penis Preference

Some evolutionary biologists have theorized that, due to the penis being conspicuous in humans, morphology and overall size have been sexually selected (Mautz et al., 2013). The few studies that have sought to examine female preference for penis size and morphology, either through self-report (Francken et al., 2002) or the use of simplified models (Prause et al., 2015), provide supporting evidence, with flaccid penis length contributing to overall male attractiveness (Mautz et al., 2013), women showing more interest in girth over length (Francken et al., 2002) and preferring slightly larger than average penises for a "one night stand" context. Gallup et al. (2003) also concluded that the shape of the glans of the human penis, and the presence of a coronal ridge, might have evolved to enhance sperm competition in our recent ancestors. However, Bowman (2008) suggested that the circumference of the human penis is simply larger than that of most primates to ensure a good fit within a larger and more flexible vagina, itself evolved to facilitate birthing infants with large cranial diameters. Whatever the mechanism, we would expect to see aspects of female preference, whether that be related to overall dimensions or sensation, reflected in the morphology of the most popular or best-selling penis-shaped sex toys designed for vaginal insertion.

Aims and Hypotheses

The aim of this study was to understand and to quantify which morphological features of phallic-shaped sex toys, designed for vaginal insertion during masturbatory and other sexual activity, are the most popular. We did not consider other types of toys, such as full-size sex dolls, but rather only focused on non-personified sexual-technology (as expanded upon by Locatelli, 2022). Nor did we consider the emerging popularity of virtual "sex tech," which often overlaps with online pornography, such as erotic video games, camming streams, and sexual chatbots (Gesselman et al., 2022). The majority of non-personified sex toys are phallus-shaped (Döring & Pöschl, 2018), and insertable sex toy design is understood to be for the "women's market" (Ronen, 2021) and so could be expected to reflect women's preferences. We also assessed whether users prefer vaginally insertable toys (from those available to them on one website) that resemble real phalluses, or whether they steered away from this simulated morphology. By looking explicitly at the features which are most desirable to consumers we hoped to add context to discussions surrounding the use and design of sex toys, and also further understand user preference.

We hypothesized that the overall popularity of insertable sex toys would be affected by girth over length, in line with other studies of female assessment of male genitals (Francken et al., 2002; Prause et al., 2015), and that more realistic features would be preferred and predict popularity, given that insertable sex toys are assumed to be used (by heterosexual women) to replicate the sensation of vaginal intercourse (considering commentary from Ward, 2020 we acknowledge that lesbian users of insertable sex toys may be seeking toys for different sensations). However, we also hypothesized that the nonrealistic feature of vibration would also contribute to popularity, given that clitoral stimulation and vibrations increase the likelihood of female orgasm (Lloyd, 2005; Rullo et al., 2018). The female orgasm is sometimes elusive during penetrative sex and typically requires clitoral stimulation to be achieved (Lloyd, 2005) and is more frequent in solo masturbatory sessions (Garcia et al., 2014). Consequently, vibrators (not necessarily phallus shaped) are the most commonly used sex toy by heterosexual women (Döring, 2021; Herbenick et al., 2009). We also examined which features predicted the retail price of phallus-shaped sex toys. We undertook this analysis to assess which features are considered by retailers/producers to be more "high end," and if these more expensive items actually match consumer preferences. To our knowledge this is the first study to specifically assess the popularity of phallus-shaped, insertable sex toys on the basis of both particular characteristics and dimensions. There have been two other studies that have explored sex toy dimensions (circumference and insertable length) in products for sale, both specifically related to clinical contexts (Herbenick et al., 2015; Isaacson et al., 2017), while one other has examined customer reviews of genital versus torso-shaped sex toys (Döring et al., 2022).

However, none of these considered additional morphological features of insertable toys, or how features and dimensions explicitly relate to overall popularity of a product.

