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Prevalence, Comfort With, and Characteristics of Sex Toy Use in a US Convenience Sample using Reddit.com

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Although Döring and Poeschl (2020) have presented findings on the use of a broader range of sex toys from a German national sample, little is known about the prevalence and characteristics of users of a broad range of sex toys in the United States. The present study aims to examine the prevalence, characteristics of, and comfort with sex toys among a sample of American adults (n = 231). Within this study, the term "sex toy" refers to any object used directly on the body (e.g., vibrator, dildo, handheld masturbator), while "sexual aids" refers to items that may enhance sexual pleasure or libido (e.g., lubrication, aphrodisiacs). We used survey data that was previously collected in 2020 using Reddit.com/r/SampleSize and Ball State University's Communications Center to solicit participation. Using data from Döring & Poeschl (2020) to assess sex toy use, we added questions regarding participant comfortability using sex toys in the past. If the participant had never previously used sex toys but would be willing to do so in the future, we asked about the perceived comfort of using a sex toy. We also asked about the perceived positive and negative effects of toy use, as well as a number of possible predictors of use including personality, sexuality, mental health, and trauma-related experiences (sexual assault, sex problems/dysfunctions, being diagnosed with PTSD). Our findings revealed that a significant portion of Americans have previously used sex toys. Among our participants who have never used a sex toy, a significant portion said they would be willing to try doing so in the future. Future research could examine prevalence, comfort with, and characteristics of sex toy use among a more sexually and racially diverse sample. Implications for sexual health will be discussed in terms of the Positive Sexuality and Positive Technology frameworks.

Keywords: Sex toys, sexual aids, sexual dysfunction, sexual assault, convenience sampling

In 2020, the global sex toy market was valued at $33.64 billion, more than double compared to the 2009 value of $15 billion (Grandview Research, 2021). With the sex toy industry growing at an exponential rate, more people throughout the world are having differential experiences with sexually-enhancing technology. Sex toys are now sold in several commercial grocery stores, such as Walmart and Target, and can also be found within sex shops, various stores at shopping malls, and on countless websites. The proposed study aims to identify participants' comfort levels and experiences with sex toys, as well as to identify levels of comfortability among participants who reported previous experiences with sexual assault, sexual dysfunction, and/or Post-Traumatic Stress Disorder (PTSD). Understanding how and why American adults use sex toys and sexual "aids" can allow for a better analysis of why sex remains a taboo topic within the United States, and can inform clinicians on how to best incorporate sex toys and sexual "aids" into therapeutic practice.

Sex toys, as defined by Döring and Poeschl (2020), are sexual enhancement products with the intent of improving the nature and quality of sexual experiences. Sex toys are material objects that are used directly on the body and include "sexual aids" such as lubrication, bondage, and lingerie. This operationalization of sex toys emphasizes pleasure and the enhancement of sexual experiences as it pertains to overall sexual health and satisfaction. Throughout this study, the terms "sex toys" and "sexual aids" may be used interchangeably, as the term "sexual aids" refers to "an object or device that is primarily used to facilitate human sexual pleasure" (Miranda et al., 2019,).

In the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), a sexual dysfunction can be defined as "a clinically significant disturbance in a person's ability to respond sexually or to experience sexual pleasure" (American Psychiatric Association, p. 423). In the United States, sexual dysfunctions affect approximately 43% of women and 31% of men (Rosen, 2000), some of which include hypoactive sexual desire disorder, erectile dysfunction, orgasmic disorder, and female sexual arousal disorder. It is noteworthy to mention that the diagnosis of hypoactive sexual desire disorder has changed with the newest edition of the DSM (DSM-V) and is now enveloped underneath an umbrella diagnosis titled 'female sexual interest/arousal disorder'.

Currently, little is known about comfortability with toys, especially among individuals with sexual assault or sexual dysfunction-related issues. The present study aims to explore participants' levels of comfortability with and use of various types of sex toys and sexual aids. Further, this study aims to identify

levels of comfortability with sexual aids among participants who report having ever experienced a sexual assault, sexual dysfunction, and/or PTSD. In addition to past and present sex toy usage, we asked participants about past experiences with sexual assault, PTSD, and religiosity, as well as perceived positive and negative effects of and comfortability with sex toys.

Literature Review

Sex Toys Trends

A plethora of research regarding sex toys and their users is not currently available, due to a lack of empirical studies. This lack of research may be informed by the consideration of many Americans that sex toys, and discussions of sex in general, are taboo. Many discussions about sexual behavior and sexual health are clouded by discomfort, awkwardness, and a negative stigma (Schwallie, 2020). However, a select few studies have been conducted, such as the research by Reece and his colleagues (2010), as well as by Döring and Poeschl (2020). These studies aimed to examine rates of sex toy and sexual aid use among singles and couples, what individual demographics influence people to consume these toys, and exactly what kinds of toys these groups are using. Further, these studies were conducted using nationally representative samples, which implies that there is a high level of confidence that the data can be generalized to the larger population.

Throughout the existing literature, it has been repeatedly found that women are the largest consumers of sex toys, especially vibrators, with queer women having the highest rates of use. It has been found in one sample that around 90% of women reported ever having used sex toys during partnered sex, masturbation, or both (Fahs & Swank, 2013). Approximately 37.3% of women reported ever having used a vibrator during partnered sexual intercourse, while 46.3% reported ever having used a vibrator during foreplay (Herbenick et al., 2009). 85% of women (n = 889) reported feeling comfortable using a vibrator alone while 69.6% reported that they feel comfortable using a vibrator with a partner (Herbenick et al., 2010). However, rates of sex toy use during solo masturbation vary by study, with Reece and his colleagues (2010) finding that 46.3% of women have ever used a vibrator alone during masturbation. Comparatively, in Döring and Poeschl's (2020) research, they found that 72% (n = 366) of women – almost three-fourths, reported ever having used a toy designed to stimulate the vagina or vulva during solo sex. Rates of reporting may vary due to fear of judgment, social stigma, or sampling methods, as was reported by participants in Fahs and Swank's (2013) study. These studies indicate that many women, if not comfortable enough to incorporate sex toys into their solo and/or partnered activities, are at least familiar with different types of sex toys and their uses.

An important note to make regarding women's sex toy use is that attitudes and perceptions tend to vary based on sexual orientation, as demonstrated by the work of Fahs and Swank (2013). Their study examined rates of sex toy use by sexual orientation and found that nonheterosexual women reported less shame and expressed more desire to use toys with a partner, as these women tended not to place such an emphasis on phallocentrism and heteronormativity. Most of the heterosexual women, however, were more concerned about their partner's attitudes and opinions on their use of sex toys, and feared that their partner would feel sexually inadequate, despite many of these participants reporting that their partner had never expressed these concerns. Because nonheterosexual women tend to not place as much, if any, emphasis on sexual phallocentrism and heteronormativity, these women were better able to adopt a more playful connotation surrounding sex toys, both during solo and partnered sex. Both groups of women were found to vary in their expression of agency in reference to their relationship with and feelings about sex toys, particularly penetrative toys, as heterosexual women were more likely to believe that masturbating without penetrative toys was abnormal and a cause for concern, while nonheterosexual women did not hold this belief. The work of Fahs and Swank (2013) effectively distinguishes rates of sex toy use among American heterosexual and nonheterosexual women, as well as discusses how sex toys often carry a negatative connotation when discussed within the confines of a heterosexual relationship.

