

Female Sexuality in Aotearoa/New Zealand: Factors and Sexual Response Associated with Masturbation

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ABSTRACT

Objectives: Sexual health includes the state of physical, emotional, mental, and social well-being related to sexuality. Masturbation is an important sexual activity with many potential benefits which has gained considerable interest in sexuality research in the past twenty years; however, this research is the first of its kind within the Aotearoa/New Zealand context. In this in-depth investigation, we examined frequencies of, reasons for, and activities during masturbation as well as the relationship between masturbation and other factors.

Methods: Participants were 698 New Zealand women at least 18 years of age participating in a 42-item anonymous online survey collecting comprehensive information about sexual practices and related factors.

Results: The results indicated that female masturbation has high prevalence in the New Zealand population.

Conclusion: The pattern of results enabled us to identify the positive effects of masturbation, masturbation practices commonly used by New Zealand women and the differences between New Zealand women who masturbate frequently and less frequently.

ARTICLE HISTORY

Received 17 April 2022

Revised 5 June 2022

Accepted 29 June 2022

KEYWORDS

Masturbation; women; reasons; activities; differences

Introduction



Masturbation has been the subject of cultural, religious, political and scientific debates for centuries (Bullough, 2003; Coleman, 2003; Laqueur, 2003). Historically, masturbation, especially female masturbation, has been considered as a harmful and abnormal practice in most cultures, and is still a taboo in many societies (Coleman, 2003; Laqueur, 2003).

Many traditional cultures and religions hold that the appropriate aim of sexual behavior is reproduction that should happen within the context of marriage, rendering masturbation sinful, or inappropriate (Ruan, 1991; Verma et al., 1998), often associating guilt and shame with it (Aneja et al., 2015). The stigmatization sometimes leads to classifying masturbation not only as socially deviant or abnormal (Bullough, 2003;

Bullough & Bullough, 2019; Maines, 1999), but also as damaging for the individual or for the social order (Ruan, 1991).

Although attitudes toward sex have become more open over time (Wells & Twenge, 2005) and several studies have confirmed that masturbation is a common and frequently practiced sexual activity in humans of both sexes and all ages (Bowman, 2014; Richters et al., 2014), there is still considerable stigma around it and abstinence is frequently recommended by lay people to avoid harmful physiological and psychological consequences (Zimmer & Imhoff, 2020).

More than 70 years after publishing the famous Kinsey Reports (Kinsey et al., 1948, 1953), the first major scientific studies that contributed to normalizing many aspects of sexual behavior, masturbation remains a relatively unexplored area of sexual health studies, and as a result,

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there is still insufficient scientific knowledge, particularly in societies outside of Europe and North America available on why and how people engage in the behavior, what their thoughts, feelings and experiences are, and how it impacts their overall sexual health (Coleman, 2003; Driemeyer et al., 2017).

Sexual health and masturbation

The first WHO definition of sexual health was relatively broad at the time, including not only somatic, but “emotional, intellectual and social aspects of sexual being, in ways that are positively enriching and that enhance personality, communication and love,” the “right to sexual information and the right to pleasure,” the “capacity to enjoy and control sexual and reproductive behavior,” and “freedom from fear, shame, guilt, false beliefs, and other psychological factors inhibiting sexual response” (World Health Organization, 1975, p. 6). Later definitions gradually included awareness of values, the appreciation of one’s own body, diversity, and as the latest development, the importance of human rights, responsibility, and mental health (Edwards & Coleman, 2004). This new understanding of sexuality had a huge effect on the promotion of sexual health and sexual education.

Recent understanding of sexual health puts masturbation into a new light. Multiple studies examined its potential benefits (Bancroft, 2005; Coleman, 2003; Zamboni & Crawford, 2003) and recognized that labeling it as negative or harmful can lead to adverse health consequences. Masturbation today is understood as an important part and a marker of healthy sexual development (Bancroft et al., 2003; Langfeldt, 1981; Salières et al., 2017) as it provides a valuable opportunity, especially for adolescents and young adults, to learn about their bodies and sexual responsiveness (Atwood & Gagnon, 1987; Salières et al., 2017) and to enhance and monitor sexual arousal and sexual pleasure (Brindis, 2006; Davidson & Darling, 1993; Pinkerton et al., 2003; Rowland & Cooper, 2017).

Masturbation can also be beneficial for improving the ability to experience orgasm (Rowland et al., 2019; Rowland, Hevesi, et al.,

2020) and was found to be effective in the treatment of various disorders related to sexual health, such as female sexual dysfunction (Both & Laan, 2008; Coleman, 2003; Heiman et al., 2010; Laan & Rellini, 2011; Phillips, 2000). Several authors recommend using masturbation in sexual therapy instead of medical therapeutic approaches (McCarthy, 2004; Zamboni & Crawford, 2003), sometimes as the primary choice for treating sexual dysfunction in women, as partnered sex is “inherently more complex and less predictable” (McCarthy, 2004, p. 22)

In addition, masturbation now is considered to have a positive impact on relaxation and stress-reduction (Burri & Carvalheira, 2019; Fahs & Frank, 2014; Leonard, 2010), sleep quality (Lastella et al., 2019), pain relief (Ellison, 2000; Komisaruk & Whipple, 1995; Masters & Johnson, 1966), or strengthening the pelvic floor muscles (Levin, 2007).