Method

Data were collected from Lovehoney (www.lovehoney.co.uk, n.d.), the largest online sex toy retailer in the United Kingdom, and part of the Lovehoney group which is, as of a merger in August 2021, the world's largest sexual wellness company (Finch, 2021). Founded in 2002, the company is a retailer, manufacturer and distributor with nine websites serving customers from across Europe, North America, and Australasia. Data were taken exclusively from the UK version of the Lovehoney websites, which is rated "excellent" on over 193,000 customer reviews (Trustpilot, 2022). The UK domain offers a sizable and diverse range of products, making this online store an ideal data source. Assessing products from a single website also avoids duplication between items given that similar or identical products can retail under different names. Further, the UK lacks legal restrictions around the selling of realistic looking phallic-shaped toys. In fact, there are very few regulations of this market across Europe, including, unfortunately, around their safety (Naik, 2021) and they are not considered obscene or illegal, as in Alabama, for example (Council, 2020).

We consulted previous research that examined the characteristics women prefer in a penis, as a starting point, to consider assessment of the specific features of phallic-shaped sex toys designed for insertion. Only products listed under the category *Dildo* were included in the study. In total, at the time of data collection (January 2021), 327 products were listed under the *Dildo* section of the Lovehoney UK website. Of these, 62 were excluded from analysis. Exclusions included products which were categorized as dildos but were primarily used as "packers," which are designed for transgender males to place inside their underwear, rather than for use as a sexual toy (Cole, 2018). Also excluded were very long double-ended dildos where insertable length could not be determined, vaginally insertable products which were explicitly not phallus shaped, (e.g., hand-shaped models for fisting), and products that were specifically listed as being for anal use only.

A total of 265 products were assessed and analyzed. The products were assessed using a combination of the onsite specifications, the review section of each product, and by using visual evaluations (from the online photographs) for each variable (all variables and their respective method of collection are listed in Table 1 below). Collected data were in the form of continuous measurement scales or on the presence (1) or absence (0) of particular features. In academic literature, there is currently no established method for the labeling or classification of sex toys (Döring, 2021) and, as such, terms have been adopted directly from the retailer's website.

Analytic Strategy

Data were analyzed using SPSS v.27. One-sample t-tests were used to compare (a) collected data on *Insertable Length* to the average human erect penis length of 5.16 inches (13.12 cm; Veale et al., 2015), and (b) mean *Circumference* of our sample to that of the average circumference of the erect human penis, 4.59 inches (11.66 cm; Veale et al., 2015).

To determine an aggregate popularity measure for each item, principal component analysis (PCA) was performed on 3 distinct measures of popularity: the *website popularity rating* for that item, the *customer star rating* (number of stars given to the product by consumers), and the level of *customer engagement* (See Table 1), standardizing these variables (Z scores) due to them being collected using different scales. This resulted in one component (*Overall Popularity*), which was used as the dependent variable in later regression analyses to test our hypotheses. Individual item *Overall Popularity* scores from the PCA were produced using the regression method.

Variables used in the analysis of products labeled "dildo" collected from the Lovehoney UK website (www.lovehoney.co.uk).

Variable name	Description and method of collection
Circumference (inches)	The measurement of the girth of each product at its largest point taken from the website product specification.
Customer Engagement (to two decimal places)	The divided by the number of months between and the month of data collection (January 2021), provides a rate of . This ranged from 0.03 to 7.46 reviews per month.
Earliest Review	The date of the first product review. Used to indicate the length of availability for each product. This was then used to calculate (see above).
Insertable Length (inches)	The length of the shaft that could be used for vaginal insertion excluding any additional features e.g., a scrotum. Taken from the product specification.
Material (Realistic and Unrealistic)	materials included PVC, Silicone and Soft Plastic. materials included Glass, Latex, Metal, Stainless Steel and Wood. Taken directly from onsite descriptions for each product.
Number of Reviews	How many customers had reviewed each product (= 17,590).
Website's Popularity Rating	Products in the dildo category were filtered using the onsite filtering tool by the category "popularity." Each item was then assigned a of 265 to 1, in order of appearance, with a higher number denoting they were more popular.
Price	The cost of each item. For items on sale their full retail price was used.
Realistic Skin Color	Assessed using the image associated with each product. A product was defined as having a realistic skin color if it matched a known shade of human skin.
Star Rating	An average of all the star ratings given alongside more detailed customer reviews of the products. A scale of 1 to 5 stars to one decimal place, where 5 is highest achievable score.
Other Features Glans/Coronal Ridge Scrotum Veins Vibrating feature	Each of these features were determined by visual assessment of product photos and/or by reading the product description. These were noted on a presence-absence basis.