Contrary to the popular belief that women use sex toys and sexual aids at higher rates, it has been found that rates of sex toy usage among men and women are similar, with 43.8% of men (n = 423) reporting that they had ever used a vibrator, either during solo or partnered sex (Reece et al., 2010). Comparatively, it was found by Döring and Poeschl (2020) that 34% of men (n = 295) reported ever having used sexu-

al aids designed for the stimulation of the penis and testicles, while 44% had ever used aids designed for the stimulation of the vulva and vagina. Interestingly, sex toy usage varies by partnership among men, as has been found in Reece's and his colleagues' (2010) research. Reece et al. (2010) found that men in partnerships were much more likely to report ever having used a vibrator during partnered sexual intercourse, with 43% of men in romantic partnerships and 38% of married men displaying this trend. Comparatively, only 21.3% of single men reported ever having used a vibrator during sexual intercourse with a partner. Approximately one-third of the sample (n = 985) reported ever having used a vibrator during masturbation alone. The work of Döring and Poeschl (2020) and Reece et al. (2010) indicate that sex toy use, particularly vibrator use, is common among heterosexual men, and is a phenomenon that should be studied further.

Similar to "sexual aid" research as a whole, there exists a lack of current research examining the rates and types of sex toy use among gay and bisexually identifying men. It has been found that, among gay and bisexual men (n = 25,294), nearly 80% report ever having used at least one type of sex toy (Rosenberger et al., 2011), including dildos (62.1%), vibrators (49.6%), butt plugs (34.0%), masturbation sleeves (27.9%), and anal balls or beads (19.3%). A commonly reported phenomenon among gay and bisexual men is inserting a toy, such as a butt plug or dildo, into one's own anus during masturbation (95.7%) or into their partner's anus (72.0%).

Types of Toys

Few existing studies have examined exactly what types of toys are being used by the overall population. In a study that aimed to examine the most used sex toys, as well as hygienic behaviors following their use, it was found that the most popular sexual aid is the vibrator, with 54.53% of people (n = 1,435) with a vulva and vagina reporting that they had ever used any sort of store-bought or homemade vibrator (Wood et al., 2017). Similarly, 21.26% of these people reported ever having used a dildo, and 9.26% reported using sexual toys related to BDSM (bondage, dominance, sadism, masochism), such as whips, anal beads, or devices used for restraint. Among heterosexual men, 52% (n = 295) have reported using sex toys designed for the stimulation of the penis and testicles, such as cock rings or handheld masturbators, within the past year during solo sex (Döring & Poeschl, 2020). Comparatively, 31% of men from the same sample reported using toys designed for the vagina and/or vulva, such as a vibrator, during solo sex within the past year. 26% of men reported ever having used toys for bondage or S&M (sadism and masochism), such as whips or cuffs, and 46% reported ever having used arousal-enhancing remedies, such as ingesting food or substances that elicit sexual desire (i.e., aphrodisiacs), during solo sex within the past year (Döring & Poeschl, 2020).

Sexual Aids as Treatment

Sexual aids are increasing in popularity as clinician recommended treatments for sexual dysfunctions, as well as for anxiety and fear following a sexual assault. Nearly all the existing literature on sexual aid recommendation focuses on cancer-related sexual dysfunctions, which result from radiation targeted at the pelvis and surrounding areas. When radiation targets the pelvic area, it may damage nerves and arteries necessary for sexual functioning (American Cancer Society, 2020). Sexual aids have recently been utilized for rehabilitation, as they may serve to increase sensitivity, functioning, and pleasure among cancer patients. However, as discovered by Bober and his colleagues (2019), the majority of cancer survivors do not receive adequate support or education about sexual health. While exact statistics vary regarding sexual dysfunction as a side effect of cancer treatment, it has been found by Andersen (1985) that 20 to 90 percent of adult cancer patients suffer from significant sexual dissatisfaction or dysfunction. However, among these various cancer-treatment centers, only 27% offer sexual aids and rehabilitation for women, while even fewer (13%) offer the same aids for men (Bober et al., 2019). Sexual aids, while serving to increase pleasure and intimacy among couples, can also serve as a form of rehabilitation for individuals suffering from sexual dysfunctions resulting from sexual assault, PTSD, and cancer-related treatments. Further, physicians and clinics should make sexual rehabilitation in these instances more accessible to increase sensitivity and functioning among those with sexual dysfunctions.

Sexual Dysfunction

It has been found that sexual dysfunctions are common within the United States, affecting approximately 43% of women and 31% of men (Rosen, 2000). Among these sexual dysfunctions, hypoactive sexual desire is most common among women, with about 30% of the female population meet-

ing the diagnostic criteria. Erectile dysfunction is the most common sexual dysfunction among men, and rates vary due to the prevalence of this dysfunction growing exponentially with age (Rosen, 2000).

Sexual dysfunctions have a variety of causes and may only arise during certain situations or circumstances. Common psychological causes for sexual dysfunction include stress, anxiety, and depression (Beaumont Health, 2023). It has been found that when performance-related demands were placed on both sexually functioning and sexually dysfunctional men, the sexually dysfunctional men had lower levels of sexual arousal due to becoming distracted by the demand and the accompanying performance-related concerns (Barlow, 1986). Sexually dysfunctional men from the same study also reported that they perceived themselves as having less control over their sexual arousal than sexually functional men, even when levels of erectile response were the same. Current literature outlines how sexual dysfunctions can have a strong influence on sexual confidence, anxiety, and the sense of control one feels over their sexuality.

Further, some common physiological causes for sexual dysfunction include neurological disorders, various prescription medications, alcohol and drug abuse, cancer and related treatments, and sexual assault (Beaumont Health, 2023). Selective serotonin reuptake inhibitors (SSRIs), a medication commonly prescribed for depression, are commonly known as having adverse side effects, particularly in that they can contribute to the development of sexual dysfunction (Jing & Straw-Wilson, 2016). While the exact cause of sexual dysfunction as a side effect of SSRIs is not known, researchers have identified that it is the reuptake process of particular neurotransmitters, such as serotonin or norepinephrine, that influence the emergence of sexual dysfunctions (Prabhakar & Balon, 2017). The effects of SSRIs on sexual functioning have been researched, and it has been found that around 40 to 50 percent of both men and women experience reduced levels of sexual arousal when taking an SSRI (Balon, 2006). In relation to cancer, sexual dysfunctions arise when radiation targets areas surrounding the pelvis, such as the prostate, rectum, colon, or ovaries. Further, the psychological implications that may arise from enduring cancer treatments may contribute to lasting sexual dysfunctions, such as body dysmorphia resulting from hair loss or a change in weight (Archangelo et al., 2019).

The treatment of sexual dysfunctions today originates largely from the work of Masters and Johnson, who became pioneers of sex therapy after the creation and effective execution of sensate focus exercises in 1980 (Auteri, 2014). Sensate focus is a technique used to improve communication between partners regarding sex, reduce sexual performance anxiety, and shift away from goal-oriented expectations toward a more intimate and partner-focused experience (SMSNA, 2023). These sessions of non-demanding, sensual touching can increase comfortability with receiving touch from a partner. When exercised alone, this self-exploration can help an individual reclaim their sensuality and confidence. Sensate focus is commonly used for dysfunctional problems such as female sexual interest/arousal disorder, erectile dysfunctions, and male hypoactive sexual desire disorder. Other commonly used treatments involve hormone therapy, cognitive-behavioral therapy (CBT), medications, and mechanical aids such as penile implants (Cleveland Clinic, 2020).