Masturbation and culture

Social norms strongly influence masturbatory behaviors and attitudes (Pinkerton et al., 2003). Kinsey et al.’s (1953) study reported more than 60% of American women ever trying or regularly engaging in masturbation. This number in their self-selected sample was shockingly high at the time, but since then, as a result of more liberal attitudes toward female sexual behavior, in most Western societies, where gender equality is more valued, women’s reported masturbation rates have been steadily increasing (Kontula & Haavio-Mannila, 2003). However, it is unclear if women are actually more likely to masturbate or are more willing to report that they do so.

Today, women in more liberal cultures report much higher masturbation rates than women in more traditional societies. For example, 85.5% of female Swedish senior high-school students (Driemeyer et al., 2017), 85% of young American women (Herbenick et al., 2010), 78.9% of female Australian high school students (Fisher et al., 2020), 74% of French women (Kraus, 2017), and 71% of British (Gerressu et al., 2008), but only 32% of Russian (Kontula & Haavio-Mannila, 2003), 12.5% Bangladeshi (Chowdhury et al., 2019) and 10–11% of Chinese women (Chi et al.,

2015) reported ever trying masturbation. Croatia, with approximately 60% (Baćak A & Štulhofer, 2011) and Iran with 62% (Shekarey et al., 2011) are in the middle.

Within countries, there are great differences among women depending on their SES and where they live. In China, different lifetime prevalence rates were found for rural (7%) and urban (18%) populations (Das et al., 2009). In Kraus's (2017) study French women with higher education level, higher SES, and in positions with more control (such as self-employed women and managers) were reported to masturbate more often than women from lower socioeconomic status, rural, or churchgoing communities. Religion itself is strongly associated with lower masturbation frequencies (Baćak A & Štulhofer, 2011; Driemeyer et al., 2017; Gerressu et al., 2008).

Cultural beliefs are often maintained even if the individual becomes part of another culture that is more accepting and liberal regarding masturbation (Meston et al., 1998; Yu, 2010). Canadian immigrant Chinese students are more likely to hold negative attitudes toward masturbation than Canadian-born students (Meston et al., 1998). Similarly, Reyes (2016) found that mothers of Mexican origin in the US believed that masturbation was unhealthy, and females were not sexual beings until a man-initiated sexuality.

Age-related differences

Age and generational differences are also relevant (Rowland, Hevesi, et al., 2020). In a 14–17 years old US sample, lifetime prevalence of masturbation was higher in 17-year-old than in 14-year-old males and females, but the rate of recent masturbation (last 90 days) was higher only in older males, while it remained relatively similar in different female age groups (Robbins, 2011).

In a Chinese sample the percentage of women who never tried masturbation was higher for older age (96% of age 40 or over, 89% of women 30–39, and 82% of women 20–29) (Jing et al., 2018). These generational differences might also reflect the changes in cultural norms. Some authors note that women's masturbation rate peaks later in life than that of men (Barr et al., 2002). Even though masturbation activity seems

to decline with age (Palacios-Ceña et al., 2012), more and more studies demonstrate that it is becoming commonly practiced and viewed as acceptable or normal by the elderly (Brecher, 1984; Bretschneider & McCoy, 1988; Johnson, 1998). In a study focusing on a US elderly population (mean age \pm SD of 81 ± 6 years), Smith et al. (2007) found that 18% of the participating women were still sexually active and masturbation turned out to be their most commonly reported sexual activity. A Spanish study of younger elderly women (mean age \pm SD of 74.5 ± 6.3 years) also reported higher rates, with 37.4% of the participating women reported being sexually active (Palacios-Ceña et al., 2012).

Why do women masturbate?

Much of the research on masturbation has focused on prevalence and frequency, not on reasons (Goldey et al., 2016; Hogarth & Ingham, 2009). According to the traditional belief, the goal of masturbation, and any sexual activity by that matter, was orgasm (Lavie-Ajayi & Joffe, 2009). Orgasm as a sole purpose of sexual activity nicely fits into Masters and Johnson's stages of arousal framework (Masters & Johnson, 1966), Freud's sex drive (Freud, 2012), and other motivation theories.

Orgasm seems to be an important reason for masturbation. Kinsey et al. (1953) pioneering study found that 95% of female masturbation ends in orgasm, and it offers the most specific and quickest way to achieve orgasmic response, which has been confirmed by several studies since (Rowland et al., 2018; Towne, 2019). Some women who find it difficult to orgasm in heterosexual relationships can experience orgasm when they engage in masturbation (Fisher, 1973; Masters & Johnson, 1966). One possible explanation is that traditional sexual scripts prioritize vaginal-penile intercourse and male orgasm, which does not result in female orgasm as often as self-oriented sexual activity (Kraus, 2017; Willis et al., 2018).

Several studies have found that women masturbate for various reasons other than experiencing orgasm, such as physical pleasure, relief of sexual tension (although these two are often

associated with orgasm), regulating negative physical and emotional feelings, feelings of self-affirmation and agency, stress relief or relaxation, and learning about their body (Bowman, 2014; Carvalheira & Leal, 2013; Fahs & Frank, 2014; Goldey et al., 2016; Laumann et al., 1994; Rowland et al., 2019). According to some studies, masturbation can feel sexually empowering to women (Bowman, 2014), as masturbation is self-controlled and self-directed, it can contribute feeling of autonomy and control over one's body (Coleman & Bockting, 2013).