Three multiple regression models were constructed to determine which factors related to an insertable sex toy's *Overall Popularity*. In Model 1, we examined product dimensions (*Insertable length, Circumference*) to assess their relationship with *Overall Popularity*. In Model 2 we examined 5 additional binary measures of realism (1. Was the item made of realistic skin-like material, 2. was it realistically skin colored, 3. did it have veins, 4. a scrotum and 5. a glans/a coronal ridge, plus 6. vibrating functionality (all dummy coded)) while controlling for product dimensions. Model 3 was the same as Model 2 but additionally controlled for price. We also ran a multiple regression to examine which of the above features predicted item price (Model 4). All items were added to the models using the Enter method. Multicollinearity between variables was assessed to determine their appropriateness for use in additive models and there were no serious intercorrelations between the continuous variables (VIF = 2.07 for *insertable length* and *circumference* was found to be acceptable (Miles & Shevlin, 2001)).

Results

Descriptive Statistics

Of the 265 phallus shaped products, a vibrating feature was present in 66/265 products (24.9%), while 230/265 (86.8%) were made from a realistic, skin-like material, and 116/265 (43.8%) were a natural skin color. Veins were a feature of 72.5%, 36.2% had a scrotum, and 81.9% had a clearly defined glans/coronal ridge. The average price of the assessed items was £44.61 (SD = 40.38, Min = £8.99, Max = £449.99).

How Does the Sample Compare to Reality?

Insertable Length in our sample was significantly larger (mean = 7.07 inches ± 1.72, Min = 4 inches, Max = 14 inches, t (265) = 18.02, p = <.001, 95% CI, 1.70–2.12) than the described population-wide average (5.16 inches; Veale et al., 2015). Additionally, *Circumference* was also found to be significantly girthier in our sample (t (259) = 11.27, p = <.001, 95% CI, 0.77–1.10, mean = 5.52 ± 1.34, Min = 3 inches, Max = 10 inches) when compared to the mean erect circumference of 15,521 penises (4.59 inches; Veale et al., 2015)

Overall Popularity Measure

Principal component analysis resulted in a single component (*Overall Popularity*) with an eigenvalue of 1.38 which accounted for 46.23% of the variance (Table 2). High PCA *Overall Popularity* scores indicated that the product was more highly preferred.

Multivariate Analyses

In Model 1, product dimensions (*Insertable Length* and *Circumference*) were assessed in relationship to *Overall Popularity* and a significant model emerged (F (2,251) = 4.743, p = .01, adjusted R^2 = 0.02), accounting for just 2% of the variance. *Circumference* was the only significant predictor of *Overall Popularity* (B = −0.15, p = .02), indicating that products with a smaller circumference were preferred. The top 5 most popular products in our sample had an average circumference of 4.85 inches. *Insertable length* was not a significant predictor of popularity.

Model 2 (the 5 binary measures of realism, plus vibrating functionality, while controlling for product dimensions) was significant overall (F (8, 245) = 2.617, p = .009, adjusted R^2 = 0.04). Entry of the additional six variables resulted in an additional 4% of the variance being explained. We found that only the presence of *Veins* (p = .01) *and Circumference* (p = .01) were significant predictors of overall popularity. No other feature one would encounter (or not, in the case of vibration) on a real phallus, and entered into the model, was predictive of overall popularity.

The same model but additionally controlling for price (Model 3) was also significant (F (9, 244) = 4.184, p = < .001, adjusted R^2 = 0.10). The only individual feature that remained significant in predicting popularity was *Circumference* (p = .01), with *Price* also significantly predicting popularity (p < .001). The addition of price as a variable explained an additional 5% of the variance and this final model accounted for 10% of the variance. See Table 3 for the full details of the regression coefficients and significance of all the predictor variables entered into the models.