One increasingly common treatment recommendation by sex therapists involves the incorporation of sexual aids or sex toys into masturbatory and partnered sexual activities. Sex toys may increase sensitivity and pleasure, and may also help to alleviate anxiety and fear among individuals who have been sexually assaulted (Rullo et al., 2020). However, individuals with dysfunction and/or sexual assault-related histories may be less inclined to use a sexual aid, either alone or with a partner, due to anxiety and fear surrounding sexual behaviors and sensual intimacy (Kaplan, 1974). Appropriate discussions between a client and their clinician are necessary to help determine what aids would be the most beneficial, as well as to determine how and when to use these particular aids. An increasing amount of literature is being made available to help guide the public in their sexual-aid endeavors, especially regarding dysfunction and sexual assault. For example, Rullo et al. (2020) posit that "there is no wrong way to use a vibrator. Patients should be encouraged to explore vibrator use all over the body, not just the genitals, and be reminded that vibrator use is for both men and women" (p. 7). These guidelines, and others like them, may help to increase comfortability with the use of sex toys and sexual aids.

Sexual Assault

According to the Rape, Abuse, and Incest National Network (RAINN, n.d.), sexual assault can be

defined as:

> sexual contact or behavior that occurs without explicit consent of the victim. Some forms of sexual assault include: attempted rape, fondling or unwanted sexual touching, forcing a victim to perform sexual acts, such as oral sex or penetrating the perpetrator's body, [and] penetration of the victim's body, also known as rape.

Rates of sexual assault among women is a topic that has been highly researched, with previous findings indicating that upwards of 20 to 30 percent of women have experienced rape or attempted rape at least once during their lifetime (Koss, 1993, as cited in Ullman & Brecklin, 2002). Sexual assault is the least reported violent crime, with less than one-third of sexual assaults being reported to law enforcement (RAINN, n.d.). Reasons for not reporting an assault may include fear of retaliation by the perpetrator, a belief that law enforcement won't succor the situation, or a belief that the incident wasn't severe enough to report. The reporting of a sexual assault is less frequent among male victims, as men may be reluctant to report instances of sexual assault due to a widespread societal belief that men are perpetrators, not victims, or due to the belief by the victim that the incident was not actually assault (Ullman & Brecklin, 2002). Further, a common physiological response to anxiety or fear is sexual arousal, and many instances of sexual assault are discounted legally because the victim retained an erection and/or experienced ejaculation during the assault (Bullock & Beckson, 2011). Regardless of reporting status, experiencing a sexual assault has been found to be highly correlated with a decline in mental health (Ullman & Brecklin, 2002), as well as the development of post-traumatic stress disorder (PTSD). Sexual assault may lead to serious mental and physical health complications and can contribute to the development of a sexual dysfunction. Further, various assault-related factors, such as the severity of the assault or perceived level of social support, can influence the severity and duration of implications following the assault.

According to the CDC (2021), nearly one in five American women are victims of attempted or completed rape, and one in three female rape victims first experienced an assault between the ages of 11 and 17. Additionally, it is estimated that around 30% of current PTSD diagnoses were a direct result of sexual assault or sexual violence (Texas A&M Health, 2019). Following an assault, common responses among women include panic attacks, flashbacks, depression, sexual dysfunctions, anxiety, and phobias, as well as an increase in overall anger, fear, guilt, and alcohol and drug abuse (US Department of Veterans Affairs, n.d.). Currently, cognitive-behavioral therapy (CBT) is the most common form of psychotherapy used to treat individuals dealing with psychological problems, such as dissociation or PTSD, following a sexual assault. Many treatments have been empirically proven to improve individual symptoms dependent from PTSD, such as anxiety and depression, these treatments are often incorporated into a multifaceted treatment plan. Recently, treatment plans began recommending the use of sexual aids, as "vibratory stimulation of the genitals is an evidence-based treatment" (Rullo et al., 2020, p. 2) for many sexual dysfunctions, including hypoactive sexual desire in men and female sexual interest/arousal disorder. Through the process of psychotherapy, victims of sexual assault are helped to recognize and target their feelings about the assault, and to increase their levels of self-confidence and comfortability.

Experiencing a sexual assault may result in sexual dysfunction or related issues, such as post-traumatic stress disorder (PTSD). Current treatments for individuals suffering from psychological afflictions following a sexual assault include cognitive-behavioral therapy (CBT), sensate focus exercises, the prescription of SSRIs, and individual and/or couples' therapy (Falsetti & Bernat, 2000). It has been determined by previous research that psychotherapy is necessary to restore declining mental health following a sexual assault (Kaplan, 1974). Additionally, research suggests that using sex toys or aids is beneficial in overcoming physiological implications following an assault, such as dysfunction issues and their accompanying psychological implications.

The Present Study

Previous literature has briefly examined sex toy and sexual aid use, as well as explored demographic trends for each. However, the literature fails to examine levels of comfortability among individuals, as well as potential willingness regarding sex toy use. The present study aims to expand on the conversation held by Herbenick and her colleagues (2010) regarding participant comfortability with sexual aids in solo

and partnered sexual behaviors. Further, no current research exists on the correlations among sexual assault, sexual dysfunction, PTSD, and sex toy and sexual aid use. The present study aims to fill these gaps by asking participants about their previous experiences using and researching sex toys, their levels of comfortability or willingness regarding these toys, and how levels of comfortability may be influenced by a previous history of sexual assault, dysfunction, and/or PTSD. Understanding American adults' comfortability and willingness to use sex toys can potentially provide insight into why sex remains a taboo topic within the United States, how to best introduce sex toys into one's sexual practices, and how to incorporate sex toys and sexual aids most comfortably into sexual assault and dysfunction related treatments. The present study was influenced by the work of Döring and Poeschl (2020), as their study introduced an important aspect of participants' sexual ideology by asking participants about their self-perceived positive and negative effects, giving valuable insight into rates and trends regarding sex toy usage. Data provided by the participants of this study will be analyzed in accordance with the Positive Sexuality and Positive Technology frameworks.

The Positive Sexuality framework views sexuality through a pragmatic yet multidisciplinary lens while addressing the full range of positive and negative implications that arise from engaging in sexual behavior. By analyzing sexuality through a positive framework, socially negative sexual stigmas can be avoided, and sexuality can be understood as a means of individuality, interrelationship strengthening, pleasure, and peacemaking (Williams, 2015). Further, this framework acknowledges the risks and negative consequences that can accompany sexuality and sexual behavior. To combat these negative implications, the Positive Sexuality framework emphasizes education and communication as a means of understanding.

The Positive Technology framework views technology as a means of "fostering personal growth and individual integration in the sociocultural environment, by promoting satisfaction, opportunities for action, and self-expression" (Riva et al., 2012, p. 69) Technology, in some capacity, can influence and enhance nearly every constituent of human experiences and overall functioning. Further, this framework considers sexual aids to be not only devices used for pleasure, but also therapeutic aids that can help to reduce sexual anxieties, physical pain, sexual dysfunctions, and the accompanying implications that these factors may have on sexual functioning. In combination with the Positive Sexuality framework, sex toys and sexual aids can be viewed as a technological innovation that could potentially help millions of people become more comfortable with their bodies and sexualities.

Purpose and Hypotheses

The purpose of this study is to better understand the prevalence of Americans' sex toy and "sexual aid" use through the lenses of the Positive Sexuality and Positive Technology frameworks. The following hypotheses were generated:

Hypothesis 1: Women will report higher rates of sex toy and sexual aid usage than men, as found by Döring & Poeschl (2020).

Hypothesis 2: Compared to men, women will report higher usage of sex toys designed to stimulate the vulva and vagina, and lower usage of sex toys designed to stimulate the penis and testicles, during only masturbatory behavior, as found by Döring & Poeschl (2020).

Hypothesis 3: Among participants who report that they have never used a sex toy but would be willing to, there will be no significant difference between men and women in levels of willingness to use sex toys.