A brief history of the sexual culture in Aotearoa/ New Zealand

New Zealand is a bicultural society: its social norms and traditional cultural beliefs are based on the Māori culture of the indigenous people of Aotearoa and the British/Victorian culture brought to New Zealand by the Europeans. Traditional Māori society accepted sexuality: sex and sexuality were openly discussed, and sexual diversity was recognized. This approach to sexuality changed after the European migrants introduced and imposed more conservative views on sexuality to New Zealand (Aspin & Hutchings, 2007). Just like in Europe and the US, New Zealand Pakeha (non-Māori) culture was characterized by conservative, Christian-based morality, aimed at suppressing sexual desire, especially in young girls (Jackson & Weatherall, 2010). New Zealand physicians promoted anti-masturbation attitudes and beliefs, repressive anti-masturbation strategies, and exposed masturbating boys to psychological and physical punishment until the early 20th century. As a result, "masturbation anxiety" remained present in New Zealand until the 1940s (Watson, 2016).

Sex education in New Zealand in the postwar period was still focusing on family, marriage, reproduction, and parenting (Gooder, 2016), completely ignoring pleasure as an important part of human sexuality. In the 1960s and 1970s, sexual education was not part of the national curriculum and occurred only in some schools either at parent-child evenings or under the guise of health education (Brickell, 2007).

As traditional gender roles and sexual morality were challenged in the 1960s, public opinion regarding the topic started to shift. Two government reports, the Ross Report in 1973 and the Johnson Report in 1977, were published supporting classroom discussion of gender roles, abortion, masturbation, and homosexuality, among other topics (Brickell, 2007). The reports met considerable opposition, and for almost two decades, sex education remained in the focus of different value groups clashing over broader societal issues, such as moral education and the rights of schools and parents (Weir, 2001).

It is worth mentioning that Gooder (2016) analyzed sex education pamphlets published in New Zealand in the 1970s and found that none of them recognized masturbation as a legitimate sexual activity. A book, titled *Down Under the Plum Trees* (Tuohy & Murphy, 1976), discussed topics such as puberty, masturbation, pregnancy and birth, sexually transmitted diseases, and sexuality, illustrated with photographs, but in spite of its high popularity, a year later it was declared indecent for young people, and book shops were fined for exhibiting it (Brickell, 2007).

Finally, during the 1990s, sexual education was officially incorporated into the New Zealand school curriculum. Although these programs mainly discussed health concerns, they represented a step away from moral considerations. In 1999 the New Zealand Health and Physical Education curriculum included mandatory sexual education for all 13–14 year old students (New Zealand Family Planning, 2017). The main focus was still describing the male and female genitals, discussing health-related issues such as menstruation cycle, and advice on avoiding unwanted pregnancies and sexually transmitted illnesses (Ministry of Education, 1999).

Today, New Zealand's Sexual and Reproductive Health Strategy (Ministry of Health, 2003) states that positive sexuality and sexual health are Government priorities; however, with its emphasis on reducing Sexually Transmitted Infections and unwanted pregnancies, the sexual education curriculum remains narrow, and it still tends to overemphasize sexual danger for women. In summary, there has been a steady improvement in the societal approaches toward sexuality

Table 1. Demographic data by masturbation rates.

	Frequent	Less frequently	Almost never/never	<i>p</i> -Value†
Age, mean (std. dev)	33.35 (11.33)	36.96 (12.07)	35.56 (13.75)	.002*‡
Ethnic group (%)				.426
NZ European	69.5	74.5	70.7	
Non-NZ European	30.5	25.5	29.3	
Education (%)				.540
Primary/high school/tertiary college	53.3	48.8	49.6	
Tertiary qualification	46.7	51.2	50.4	
Menopause (%)				.119
Pre menopause	85.6	80.7	78.4	
Peri/post menopause	14.4	19.3	21.6	
Sex hormones supplements (%)	10.0	7.1	9.5	.497
Current medication use (%)	48.0	52.6	53.0	.450
Current medical problems (%)	22.8	33.6	32.2	.010*
Current depression (%)	41.7	39.2	43.1	.747

*Denotes significance at $p < .05$; †Significance for chi-square test of independence; ‡*t*-test.

in New Zealand and today, the government promotes good sexual and reproductive health and embraces sexual education (Ministry of Education, 1999; Ministry of Health, 2003, 2010; New Zealand Family Planning, 2017). However, the scope of the discussion is still limited and leaves out or only briefly mentions essential topics, such as masturbation and pleasure.

Aims for this study

The current study is aimed at exploring the practice of masturbation in a convenience sample of New Zealand women. The study is focusing on the following areas regarding masturbation in New Zealand women: (1) masturbation rates and habits in Aotearoa/New Zealand, (2) reasons for masturbation (3) sexual practices during masturbation, (4) pleasure, orgasmic response and orgasmic difficulty during masturbation (5) and the differences between women who masturbate more and less frequently.

Method

The current study is part of a cross-cultural research project taking place in various countries: the United States, Hungary and New Zealand. This paper only examines the results obtained in New Zealand.

Participants

Participants for this study were 698 New Zealander women at least 18 years of age who completed the questionnaire (Table 1). Those

who only completed the demographic section were excluded. The average age of participants was 34.8 years (SD = 12.07, range: 18–78 years). Participation in the online survey occurred through self-selection, with the only promotion being social media advertisement identifying the need for women ages 18+ for a survey on female sexual health. No paid incentives or rewards were offered for participation.