Price and Realism

We also examined whether retail price was predicted by product dimensions and the presence of the particular features described above (F (8,251) = 4.18, p = <.001 Adjusted R^2 = 0.09). We found that insertable length (p = .01), having a realistic skin color (p = .01), no visible veins, (p = .03), and having a vibrating function (p = .02) all significantly predicted the price of an item (Table 4).

Discussion

Contrary to what we expected (and contrary to Döring et al., 2022), we found no preference for products with realistic morphological features, other than the presence of veiny

Factor loadings from principal component analysis (PCA) resulting in the single factor

Popularity Measures	PCA Overall Popularity (Eigen Value = 1.38; 46.23%)
Z-score: Star rating	0.273
Z-score: Customer Engagement	0.839
Z-score: Website Popularity Rating	0.780

Regression results (Models 1–3) with (from the PCA) as the dependent variable.

Model		B	Std. Error		t	
1						
	Insertable Length (in)	0.013	0.052	0.023	0.253	.800
	Circumference (in)	−0.154	0.067	−0.206	−2.311	.022
2						
	Insertable Length (in)	0.002	0.053	0.004	0.044	.965
	Circumference (in)	−0.182	0.073	−0.244	−2.489	.013
	Realistic Material	0.182	0.235	0.060	0.776	.439
	Skin colored	−0.090	0.160	0-.045	−0.563	.574
	Veins	0.579	0.240	0.254	2.417	.016
	Scrotum	−0.305	0.160	−0.147	−1.908	.058
	Glans	−0.114	0.274	−0.042	−0.414	.679
	Vibrating	−0.178	0.158	−0.077	−1.128	.260
3						
	Insertable Length (in)	0.034	0.052	0.059	0.655	.513
	Circumference (in)	−0.176	0.071	−0.235	−2.473	.014
	Realistic Material	0.109	0.229	0.036	0.477	.634
	Skin colored	0.002	0.157	0.001	0.013	.990
	Veins	0.454	0.235	0.199	1.932	.055
	Scrotum	−0.239	0.156	−0.115	−1.527	.128
	Glans	−0.146	0.267	−0.054	−0.548	.584
	Vibrating	−0.098	0.154	−0.042	−0.636	.526
	Price	−0.008	0.002	−0.249	−3.935	<.001

Regression results (Model 4) with as the dependent variable.

Model		B	Std. Error		t	
4						
	Insertable Length (in)	4.069	1.637	0.221	2.486	.014
	Circumference (in)	0.630	2.272	0.026	0.277	.782
	Realistic Material	−10.342	7.121	−0.108	−1.452	.148
	Skin colored	12.007	4.961	0.187	2.420	.016
	Veins	−16.141	7.449	−0.223	−2.167	.031
	Scrotum	8.802	4.959	0.133	1.775	.077
	Glans	−5.333	8.385	−0.063	−0.636	.525
	Vibrating	11.300	4.812	0.153	2.348	.020

texture, when not controlling for price. This may be a consequence of levels of stigma and taboo still associated with specifically *insertive* (thus penis substitute) sex toy use by women (Fahs & Swank, 2013; Minge & Zimmerman, 2009; Waskul & Anklan, 2020), and recent research has concluded that "perceived stigma" among users is higher when erotic technology being engaged with was more human-like (Dubé et al., 2022). Highly realistic products may make women (and potentially their partners (Ronen, 2021)) feel less comfortable given they are truly "penis substitutes" rather than being a fun, vaginally insertable toy; women have reported that they most often chose sex toys which were specifically intended to not resemble a penis (Fahs & Swank, 2013). There has been a move away from the marketing of such toys since the ensuing popularity of the (more abstract and less "obscene") "Rabbit" during the 1990s (Devlin, 2018). A nonrealistic phallus might also be more acceptable and less threatening for men wanting to integrate a toy into their sex lives (Ronen, 2021), possibly related to the prevalent media narrative that only sad, lonely men would have sex with an "artificial partner" (Dubé et al., 2022), and also the concept of "dildo-envy" (Reich, 1992), whereby the dildo is viewed as superior to the "flawed organic penis" (Hamming, 2001, p. 331). However, the variable stigma between types of erotic technology and the relation of this to gender has yet to be empirically quantified (Dubé et al., 2022).