Hypothesis 4: Women will report more comfort using and researching sex toys than men.

Hypothesis 5: Among women, the most used sex toys will be toys designed for stimulation of the vagina and vulva, as found by Wood et al. (2017).

Hypothesis 6: Among men, the most used "sexual aid" will be toys designed to stimulate the penis and testicles.

Hypothesis 7: Participants with a history of sexual assault will be less likely to report using sex toys and sexual aids for both solo and partnered sexual activity.

Hypothesis 8: Regarding sexual assault and sex toy use, there will be a gender effect such that women who report having experienced a sexual assault will be significantly less likely to have used toys than those who haven't. However, there will be no difference in sex toy usage between men who have and have not been sexually assaulted.

Hypothesis 9: Regarding sexual dysfunction and sex toy use, there will be a gender effect such that men who report having experienced a sexual dysfunction will be significantly more likely to have used toys than those who haven't. However, there will be

no difference in sex toy usage among women who have and have not experienced a sexual dysfunction.

Method

Participants

The data collected by Dr. Gaither and his students was obtained largely through Reddit, using convenience sampling. A total of 311 participants entered the survey, while 231 fully completed the survey, as some participants exited the survey early. The only exclusion criterion for this study included being under the age of 18. Participants of this study (n = 231) were between the ages of 18 and 71 (M = 24.89, SD = 8.59). Slightly over two-thirds of participants were women (68.3%, n = 224), compared to 26.5% of the participants being male (n = 87). For racial demographics, 82.9% of participants were Caucasian (n = 272), 3.4% were Hispanic (n = 11), 3.0% were Asian (n = 10), 2.4% were African American (n = 8), 1.4% were Latinx (n = 4), 0.3% were Pacific Islander or Native Hawaiian (n = 1) and 4.9% reported being of another race not listed (n = 16). Most participants identified as heterosexual (63.7%, n = 209), while 18.0% identified as bisexual (n = 59), 3.7% identified as gay (n = 12), 4.0% identified as lesbian (n = 13), 3.7% identified as pansexual (n = 12), 2.4% identified as asexual (n = 8), and 2.4% identified as another sexual orientation not listed (n = 8). When asked about levels of religiosity, 48.5% of participants reported that they were not at all religious (n = 159). Similarly, 25.0% reported that they were slightly religious (n = 82), 15.9% reported that they were moderately religious (n = 52), 7.3% reported that they were very religious (n = 24), and 1.2% reported that they were extremely religious (n = 4).

When asked, "have you ever been sexually assaulted?" 34.5% of participants responded with yes (n = 113). When participants were asked "have you ever been diagnosed with Post- Traumatic Stress Disorder (PTSD)?", 9.5% of participants responded with yes (n = 31). When asked, "have you ever had problems functioning sexually?", 32.0% of participants responded with yes, I have had some problems with functioning sexually, but have never been officially diagnosed with a sexual dysfunction (n = 105), while 2.4% responded with yes, I have been diagnosed with at least 1 sexual dysfunction in my life (n = 8). There was no incentive provided to participants for completing the survey.

Measures/Materials

Participants completed a survey that contained several subscales within it. As part of a larger study, participants completed several items that included demographics, comfort, use of toys, experiences with assault and dysfunction, and measures of personality. Questions regarding specific variables (e.g., previous experiences using sex toys, sexual assault, sexual dysfunction, etc.) were concise and straightforward to make sure participants fully understood each item. This study will not explain all variables utilized in the survey and will only explain relevant variables. Variables excluded from the analysis and discussion include satisfaction and personality. Self-perceived positive and negative effects, while not part of the initial analysis, will be explored more in the discussion section.

Sociodemographic Characteristics

The first set of items were demographic items including age, race, gender, sexual orientation, birth country, and levels of religiosity. Experience with sexual assault was assessed with single item ("Have you ever been sexually assaulted?"), with response options of yes and no.

Use & Comfort with Use of Sex Toys

The next section of the survey asked participants about their previous experience with sex toys and sexual aids. Items asked participants about their previous experience with sex toys, if they had ever researched a sex toy, what sex toys they had previously used, levels of comfortability with using and researching sex toys, comfortability with attending a sex toy party, and perceived positive and negative effects of using a sex toy.

Examples of survey items include "have you ever looked into, or researched sex toys?" and "have you ever used a sex toy for masturbation?" with response options of yes, no but I would be willing to do so in the future, and no and I cannot see myself ever doing so. If respondents answered yes, they were taken to a follow-up question that asked, "How comfortable were you when you researched sex toys (or when you used a sex toy for masturbation)?". Response options for comfortability items utilized a 7-point Likert scale, which ranged from extremely comfortable (1) to extremely uncomfortable (7). If respondents answered no but I would be willing to do so in the future, they were taken to a follow-up question that asked, "How comfortable do you think you would be if you were to research sex toys (or if you were to use a sex toy for masturbation)?" Response options

for expected comfortability ranged from extremely comfortable (1) to extremely uncomfortable (7). If respondents answered no and I cannot see myself ever doing so, no item regarding comfortability was presented. For comfort items, higher numbers within the data indicate lower levels of comfortability.

Sexual Dysfunction

The next section of the survey, which had three items, asked about participants' previous history with sexual dysfunction. Present survey items were based on items from the 1992 National Health and Social Life Survey, which aimed to better understand Americans' various sexual practices, as well as the surrounding life circumstances and social contexts in which these practices occur. An example of one of the survey items includes "have you ever had problems functioning sexually or been diagnosed with a sexual dysfunction?" with response options including no I have never had any problems functioning sexually, yes I have had some problems with functioning sexually, but never been officially diagnosed with a sexual dysfunction, and yes, I have been diagnosed with at least 1 sexual dysfunction in my life. If respondents answered this item with anything other than no I have never had any problems functioning sexually, they were taken to a follow-up question, also modeled from the NHSLS, that asked about the specific sexual dysfunction that the respondent has experienced. Respondents were asked to report on whether they have experienced lacking desire for sex, arousal difficulties, inability achieving climax or ejaculation, anxiety about sexual performance, climaxing or ejaculating too rapidly, physical pain during intercourse, and not finding sex pleasurable. For each of these dysfunctions, respondents were presented with response options of yes and no.

Procedure

Recruitment ads for the study (i.e., convenience sampling) were posted on reddit.com/samplesize and on the Ball State University Communications Center during the Fall of 2020. People who were interested in participating clicked on a link to the anonymous survey which began with a study information and consent page. Those who did not click "I agree" were skipped to the end of the survey; otherwise, they entered the survey. The first question asked for age; anyone who typed in a number less than 18 was skipped to the end of the survey. Those who remained in the survey answered questions about demographics, experiences and comfort with sex toys from a variety of perspectives (e.g., ever researched toys, used them, bought them, attended a party, etc.). Participants also completed items regarding whether they had ever been sexually assaulted, diagnosed with PTSD, experienced problems in sexual functioning, or been diagnosed with a sexual dysfunction. They completed short forms of the Openness and Extraversion subscales of the Big Five Inventory, the behavioral subscale of the SocioSexual Orientation Inventory, and the Sexual Esteem subscale of the Sexuality Scale. Finally, participants completed items regarding their relationship and sexual satisfaction, as well as their perceived effects of sex toy use. Once participants reached the end of the survey, they were thanked for their participation.