Measurement

A 42-item questionnaire, developed by Rowland et al. (2018) based on three focus groups of women from the USA and Hungary, was used for the present study. Focus groups reviewed items, commented on their relevance, and added response categories. The questionnaire consists of three main sections. The first part of the survey asked about demographics, lifestyle behaviors, medications, and medical and sexual history, including questions regarding sexual orientation, gender identity, partnership status, and overall relationship characteristics and satisfaction. Medical history was examined via five binary (Yes/No) questions referring to (1) state of menopause, (2) use of sex-hormone supplements, (3) use of prescription medication (including birth control pills), (4) identification of any ongoing medical issues the respondent gets treatment for. One question referred to the current state of depression or anxiety (“Are you currently suffering from ongoing/persistent (>6 months) anxiety or depression?”). The second part of the survey collected information about sexual response, including items related to the frequency of

masturbation and partnered sex, sexual desire, sexual arousal, lubrication, genital pain during sex, orgasmic response, orgasmic latency, orgasmic distress, and perceived partner distress in the past 12 months and/or in their current or most recent (primary) sexual relationship. This section used relevant items from the Female Sexual Function Index (Rosen et al., 2000). The third part focused on orgasmic response during partnered sex and masturbation, including methods and types of stimulation, estimated latency, derived pleasure, difficulties in orgasmic response, and perceived reasons for these difficulties during partnered or masturbatory activities.

Relevant to this analysis, the frequency of masturbation was measured using a 9-point Likert scale (1 = never; 9 = one or more times daily). Two questions explored the reasons for masturbation, using the past year as a timeframe, with the possibility of selecting one of 7 answer choices or "other." In the first question, participants selected as many responses as they preferred, and in the second, they chose a single main reason. Participants were also asked about specific activities they typically engaged in during masturbation by selecting as many activities as they wanted from a list of 10 reasons (derived from the focus group) or by specifying activities not included in the list (Rowland et al., 2018).

Procedure

Ethical approval was obtained in New Zealand (approval no. 18/96) by AUTECH. Before completing the survey, all participants were informed about the purpose of the research and informed consent was obtained in the following way: once participants accessed the survey link, they were asked to confirm their consent by checking a consent statement box. Only those participants who confirmed their willingness to participate and who met the eligibility criteria were presented with the survey. Participation in the study was voluntary, and participants could withdraw from the study at any time by closing the online survey without submitting. Data from these withdrawn participants were deleted.

Data analysis

Descriptive statistics and correlational analysis were conducted using IBM SPSS statistics software version 24.0. Missing data for demographic variables ranged from 0.3% to 1.7%, and 0.3–10.6% for a few items on frequency, orgasmic response, satisfaction and difficulties with masturbation. Some items on the length of time to reach orgasm and emotions around masturbation had slightly higher missing data (between 11.3% and 13.1%) but still within acceptable levels. Missing values were either addressed by collapsing categories or excluding these variables from the model. The outcome variable "frequency of masturbation" was sub-divided into "frequent," "less frequently" and "almost never/never" groups based on participant numbers.

Results

Masturbation frequency

The results show that 76.1% of the participating New Zealand women reported masturbating at least once a month and only 5.4% reported never masturbating. The overall distribution for masturbation frequency was never: 5.4%, almost never: 11.2%, less than once a month: 7.3%, about once a month: 9.9%, about once every two weeks: 13.2%, about once a week: 18.3%, 2–3 times a week: 26.2%, one or more times daily 8.5% as displayed in Figure 1.

Demographic and medical variables are compared in Table 1 between 370 women who masturbate frequently (more than once a week), 212 who masturbate less frequently (between once a week to less than once a month), and 116 women who almost never masturbates (almost never or never). Within the sample, 52.9% masturbate frequently, 30.3% masturbate less frequently (between once a week to less than once a month), while 16.6% never or almost never masturbate.

There were significant age differences between the frequent and less frequent groups ($p = .002$). Women reporting more frequent masturbation were slightly younger ($M = 33.35$, $SD = 11.33$) than those who masturbate less frequently ($M = 36.96$, $SD = 12.07$), and those who reported almost never or never ($M = 35.56$, $SD = 13.75$), p

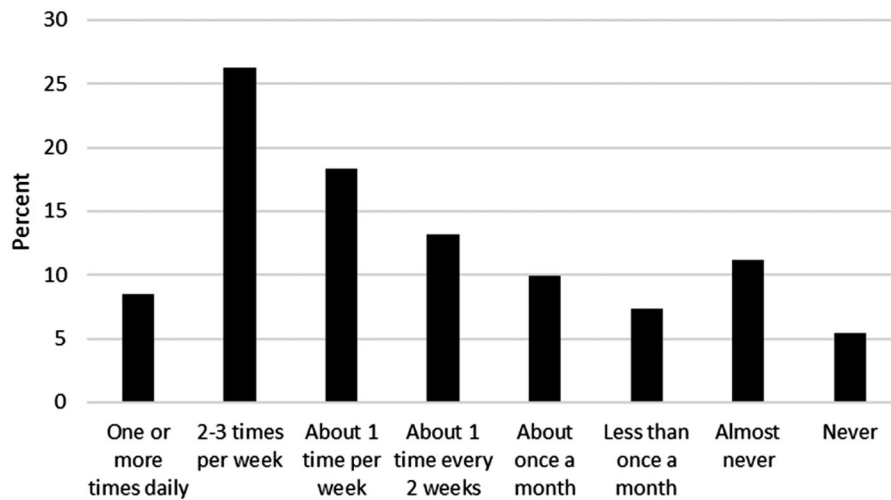


Figure 1. Masturbation frequency: How often do you masturbate?