Product popularity was also significantly predicted by price. More expensive items were found to be less popular when accounting for a range of other morphological features. Realistic features of a product (a natural skin color) were related to its price, with this feature increasing cost. The sex toy industry is part of capitalist consumer culture (Döring, 2021), so it perhaps comes as little surprise that price is influential in consumer choice. It appears that customer choice is not based on morphological attributes alone and that item cost is a considerable factor. If realistic features on models predict a higher price, this may further deter customer purchase of anatomically realistic toys.

As described in a study by Gallup et al. (2003), sex toys have been previously used in research into the evolution of human sexual anatomy, where they were employed as a proxy for human male genitals in an experimental condition to test whether the presence of a coronal ridge contributes to efficient removal of (a purported rival) semen from the vagina (Gallup et al., 2003). Interestingly, in our study, the presence of the penile glans or a coronal ridge was not a feature which significantly predicted sex toy popularity, suggesting that users are not concerned in matching their sex toy to certain aspects of the penis which could play a role in sperm competition. Our results may suggest that penile glans/coronal ridge does not appear to have an influential role in sexual satisfaction or preference as it was not a favorable morphological feature. Such a feature also increases product realism, which again, might be less desirable for women wanting an insertable fun toy rather than a realistic partner substitute.

Our results further highlight that women may not be simply seeking a large phallus size as could be assumed given the sociocultural influences around this being a desirable trait (Sharp & Oates, 2019). Certainly, men often feel anxiety around, and dissatisfaction with their penis, citing societal pressures around the idea that bigger is better (Francken et al., 2002). This has led some men to consider or use surgical processes to enhance penis size (Mondaini et al., 2002). However, we found that for toys at least, although circumference was influential in predicting product popularity, insertable toys of a larger girth in our sample were less popular, while length was non-significant. There appears to be an emphasis on offering slightly larger than average phallus products, and yet products with larger circumferences were not as popular as less girthy models. In our sample, the 5 most popular products had a mean circumference of 4.85 inches which is just above the average circumference for real penises. Our findings are very similar to results reported by Herbenick et al. (2015) who noted that insertable sex toys replicated, on average, real penile dimensions. It may be the case that consumers prefer a slightly larger than average phallus circumference when purchasing an insertable sex toy online but there is a cutoff point where extremely large models are more niche than the average user desires. The findings of this study suggest that online sex shops could consider offering a greater selection of insertable sex toys in average, to slightly above average, sizes given that larger toy circumference predicted reduced item popularity. Research on female attitudes to penis dimensions support this: when asked whether penis length and girth was important, only 20.6% of women believed it to be, with the remainder considering it unimportant (Francken et al., 2002), while another study found that 85% of the women they asked were satisfied with the size of their partner's penis (Lever et al., 2006). Generally, it appears that women do not place considerable emphasis on very large penis size, with women preferring penises to be only slightly larger than average (Prause et al., 2015).

We were also surprised that an additional vibrating functionality did not predict item popularity. Women who use vibrating toys are able to incorporate direct clitoral stimulation into their sexual activity to help them to achieve orgasm (Döring, 2021). Vibrator use is also positively linked with improving sexual function by increasing lubrication, arousal, orgasm and can help with pain reduction (Herbenick et al., 2009). Given vibrators (*sensu latu*) are the most commonly used sex toy, have a long history, and are frequently publicly endorsed given the known orgasm gap (Mahar et al., 2020) and the difficulty of many women to achieve orgasm through vaginal penetration alone (Lloyd, 2005), they are perhaps more socially acceptable than dildos solely designed for insertion. It is possible that purchasers of penetrative toys preferred items with straightforward insertable functionality rather than a combined insertable phallic-shaped vibrator, given that there are specific vibrating products designed only for clitoral stimulation but that can be used in conjunction, if desired, with insertable phallus-shaped models.