The data was analyzed using SPSS software. A series of frequency tests, chi-square, one-way ANOVAs (cross tabulations), and independent samples t-tests were conducted to examine the data and to compare with the generated hypotheses. Frequency tests were used to analyze demographic information and to obtain the frequencies of the number of participants for individual items. The chi-square crosstabs were used to better uncover the correlation between specific variables, such as sex toy use and previous experiences with sexual assault. Crosstabs were used to analyze means between various groups of conditions, such as between male and female sex toy users who either have or have not been sexually assaulted. T-tests were used to measure the means between two groups regarding various items, such as measuring the mean comfort level when using a sex toy during masturbation among individuals who report that they have or have not dealt with sexual functioning issues. Significance levels were adjusted using the Bonferroni correction method to attribute for running multiple analyses

Results

Acquisition of Sex Toys

Both male and female participants of this sample (N = 231) were overall well acquainted with sex toys and sexual aids. A series of frequency tests were run, split by gender, to better understand the prevalence of participants' acquisition on each item. 84.2% of all participants reported that they had ever researched or looked into sex toys, and 80.4% said that they had looked at sex toys in an online shop. 41.8% of participants had ever spoken to someone else about sex

toys, and 17.7% had ever received a sex toy as a gift. A majority of the sample (69.8%) had ever bought a sex toy themselves. A series of crosstabs were also run to determine statistical significance regarding the acquisition of sex toys between the genders. Overall, there was no significant difference between men and women on measures of acquisition of sex toys, except for items that asked about sex toy parties. There were no men within the sample that reported ever being invited to a sex toy party or ever hosting a sex toy party. Because none of the men reported that they had ever been invited to attend a sex toy party, they were not shown the follow-up question "Have you ever attended a sex toy party that someone else hosted?" However, 13.8% of male participants who reported that they had never hosted a sex toy party also reported that they would be willing to host a party in the future (p = .002, see Table 1). Among female participants (n = 224), 63.7% reported that they had ever attended a sex toy party, and 5.5% reported that they had hosted a sex toy party.

Sex Toy Use, Comfort, & Willingness in Solo Sex

Sex toy use was analyzed by running a series of crosstabs to determine statistical significance during masturbation between the genders. All percentages regarding sex toy use, comfort, and willingness in solo sex can be found within Table 1. Most participants (70.4%) reported that they had ever used a sex toy during solo sex, while 19% reported that they had not yet, but would be willing to do so in the future. Women reported using sex toys more than men during masturbation, with 76.1% of women reporting ever having used a sex toy during solo sex, compared to 63.1% of men (p = .04, see Table 1). This finding provides support for the first hypothesis. Among women, the most used sex toys and sexual aids during masturbation included toys designed for the stimulation of the vagina and vulva (69.2%), lubricants (42.9%), and erotic lingerie (22.8%). Among men, the most used sex toys and sexual aids during masturbation included lubricants (47.1%), toys designed for the stimulation of the penis and testicles (42.5%, p < .001, see Table 2), and toys designed for the stimulation of the vagina and vulva (26.4%). Although a notable number of men reported having used toys designed for the stimulation of the vagina and vulva, women were significantly more likely to use these same toys during masturbation (p < .001, see Table 2), and this provides support for the second hypothesis. Percentages regarding specific sex toys can be found in Table 2.

An independent samples t-test, split by gender, was run to determine the means of comfortability regarding sex toy use during solo sex for each item, with lower means representing higher levels of comfortability. Women largely reported being slightly more uncomfortable (M = 1.70, SD = 1.17, d = -.05) when having used a sex toy during masturbation compared to men (M = 1.64, SD = 1.19; see Table 3). Overall, there were no significant differences between men and women on items of comfort, except that men reported feeling significantly more comfortable, t (153) = -2.32, when researching a sex toy (M = 2.09, d = -.29, p = .022) compared to women (M = 2.51, see Table 3). These findings are directly contradictory to the fourth hypothesis. Overall, men reported higher comfort with all items relating to acquisition (e.g., research, talking to others, purchasing, receiving a toy as a gift), as well as use during masturbation and partnered sexual activity. These data could be skewed by the disproportionate number of women to men, but the women within this sample consistently reported slightly higher levels of discomfort than the men on all measures.

A series of crosstabulations were run to determine statistical significance among participants who have never used a sex toy during masturbation but would be willing to do so in the future. Among individuals who have never used a sex toy but would be willing to, there were no significant differences between men and women on willingness to use sex toys during masturbation, except that men reported significantly more willingness, $X2(1) = 28.56$, to try toys designed for the stimulation of the penis and testicles than women (p < .001; see Table 1). This finding is directly contradictory to hypothesis three, which predicted no difference in levels of willingness between the genders. Trends reflect that men within this sample are more willing to try lubricants, remedies for enhancing arousal, and toys designed for the stimulation of the penis and testicles, whereas women are more willing to try erotic lingerie, toys designed for the stimulation of the vagina and vulva, and toys for bondage and S&M.

Sex Toy Use, Comfort, & Willingness in Partnered Sex

All percentages regarding sex toy use, comfort, and willingness in partnered sex can be found within Table 1. 46% of men and 55.4% of women reported ever having used a sex toy during partnered sexual ac-

tivity, which was analyzed through a series of crosstabulations. Although there was no statistically significant difference among men and women for types of toys used during partnered sex, trends indicate that women are more likely to have used erotic lingerie (33.5%) and toys for stimulation of the vagina and vulva (46.9%) during partnered sexual activity within the past 12 months. Men and women were about equally likely to have used lubricants (35.6% of men vs. 40.6% of women), remedies for enhancing arousal (4.6% vs. 5.8%), toys designed for the stimulation of the penis and testicles (19.5% vs. 15.2%), and toys for bondage and S&M during partnered sexual activity (21.8% vs. 23.2%) within the same time frame. Percentages regarding specific sex toys can be found in Table 2.

Interestingly, trends indicate that men reported being more willing to try every sex toy listed during intercourse with a partner than women, as analyzed through a series of crosstabulations. There was a statistically significant difference in that men reported being more willing to try toys designed for the penis and testicles during partnered intercourse than women ($p < .001$). This data reflects that men and women are about equally as likely to try various sexual aids and sex toys during masturbation, other than toys designed for the penis and testicles, but that men are more willing than women to incorporate toys into partnered sexual activity. This finding challenges the dominant heteronormative belief that most men are against bringing sex toys into partnered sexual activities.

Sex Toy Use & Comfort Among Victims of Sexual Assault

All factors relating to the use and comfort of sex toys among victims of sexual assault were analyzed through a series of crosstabulations and independent samples t-tests. 13.8% of men within the sample reported ever having experienced a sexual assault, compared to 41.7% of women, as shown through a frequency analysis. Among men who reported ever having experienced a sexual assault, 81.8% reported ever having used a sex toy during masturbation, while 9.1% reported that they had not but would be willing to do so in the future. Among women who experienced an assault, 81.5% had ever used a sex toy during masturbation, while 15.2% reported that they had not but that they would be willing to do so in the future. It is noteworthy to emphasize that nearly an identical percentage of men and women who have been sexually assaulted reported using a sex toy during masturbation (81.8% vs. 81.5%), and that men reported slightly higher rates of toy use during masturbation compared to women.

Among men who have been sexually assaulted, 63.6% reported ever having used a sex toy during partnered sex, while 36.4% reported that they had not but that they would be willing to do so in the future. None of the men who reported having been sexually assaulted reported that they would never be willing to try sex toys during partnered sex. Among women who have been sexually assaulted, 68.9% reported that they had ever used a sex toy during partnered sex, while 21.1% reported that they had not but that they would be willing to do so in the future.