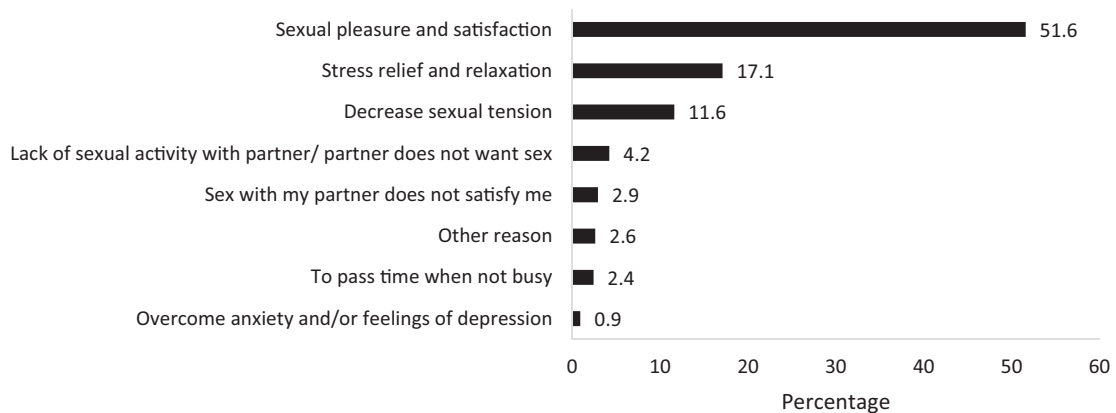


Figure 2. If you masturbate (alone, without a partner present), what is the ONE MOST IMPORTANT reason. *Other reasons commonly include helping to sleep and coping with long distance relationships or when partner is away.

= .002. Those who had current medical problems were also less likely to masturbate frequently ($p = .010$).

Reasons for masturbation

Figure 2 displays the single most important reason why the sample's participants masturbate, while Figure 3 presents all the reasons why they masturbate. The most highly endorsed response was "sexual pleasure and satisfaction" identified by 74.7% of the sample as a contributing reason and by 51.6% as the most important reason. This was followed by "stress relief and relaxation" (most important: 17.1%, contributing: 60.7%) and "decreases sexual tension" (most important: 11.6%, contributing: 41.7%). Other contributing reasons on why women masturbate in decreasing order,

include "lack of sexual activity with partner/partner does not want sex (27.3%)," "overcome feeling of anxiety and/or depression" (20.7%), "pass time when not busy" (16.7%) and "sex with my partner does not satisfy me (12.4%)." A minority (~10%) reported other reasons such as "helping to sleep, and coping with long distance relationships or when partner is away."

Sexual practices during masturbation

Figure 4 displays the percentage of various sexual activities used during masturbation, of these, clitoral stimulation was the most commonly selected activity (76%), followed by vaginal stimulation and penetration (35.4%), use of mechanical aids (33%), breast stimulation (27.1%), use of erotic materials (26.3%), body position of lying on back

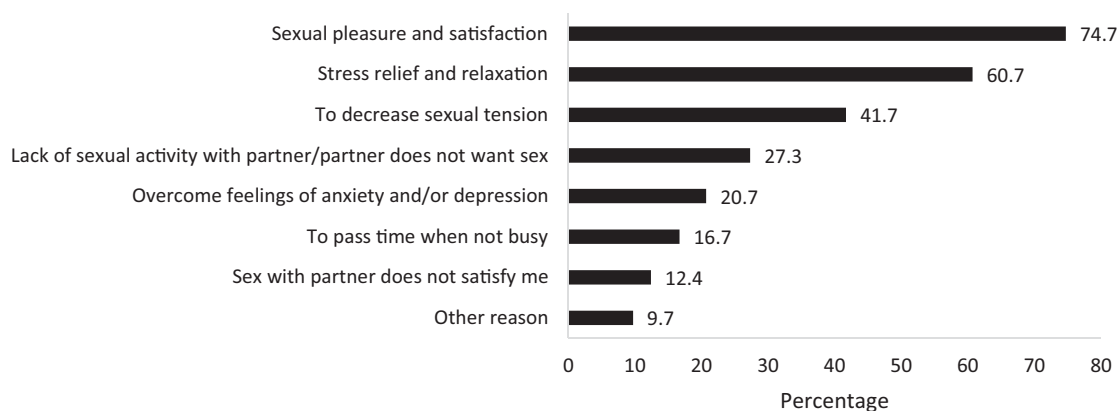


Figure 3. If you masturbate (alone, without a partner present), tell us your reasons (check ANY and ALL that apply). *Other reasons commonly include helping to sleep and coping with long distance relationships or when partner is away.