Overall, our results show that consumers prefer sex toys which, although suitable for vaginal insertion, are not a direct proxy of a penis. This supports previously reported feminist views of phallic-shaped sex toy use – women can simultaneously reclaim penetrative sex without having this suggested symbol of patriarchal power in their possession (e.g., Fahs & Swank, 2013). These results are also potentially supported by the emergence of the "personified" sex toy market (which incorporates sex dolls and sex robots) which may give users a more emotional and expansive masturbatory experience compared to a disembodied phallus, although most research in this area has focused on a narrow demographic of consumers (Hanson & Locatelli, 2022).

We also must acknowledge, in light of our framing and results, that sex toy manufacturers might not be truly interested in women's anatomy or true preferences. Manufacturers could be using outdated and stereotyped aspects of the female body to inform the design and marketing of products. This may shape what is available to purchase, or indeed the purchases themselves, with women thinking they "ought" to like something (for example, a toy to stimulate the G Spot – which may not exist as a defined anatomical structure (Hines, 2001)). However, given our robust method of considering three different, consumer-led measures, we would argue that item popularity in this study is a measure of "true" enjoyment from use, albeit from items that are currently commercially available. That said, the range of insertable products (both realistic and not) available through the Lovehoney UK website is quite varied and unrestricted. We would, however, urge caution and consideration here for any similar research conducted outside of Europe, in more restricted markets, as location will likely impact the availability of some toys, and thus influence, or indeed mask, preference.

Limitations and Future Directions

There were a few limitations to this study. Firstly, our average penis size comparison measurement relied only on one source (Veale et al., 2015), and we recognize that this study itself might not be accurate given the many methodological difficulties in determining average penis size (e.g., no standardization across studies, possible inaccuracy in self-reports) so some caution is perhaps warranted when considering presented results comparing our sample to "reality." Future studies in this area could be made more informative by collating data from multiple websites, so that the results could be applied globally; as the data were collected from a UK-based domain, we were likely only seeing the preferences of a British population (although, as mentioned above, the UK sex toy market is highly unrestricted). We also cannot be sure that all consumers contributing to the popularity rating were women (and indeed women with an attraction to penises), as men are also able to purchase and review dildos. However, women are the primary consumer focus and Ronen (2021) reported that men are rarely users of sex toys. A scan of the first 3 pages of user comments below the 5 most popular items suggested that women were the primary reviewers. A textual analysis of such reviews on Lovehoney (similar to that carried out by Döring et al., 2022) could be an interesting follow-up study. The consumer demographic is also unknown so factors such as age, sexual orientation and background were not accounted for and may be influential to customer choice. Therefore, we have made some heteronormative assumptions about users that

may not be entirely inclusive or accurate given lesbian women and men are also insertable sex toy users and consumers.

Conclusion

Sex toys require further investigation given their social and historical significance, and widespread use. This study provides insight into consumer choice specifically around one type: vaginally insertable sex toys, their features, and what contributes to their popularity. Our results show that realistic features did not predict item popularity, suggesting that when seeking an insertable toy, consumers are not wanting a complete penis substitute. Our results also surprisingly suggest that consumers find insertable toys more appealing when they do not vibrate. Given the importance of vibrations to women in achieving orgasm (Rullo et al., 2018), this suggests that specific non-phallus shaped, clitoral-specific vibrators are being chosen for oscillating sensations. We also found that price contributed to toy popularity, suggesting that item cost strongly contributes to overall customer satisfaction. We hope that this study will encourage further work into specific sex toy features and their relation to customer preference. Given their importance in female masturbatory activity, examination of insertable sex toy popularity provides much needed insights into behaviors that are still viewed as taboo. Studies of sex toy preference, such as this, can also contribute to future product design and marketing, as well as reveal user preference toward features of the phallus (whether real or toy).

Acknowledgments

The authors thank the School of Anthropology and Conservation at the University of Kent and the company Lovehoney.

Disclosure Statement

No potential conflict of interest was reported by the authors.

ORCID

Sarah E. Johns http://orcid.org/0000-0002-7715-7351

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