Although not statistically significant, it is noteworthy to mention that trends indicate that both men and women who have been sexually assaulted are more likely to have used toys than those who have never been sexually assaulted, both during masturbation and sex with a partner. This finding directly contradicts the seventh hypothesis and slightly contradicts the eighth hypothesis in that there was no gender effect for sex toy use among those who have been sexually assaulted. However, both men and women who have been sexually assaulted also reported lower levels of comfortability during their previous experiences using sex toys. Among participants who have never been sexually assaulted, men reported more comfortability on all items. The reverse effect was found among participants who reported ever having experienced a sexual assault in that men reported much lower levels of comfortability than women who have been sexually assaulted. Among men who have ever used toys during masturbation, those who have been sexually assaulted reported much lower levels of comfortability ($M = 2.33$) than those who have never been assaulted ($M = 1.64$). Among women who have ever used sex toys during masturbation, those who have been assaulted reported only slightly lower levels of comfortability ($M = 1.76$) than those who have never been assaulted ($M = 1.70$). Among men who have ever used sex toys during partnered sex, those who reported ever having experienced a sexual assault reported much lower levels of comfortability ($M = 2.71$) than those who have never been assaulted ($M = 1.75$). Among women who have ever used a sex toy during partnered sex, those who reported ever having experienced a sexual assault reported only slightly lower levels of comfortability ($M = 1.95$) than

those who have never experienced a sexual assault (*M* = 1.90). The potential factors contributing to this phenomenon will be discussed in the discussion section.

Sex Toy Use & Comfort Among Those with Sexual Dysfunctions

Toy use and comfort among participants who have at least one sexual dysfunction were analyzed through a series of crosstabulations. 32.2% of men and 35.7% of women reported ever having experienced problems with sexual functioning, either with or without a formal diagnosis. Among men who reported ever having experienced a sexual dysfunction, 17% reported that they had ever used a sex toy during masturbation, while 5.0% reported that they had not but that they would be willing to do so in the future. Similarly, 17.5% of men in the same subsample reported that they had ever used a sex toy during partnered sex, while 11.8% reported that they had not but that they would be willing to do so in the future.

Among women who reported ever having experienced a sexual dysfunction, 45.2% reported that they had ever used a toy during masturbation, while 35.9% reported that they had not but that they would be willing to do so in the future. Similarly, half of the women who reported ever having experienced a sexual dysfunction (50.0%) also reported that they had ever used a sex toy during partnered sex, while 27.9% reported that they had not but that they would be willing to do so in the future. Although not statistically significant, both men and women who reported having experienced a sexual dysfunction also reported using sex toys during both masturbation and partnered sexual behavior at lower rates than those who have never experienced a sexual dysfunction. This finding refutes hypothesis nine, seeing as both men and women who have a sexual dysfunction reported lower rates of sex toy use than those without a sexual dysfunction.

Regarding comfortability using sex toys among those with sexual dysfunctions, women reported lower levels of comfortability on both items of masturbation (*M* = 1.84) and partnered sex (*M* = 2.02) than those who have never experienced a sexual dysfunction. Among men, those who reported ever having experienced a sexual dysfunction reported feeling more comfortable when using a sex toy during masturbation (*M* = 1.37) compared to those who have never had a sexual dysfunction (*M* = 1.79). However, the reverse effect was found during partnered sex, in that men who reported having experienced a sexual dysfunction reported less comfortability when using a sex toy with a partner (*M* = 1.81) compared to those who have never had a sexual dysfunction (*M* = 1.71).

Discussion

Sex toys and sexual "aids" have existed throughout history and all over the world to help promote sexual stimulation and physiological responses. Since the rise of modern technology, the sex toy market has blossomed into a multi-billion-dollar industry, primarily emphasizing sexual pleasure. However, sex toys can also harbor a therapeutic function, eliciting sexual responsiveness among those with sexual dysfunctions. Further, sex toys can be a means of regaining comfortability with sexuality and sexual intimacy among individuals who have experienced a sexual assault (Rullo et al., 2020). The findings of this study correlate with the Positive Sexuality framework, seeing as participants acknowledged both the positive and negative effects of sex toy use, but also reported a significant level of willingness to learn about and use sex toys in the future. The empirically proven benefits of sex toys and sexual aids for dysfunction and assault-related implications align with the Positive Technology framework in that sex toys and sexual aids, through means of increasing sensitivity and overall pleasure, serve to increase sexual functioning as well as the overall quality of life for users.

American participants within this sample have reported considerate sex toy use, both during solo and partnered sex. Men and women reported similar rates of sex toy use, both during solo and partnered sex, although women consistently reported higher usage of sex toys overall. Similarly, among those who reported that they have never used sex toys, a decent percentage reported that they would be willing to try incorporating them into their masturbatory or partnered sexual behavior. This data indicates that most American adults who have not experienced using sex toys would be willing to try one in the future. The sex toy industry should consider this group of willing individuals as an entirely separate group of consumers and should market to this group accordingly. Sex toy shops and websites are often hypersexualized and intimidating environments. Further, sex toy shops can be very overstimulating, expensive, and confusing for first-time buyers, and perhaps a different approach to sex toy con

sumerism would benefit those who are willing to try sex toys but have not yet been able to have that experience. This approach could include a less overtly sexual environment, as well as an emphasis on education and pleasure for all participating individuals, as opposed to some typical sex shops that advocate for the infantilization, domination, and hypersexualization of women.

When compared to the results of Döring & Poeschl's (2020) study, participants in the present study reported higher rates of sex toy use during masturbation when compared to partnered sex. However, rates of sex toy use were similar between German and American participants among items of partnered sexual activity. The only item in which Germans scored higher than American participants was on measures of sex toy use during partnered sex, in which German men reported higher usage of sex toys than American male participants. This finding indicates that perhaps Germany, and Europe at large, has a more relaxed and sex-positive stance on sex toys, and thus are used more during partnered sex. Among participants of the present study, women reported higher rates of sex toy use during both masturbation and partnered sexual activity. Women reported higher usage of sex toys designed to stimulate the vagina and vulva overall, while men reported higher usage of toys designed to stimulate the penis and testicles - which provides support for hypotheses five and six. Trends indicate that men are more willing to try all toys listed in the survey during partnered sex, with the only statistically significant finding being that men were significantly more willing to introduce toys designed for the penis and testicles into partnered sexual activity than women were?. This finding directly counters the assumption by many women that men are unwilling or uncomfortable with incorporating sex toys into partnered sexual activities (Fahs & Swank, 2013). Open communication between sexual partners is necessary to establish willingness and comfortability with incorporating sex toys into partnered sexual behaviors. There exists a toxic, heteronormative belief that most men are against the incorporation of sex toys into partnered sexual activity due to the accompanying belief that men should be able to completely satisfy their partner on their own, with their own bodies. However, the present data is directly contradictory to this harmful belief, as it was found that many men are willing to incorporate sex toys into partnered sexual activity. Accompanying this willingness should be education. Sex toy parties are one safe environment to learn more about different kinds of sexual "aids". Among the men in our sample, 13.8% reported that they would be willing to host a sex toy party if given the opportunity, this was found to be statistically significant. Because various state laws (Alabama Anti-Obscenity Enforcement Act, 1998; Texas Public Indecency Act, 1973) consider the sale of sex toys to be a form of solicitation, men are often not allowed at sex toy parties. Further, many sex toy companies, such as Pure Romance, claim that "having some men in attendance would make some women uncomfortable" (Sex Toys, 2021). Due to these hindrances in male attendance to toy parties, male participants within this study were not asked if they have ever been invited to attend a party, and were therefore not asked if they've ever attended one nor about their levels of willingness regarding attending a party. This data reveals that a decent portion of men want or are willing to attend a sex toy party to learn more about and potentially purchase toys for themselves and their partners. Male sex toy parties could be an effective way for more men to learn about and purchase sex toys within an educational environment. Further, all individuals should feel comfortable expressing their desires with their sexual partner and be receptive to their partner's desires, because open communication may reveal that they are more willing to try new sexual experiences than previously thought.