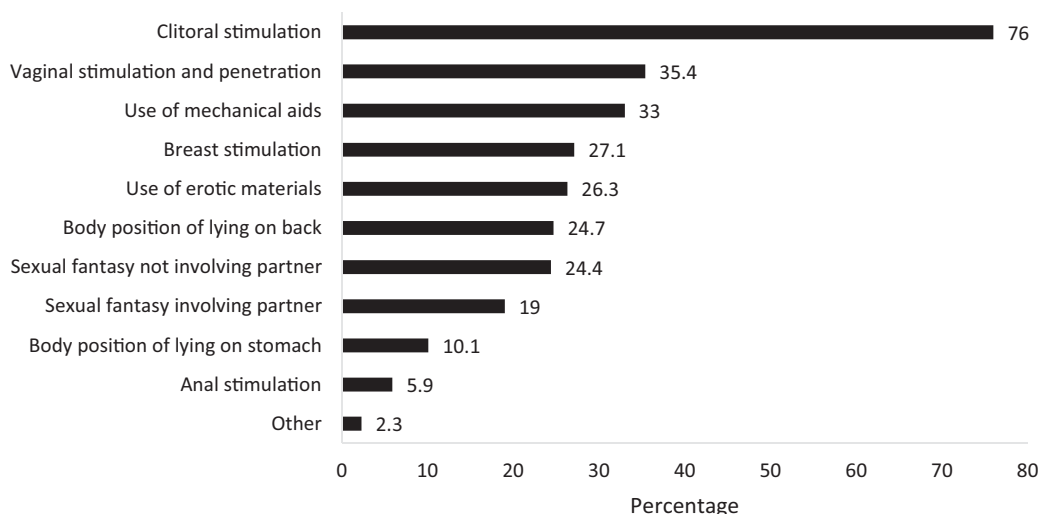


Figure 4. Preferred sexual practices during masturbation.

Table 2. Sexual practices during masturbation by frequency of masturbation.

Sexual activities engaged during masturbation	<i>n</i> = 698	Frequent, <i>n</i>	Less frequent, <i>n</i>	Almost never/never, <i>n</i>
Clitoral stimulation	531	308	168	55
Vaginal stimulation and penetration	248	127	89	32
Breast stimulation	190	110	60	20
Anal stimulation	41	24	15	2

(24.7%), sexual fantasies not including one's partner (24.4%), sexual fantasies that include/incorporate one's partner (19%), body position lying on stomach (10.1%), anal stimulation (5.9%), only 2.3% of the participants chose other sexual practices not included in the above list, such as self-bondage or erotic writing.

Table 2 shows the use of sexual practices during masturbation by the frequency of masturbation indicating that those who engage in masturbation frequently are more likely to

incorporate clitoral, vaginal, breast, and anal stimulation into their masturbatory behaviors, compared to those who masturbate less frequently or almost never.

Pleasure, orgasmic response, and difficulty during masturbation

Table 3 displays the experienced pleasure during masturbation. Only 3.8% of the participating

women reported masturbating but not reaching orgasm. Orgasmic pleasure during masturbation was measured on a 5-point scale ranging from 1 = not satisfying to 5 = very satisfying. For those who reach orgasm during masturbation approximately 60% of the participants rated their pleasure experience at high levels of satisfaction, and 22.6% rated it at a moderate level of satisfaction.

Figure 5 illustrates the percentage of identified contributing factors for those who are unable or have difficulty with reaching orgasm during masturbation: 25.9% identified not being sufficiently aroused, 21.1% named the lack of privacy, 18.1% reported experiencing stress and anxiety affecting orgasmic ability. Other reasons included medication or medical condition (8.9%), insufficient lubrication (7.1%), anxiety about sexual issues (6%), body image issues (5.7%), pain or irritation (5.3%), lack of practice (4.6%), lack of interest (3.9%), personal beliefs or guilt about masturbation (3%). 12.6% of the participating women reported not knowing the reason why they experience difficulties with reaching orgasm. The obtained qualitative data (asking participants choosing “other” to explain their choice) included mood problems such as lack of concentration and fatigue, preference for sexual activity with a person, but also medical issues relating to past sexual assault.

When choosing only one main factor contributing to orgasmic difficulties (unable or having difficulty with reaching orgasm during masturbation), the results showed slightly different percentages, but the top two reasons remained not being sufficiently aroused, 22.8% and the lack of privacy (16.4%), as per Figure 6. Among participating women, 13% stated that they do not know the reason or have other specific reason.

When asked if the experienced difficulty or inability to reach orgasm causes distress (frustration, feeling upset or being bothered) rated on a 5-point scale (1 = almost never and 5 = almost always) only 17.6% of the respondents stated that it almost never causes them distress and only 8.7% indicated that they almost always experience distress (see Table 4).

Table 3. If you masturbate (alone, without a partner present), how pleasurable or satisfying would you rate your typical orgasm?

If you masturbate (alone, without a partner present), how pleasurable or satisfying would you rate your typical orgasm?	%
I do not masturbate	6.6
I masturbate but I do not reach orgasm	3.8
1 not satisfying	0.9
2	6.6
3	22.6
4	29.5
5 very satisfying	30.1
Total (n)	665



Figure 5. If you are unable to reach orgasm during masturbation (alone, without a partner present) or have difficulty doing so, what factors do you feel contribute to the problem?



Figure 6. If you are unable to reach orgasm during masturbation (alone, without a partner present) or have difficulty doing so, what is the ONE factor that you think contributes most to the problem?

Table 4. If you have difficulty or are unable to reach orgasm during masturbation (alone, without a partner present), does this bother, upset, or frustrate you?

If you have difficulty or are unable to reach orgasm during masturbation (alone, without a partner present), does this bother, upset, or frustrate you?	%
I do not masturbate	6.6
I always reach orgasm so this is not a problem	42.5
1 almost never	17.6
2	7.4
3	8.3
4	8.7
5 almost always	8.7
Total	663

Both the satisfaction with the orgasmic response and the distress associated to the inability or difficulty with reaching orgasm showed connection with masturbation frequency. The increased frequency of masturbation had a small positive correlation with satisfaction with orgasmic response ($r_s = 0.260, p < .001$). Negative feelings associated with lack of ability to reach orgasm during masturbation were also associated with the frequency of masturbation ($r_s = 0.232, p < .001$).