One of the most prevalent findings of this study is that, among participants who report ever having experienced a sexual assault, both men and women report higher rates of sex toy and sexual aid usage during masturbation and partnered sexual activity, but also report lower levels of comfortability doing so. This finding is directly contrary to hypotheses seven and eight, as it was expected that the trauma of sexual assault would provoke fear of sexual behavior among victims and would deter them from using sex toys. However, participants that have been sexually assaulted reported the highest rates of sex toy usage of all participants, this could be due to several factors. Victims of sexual assault have experienced a violation of bodily autonomy that may take a substantial amount of time to gain back, and sex toys may be one way for victims to reclaim their sexuality. Rather than placing sexual pleasure and other sexual expectations on another person, sex toys are an efficient way to gradually increase the intensity or fre-

quency of physiological sexual responses and can help to increase desire. Sexual aids, such as lubricants or vaginal dilators, could prove useful in increasing comfortability or eliciting a sexual response among individuals who may or may not suffer from negative implications, such as trauma or a sexual dysfunction, following a sexual assault (Kaplan, 1974; Petrak & Hedge, 2002).

However, the finding that those who have ever experienced a sexual assault, despite using toys at higher rates, also reported lower levels of comfortability during these experiences with toys was unexpected. Lower comfortability with sexual activity or material following a sexual assault is common and can be expected due to the high prevalence of trauma and PTSD development after an assault (Texas A&M Health, 2019). Similarly, a common reaction to sexual assault is a change in sexual desire or activity, such as an increase in the amount of sexual or masturbatory behavior the victim engages in. Within this sample, a higher rate of sex toy usage and lower levels of comfortability were reported among those who have ever been sexually assaulted when compared to those who have never been sexually assaulted. Higher levels of toy use, despite lower levels of comfortability using these toys, may be reflective of an attempt to regain comfortability with sexual activities through the use of sex toys. Similarly, if the sexual assault resulted in a sexual dysfunction, the use of sex toys could be a means of sexual rehabilitation, despite conflicting levels of comfort. For example, vibrators that are smooth and shorter in length and circumference may be beneficial for patients who deal with genital, anal, or pelvic pain, or pain during sexual activity (Rullo et al., 2018). Regardless of why these rates of toy use and comfort persist among those who have ever been sexually assaulted, clinicians should recommend sex toys to clients with caution and guidance to help provide them with the necessary resources to regain sexual comfortability and confidence.

Both men and women who suffer from at least one sexual dysfunction reported lower rates of sex toy usage during masturbation and partnered sexual behavior than those who do not suffer from a sexual dysfunction. Lower levels of comfortability were also reported by the same group of participants, this could be due to various factors. Individuals who suffer from sexual dysfunctions may feel a sense of embarrassment or incompetency due to not wanting or not being able to perform sexually, and this may contribute to lower levels of comfortability using toys. Participants who reported ever experiencing a sexual dysfunction may feel as though sex toys won't work to increase their sexual desire or functioning, and some of these participants may choose to abstain from any sexual behavior at all. Sensate focus and related treatments for sexual dysfunctions have been empirically proven to alleviate anxiety surrounding sexual activity and performance (Auteri, 2014; Masters & Johnson, 1980), which could prove useful among individuals who suffer from sexual dysfunctions that worsen with heightened anxiety. Further, the incorporation of sex toys into sensate focus exercises could elicit a stronger sexual response or sexual arousal than normally experienced due to increased physiological sensitivity (Rullo et al., 2020). Sensate focus allows an individual to focus purely on the physiological sensations that make them feel good, by ridding sexual behavior of expectations of orgasm, ejaculation, and pressure to please a partner. Further, it can help those with sexual dysfunctions become more comfortable with their sexual identity and to better understand what types of sensations they enjoy the most.

Although not part of our initial analysis, we did examine the self-perceived positive and negative effects of sex toy use among participants. There were substantially more positive effects reported compared to negative effects. Examples of some positive effects of sex toy use reported by participants include: "allowing me to be kinky and really bond with my partner," "butt plug helped me come out to my friends," "rabbit vibrator allowed for my partner to climax multiple times after I climaxed," and "couples vibrator (like we-vibe), or bullet vibrator during intercourse, helped my partner to relax, and to climax, enhancing overall enjoyment." There were several repeated trends among self-perceived positive effects of sex toy use. Several men reported that the use of penetrative sex toys, such as butt plugs or dildos, helped them to become more comfortable with their sexuality. Both men and women reported that the use of couples' toys, such as a joint vibrator, has helped to increase the desirability and frequency of orgasms and strengthened the bond between partners. Many women reported that the use of vibrators and/or dildos has helped them to become more familiar with their bodies and has improved their sex life by allowing them to better learn which types of touch they prefer where. Sex toy use can have great effects on sexual functioning and the strengthening

of interpersonal relationships which is reflective of the Positive Sexuality and Positive Technology frameworks. Sex toys have only increased in popularity and functionality since they became technologically innovative. These toys have shown promise to increase various aspects of sexuality, such as sensitivity and overall pleasure, and can help to restructure an individual's perception of their sexuality and sexual functioning.

However, there were also a considerable amount of negative self-perceived effects of sex toy use reported among participants. Examples of negative effects reported include "I feel that I may be more comfortable with toys [than] the real thing sometimes," "when I'm with a partner that traditionally doesn't use toys, I can feel judged a bit when suggesting them," and "felt guilty about masturbating with a toy larger than my husband's penis." Negative experiences, however slight, with sex toys during an intimate and vulnerable sexual encounter can significantly hinder one's perception of and potential future use of sex toys and sexual behavior overall. Several women within this study reported that they felt judged or ashamed of their sex toy use, during masturbation or partnered sex, for various reasons including their partner's perception of toy use, and embarrassment of requiring toys to increase sensitivity or feeling like they depend on toys for pleasure during sexual activity. Thoughtful discussion is necessary between partners for the proper acquisition and incorporation of sex toys into their individual or joint sex lives. Sex toys are not the main attraction of sexual activity, but are merely a means of increasing pleasure and sensitivity, and can even bring a sense of newness or excitement into partnered sex.

The introduction of sex toys and sexual aids into sex therapy is both a controversial and ethical issue. An increasing number of clinicians are recommending sex toys and sexual aids for individuals who suffer from sexual dysfunctions relating to sexual assault or cancer-related treatments (Bober et al., 2019), as these tools can increase sensitivity and physiological response to sexual stimulation. Aside from merely recommending clients to use sex toys and sexual aids at their own discretion, many clinicians are advocating for the advancement of sex therapy to include sexological bodywork, which is a form of educational sex therapy that potentially allows for one-way sensual touch between the clinician and the client, although not always (Rowett, 2020). Sexological bodywork involves aspects of education, sexuality, consent, individual and interpersonal identity, and learning which techniques can help a client maximize comfortability and pleasure. This form of sex therapy may involve sex toys, which can be utilized at the client's request to better understand how these sexual aids can increase arousal, pleasure, and intimacy alone or between partners. "Most practitioners will say their client sessions are around 30% touch and 70% non-touch - such as establishing boundaries, breathwork, nervous system regulation, embodiment techniques, and movement" (Rowett, 2020). Although met with significant resistance, sexological bodywork is increasing in popularity among individuals who suffer from sexual dysfunction, trauma, or assault-related issues, and shows significant promise for the future of sex therapy. However, the ability for a clinician to touch a client's body and manipulate their genitals for purposes of tension redistribution and sexual education is currently illegal in all states except California, where only a select few individuals are licensed to practice sexological bodywork (Rowett, 2020). This is a recent modality of sex therapy and education, thus accounting for the lack of empirical research on its benefits. However, numerous female clients have been taking to the internet to blog about their positive experiences with the practice (Magner, 2017; Dubofsky, 2018). Just as vibration techniques were used as a clinical means of treating hysteria among 20th-century women (Horowitz, 2020), sex toy use in sex therapy or sexological bodywork shows promise for the treatment of sexual dysfunctions or issues surrounding sex following a sexual assault.