Relationship between sexual history, sexual arousal, orgasmic response and frequency of masturbation

Table 5 displays correlations between factors around sexual history, sexual arousal and orgasmic response and the frequency of masturbation.

Interest and importance of sex, as well as satisfaction with primary relationship (sexual or other) displayed small to moderate positive correlations with masturbation frequency ($r_s = 0.102-0.291, p < .01$). There were only small correlations between specific difficulties encountered during masturbation and frequency of masturbation ($r_s = 0.102-0.291, p < .05$). Masturbation frequency had some correlation with orgasmic response rated by participants, notably the length of time taken to reach orgasm during masturbation ($r_s = 0.216$), and satisfaction with orgasm during masturbation ($r_s = 0.260$). Difficulties with reaching orgasm during masturbation and associated frustrated feelings both showed some relationship with the frequency of masturbation ($r_s = -0.137$, and $r_s = 0.232$, respectively).

Discussion

The aim of this study was to assess the masturbation practices of New Zealand women and enhance our understanding of why and how Aotearoa/New Zealand adult women engage in masturbatory behaviors and the connection of these factors with orgasmic pleasure, latency, and experienced difficulties during masturbation. The current study also investigated the differences between women who masturbate more frequently and those who tend to masturbate less frequently.

Table 5. Relationship between the frequency of masturbation and sexual history, sexual arousal, and orgasmic response.

	Frequent (<i>n</i> = 370)	Less frequently (<i>n</i> = 212)	Almost never/ never (<i>n</i> = 116)	<i>r_s</i>	Sig.
Sexual history					
No. of current sexual partners (%)				0.008	.835
No current sexual partner	24.1	15.6	15.5		
One sexual partner	63.8	80.2	81.9		
Two or more sexual partners	12.2	4.2	2.6		
Frequency of sex (%)				0.015	.691
One or more times daily/2–3 times weekly/once weekly	68.4	69.7	70.7		
Once a fortnight/once a month/less than once a month	20.8	23.7	23.3		
Almost never/never/do not or have not had sexual partner	10.8	6.6	6.0		
Importance of sex				0.271	.000*
Interest in sex				0.291	.000*
Satisfaction with primary relationship				0.160	.000*
Satisfaction with primary sexual relationship				0.102	.007*
Sexual arousal					
Difficulties with vaginal lubrication				0.095	.013*
Difficulties with sexual arousal during sex with partner				0.128	.001*
Difficulties with sexual arousal during masturbation				0.143	.000*
Orgasmic response					
How often sex with partner ends in orgasm				0.077	.047*
How often self-masturbation ends in orgasm				0.117	.003*
Difficulties having orgasm during self-masturbation				−0.137	.000*
Length of time to reach orgasm during self-masturbation				0.216	.000*
Satisfaction with orgasm during self-masturbation				0.260	.000*
Feelings of frustration with difficulty of achieving orgasm during masturbation				0.232	.000*

*Denotes significance at $p < .05$; r_s refers to Spearman's correlation coefficient.

Masturbation frequency and correlating factors

The results show that 94.6% of the participating New Zealand women engaged in masturbation in their lifetime, and 76.1% at least once a month in the past 12–24 months. This number is similar to the findings of other recent studies on masturbation frequency finding high prevalence for female masturbation in Western societies (Bačák A & Štulhofer, 2011; Burri & Carvalheira, 2019; Gerressu et al., 2008; Herbenick et al., 2018; Richters et al., 2014; Rowland et al., 2019; Rowland, Hevesi, et al., 2020). Our sample was self-selected, which also probably results in higher prevalence than in the whole population.

Comparing the demographic variables of women with different reported masturbation frequency revealed that similar to previous research, younger women reported higher masturbation frequencies than older ones (Barr et al., 2002; Palacios-Ceña et al., 2012). Such a difference has been explained in previous studies by a number of factors including better physical fitness (Jiannine & Reio, 2018), higher estradiol level (Bancroft, 2005; Motta-Mena & Puts, 2017), or holding more liberal attitudes toward masturbation (Driemeyer et al., 2017). In our study,

however, the age difference was slight, probably due to relatively low proportion of older women.

The relationship between physical health and sexual health has been reported in many studies for various illnesses and age groups, indicating that sexual health problems are more prevalent in populations presenting with physical illnesses (Dorner et al., 2018). This is in line with our current findings that those who reported having current medical problems were less likely to masturbate frequently.

Reasons for masturbation

Various studies have shown that women favor a variety of motivations for masturbation (Carvalheira & Leal, 2013; Goldey et al., 2016; Rowland, Hevesi, et al., 2020). When asked about the reasons for masturbation, the majority (74.7%) of the New Zealand respondents identified sexual pleasure and satisfaction as a contributing reason. Indeed, most participating women (96.2%) experienced orgasm during masturbation, the majority (59.6%) indicating high levels of satisfaction with their experience.

At the same time, only a little more than half (51.6%) of the respondents chose pleasure and

satisfaction as the most important reason for masturbating. Besides sexual pleasure, other highly endorsed reasons included stress relief and relaxation (60.7%), decreasing sexual tension (41.7%), or overcoming feelings of anxiety and/or depression (20.7%). Qualitative data indicated that women also use masturbation to improve various aspects of physical health—the responses included “toning pelvic floor,” “burn calories,” or “coping with chronic pain,” or psychological wellbeing, the reasons included “helps me reconnect with my body” by a former sexual assault victim, “helps me think clearly afterwards, and makes mental tasks less frustrating,” or “learn to orgasm.” These findings reiterate that masturbation serves many different purposes over a variety of populations/cultures, and that orgasm is not its sole purpose as had been traditionally assumed (Bowman, 2014; Carvalheira & Leal, 2013; Fahs & Frank, 2014; Goldey et al., 2016; Laumann et al., 1994; Rowland et al., 2019). The motivation behind masturbation is complex, and women engage in masturbation for a variety of physical and psychological reasons.