Limitations

This study had several limitations. Because data was collected in the form of an anonymous survey, the data relies on self-report measures of sexuality and sexual behavior. The survey link was posted on Reddit.com/samplesize, and thus relied on convenience sampling. Actual rates of comfortability may vary from those that the participants self-reported, potentially due to a desire to provide socially desirable data or because those who use Reddit may have different inclinations to use toys. Further, there were many more women in the sample than men, and thus the data received from male participants may not be as representative of the general population. Most men within the sample (61%) reported ever having used a sex toy during masturbation, and this refutes

the assumed belief that men are more hesitant to use sex toys. However, due to the limited number of men within the sample, actual statistics may vary.

The present study was forced to exclude participants from the analysis who identified as anything other than a man or woman. 3.7% of the sample (n = 12) self-identified as an "other" gender, but because this sample was so small they were excluded from the study. Future research could focus on other-gendered participants to better understand the prevalence and characteristics of their sex toy use. As discussed by Fahs and Swank (2013), nonheterosexual and other-gendered individuals may not emphasize phallocentrism and male dominance during sexual activity with a partner, and may feel more inclined to use sex toys as a means of campy and subversive pleasure.

Because this survey and individual items were created by the researchers, as well as borrowed from the work of Döring and Poeschl (2020), there are no psychometric properties to report. However, using standardized measures to assess prevalence, comfortability, and willingness regarding sex toys could have provided stronger research support for this study.

Finally, the participants of this study were largely young white college students. Older individuals or individuals without technological access may not have been able to access the survey link because it was posted to Reddit and Ball State University's Communication page. Our study's lack of diversity could be expanded upon in future research, emphasizing minority or older cohort sex toy use.

Implications for Future Research

This study could be expanded to include a larger minority sample, including sexual, gendered, and racial minorities, to better understand their sex toy use and how they became socialized to utilize these toys. Further, future research could focus on an older cohort sample, as the rate of sexual dysfunctions tends to increase exponentially with age. Sex toys could elicit heightened sensitivity or arousal from individuals who suffer from age-related sexual dysfunctions and could further help connect partners.

With respect to sexual dysfunctions, future research could examine how sex toys and sexual aids can be incorporated into sex therapy to help increase physiological responses following a sexual assault. Sex toys could be incorporated into sensate focus exercises to increase sensitivity and pleasure for the individual, allowing them to focus solely on the pleasurable sensations. To combat the physiological complications of sexual dysfunction, clinical psychologists may recommend or prescribe various sexual aids to use either alone or with a partner. These sexual aids may include vibrators, dilators, Kegel balls, and dildos, and successive approximations may be utilized until the client gradually becomes more comfortable with sensual touching, and eventually, sexual intercourse. However, the introduction of sex toys into sex therapy recommendations for victims of sexual assault should be predated with caution and a thoughtful discussion between the client and the clinician, as some of these individuals may suffer from PTSD (Yu Yip & Yuen, 2010).

Conclusion

The findings of this study indicate that a substantial number of American adults have ever used a sex toy during solo or partnered sex. Among women, the most used sex toys during masturbation included toys designed for the stimulation of the vagina and vulva, lubricants, and erotic lingerie. Among men, the most used sex toys and sexual aids during masturbation included lubricants, toys designed for the stimulation of the penis and testicles (see Table 2), and toys designed for the stimulation of the vagina and vulva. Men and women were about equally likely to have used lubricants, remedies for enhancing arousal, toys designed for the stimulation of the penis and testicles, and toys for bondage and S&M during partnered sexual activity. Similarly, among participants who have never used a sex toy, a significant portion of this subsample would be willing to incorporate sexual aids into solo or partnered sexual behavior in the future. Nearly an identical percentage of men and women who have been sexually assaulted reported using a sex toy during masturbation, and men reported slightly higher rates of toy use during masturbation compared to women. However, both men and women who have been sexually assaulted reported lower levels of comfortability during their previous experiences using sex toys. Future research could explore how sex toys could be utilized as a method of treatment for sexual dysfunctions or implications following a sexual assault.

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Table 1

Frequencies among Men and Women that Have or are Willing to Use Sex Toys

	Men (*n* = 84)				Women (*n* = 215)			
	German	Yes	Willing	Y + W	German	Yes	Willing	Y + W
Researching								
Researched Toys	76	80	9	89	76	87	8	95
Searched Online for Toys	73	81	11	92	70	82	11	93
Spoke to Someone Else about Toys	-	33	28	61	-	46	27	73
Acquiring								
Bought a Sex Toy	61	62	27	89	63	75	19	94
Received a Sex Toy as a Gift	20	12	-	12	35	21	-	21
Toy Parties								
Invited to a Sex Toy Party	-	**0**	-	-	-	**37**	-	37
Attended a sex Toy Party	-	-	-	-	-	64	29	93
Hosted a Sex Toy Party	-	**0**	**14**	**14**	-	**6**	**28**	34
Using								
Used a Toy for Solo Sex	37	63	24	87	53	76	18	94
Used a Toy for Partnered Sex	52	48	41	89	53	58	32	90

Note. Bolded are significant at $p = .002$; dashes represent data that was not obtained or is not relevant to this study.

Table 2

Percentage of Participants Who Reported Using Each Type of Toy by Gender

	Masturbation		Partnered Sex	
	Men (n = 84)	Women (n = 215)	Men (n = 84)	Women (n = 215)
Erotic Lingerie	14.9	22.8	**19.5**	**33.5**
Lubricants	47.1	42.9	35.6	40.6
Remedies for Enhancing Arousal	3.4	1.8	4.6	5.8
Toys Designed for Vagina/Vulva	**26.4**	**69.2**	32.2	46.9
Toys Designed for Penis/Testicles	**42.5**	**5.8**	19.5	15.2
Toys for Bondage/S&M	16.1	16.1	21.8	23.2

Note. Bolded are significant at $p < .001$

Table 3

Means and Standard Deviations for Comfort Items Among Men and Women

	Men (n = 69)		Women (n = 193)		
	M	SD	M	SD	t
Researched	**2.09**	1.21	**2.51**	1.56	-2.32
Looked at Sex Toys Online	1.72	1.11	2.11	1.33	-2.29
Spoke to Someone Individually About Toys	2.32	1.28	2.55	1.42	-0.82
Invited to Attend a Toy Party	-	-	2.95	1.68	-
Hosted a Toy Party	-	-	2.00	0.85	-
Bought a Sex Toy	2.40	1.47	2.57	1.60	-0.71
Received a Sex Toy as a Gift	1.80	1.48	2.02	1.22	-0.44
Used Sex Toy Solo	1.64	1.19	1.70	1.17	-0.33
Used Sex Toy Partner	1.75	1.26	1.90	1.29	-0.67

Note. Bolded are significant at $p < .001$; lower means represent higher levels of comfortability.