Stress relief and mental wellbeing

Stress relief and relaxation were rated as the second most common reason for masturbation, 60.7% of the surveyed women reported using masturbation as a form of stress relief as a contributing reason and 17.1% of the respondents reported masturbating primarily as a stress relief or a form of relaxation. Stress relief and relaxation as a reason for masturbation has been reported in many studies (Burri & Carvalheira, 2019; Carvalheira & Leal, 2013; Goldey et al., 2016; Laumann et al., 1994; Rowland, Hevesi, et al., 2020). Zamboni and Crawford (2003) depicted that masturbatory frequency and masturbatory desire significantly correlated with experienced life stress. As relaxation has been proven to be an effective tool to reduce stress (Kaspereen, 2012; Rainforth et al., 2007; Rausch et al., 2006), and stress relief can be achieved via masturbation, masturbation can be used as a safe and effective tool to cope with daily stress.

Introducing pleasure and pleasurable activities as a form of depression treatment is well documented in the clinical literature (Barlow, 2014; Beck & Beck, 1995; Nathan & Gorman, 2015) and a widely used strategy in clinical practice, however, masturbation is rarely included in the list of recommended pleasurable activities. In our study women seem to know about this effect, as 20.7% women reported using masturbation to cope with feelings of anxiety or depression as contributing factor and 0.9% as a primary reason.

Sexual practices during masturbation

When investigating the sexual practices of New Zealand women during masturbation, clitoral stimulation was rated to be the most commonly used practice (76%), followed by vaginal stimulation (35.4%) but only 33% reported using mechanical aids, such as vibrators or dildos which is consistent with research indicating that many women do not rely on or even include vaginal penetration when they are masturbating (Fahs & Frank, 2014; Herbenick et al., 2018; Rowland, Hevesi, et al., 2020), providing another piece of evidence against the traditional phallogocentric view of female sexuality.

There were observed differences in sexual practices between women who masturbate frequently, less frequently or never: the current study has shown that those New Zealand women who engage in masturbation frequently are more likely to incorporate clitoral, vaginal, breast and anal stimulation into their masturbatory behaviors, compared to those who masturbate less frequently or almost never (see Table 2) so, it seems that the more someone masturbates, the more likely that they involve a variety of practices during masturbation.

Cognitive factors, such as sexual fantasy, tend to play an important role in masturbation for the participating New Zealand women as 43.4% indicated engaging in sexual fantasies during masturbation. In their review article, Leitenberg and Henning (1995) observed high prevalence of fantasy during masturbation: between 31% and 65% of females in various studies reported fantasizing during masturbation. Zamboni and Crawford

(2003) found significant correlation between masturbatory frequency and sexual fantasy and Yule et al. (2017) report that even asexual women engage in sexual fantasies, however according to Nutter and Condrón (1983) females with inhibited sexual desire fantasize significantly less than sexually satisfied controls during masturbation. The content of the sexual fantasies can vary widely, in the current study 24.4% of participating women reported fantasizing about their partner and 19% reported not including their partner in their sexual fantasies.

Orgasmic response and difficulty during masturbation

Even though most participating women reported high orgasmic pleasure during masturbation, approximately 10% of the participants either could not reach orgasm during masturbation or rated the orgasm as not satisfying. Orgasmic difficulties can be relatively common for women; Female Orgasmic Disorder is reported to be the second most common sexual problem for women (Meston et al., 2004). In the current study, the primary identified reason for experiencing orgasmic difficulty was the lack of sexual arousal. The role of sexual arousal in orgasmic response has been well known since Masters and Johnson (1966) described the female sexual response and identified sexual arousal as an important contributing factor, which has been confirmed in various studies since (Carvalheira et al., 2010; Walton & Bhullar, 2018). However, environmental factors can also play an important role in orgasmic difficulty: more than one-fifth of the participating women disclosed that the lack of privacy prevented them from reaching orgasm during masturbation. The third most common reason for experiencing orgasmic difficulty was stress and anxiety. Other studies have shown that heightened level of anxiety can increase the likelihood of orgasmic difficulties (De Lucena & Abdo, 2014; Hevesi et al., 2020). The obtained qualitative data included mood-related problems, lack of concentration and fatigue, preference for sexual activity with a person, but also medical issues relating to past sexual assault.

Despite orgasmic difficulties, experiencing difficulty or even inability to reach orgasm seem to have little importance in the masturbatory experience for many women, as 17.6% of the participating women indicated that not reaching orgasm does not bother, upset or frustrate them at all and only 8.7% participants indicated that it is a problem for them. This could be a reciprocating problem, whereby women who experience difficulty tend to minimize the importance of reaching orgasm, often the result of ensuring cognitive consonance.

Relationship between the frequency of masturbation and orgasmic response

Not surprisingly, experiencing orgasm has an impact on masturbation frequency: we have found that those women who frequently experience orgasm during sexual activities, including masturbation, are more likely to masturbate frequently which is in line with previous findings (Rowland, Kolba, et al., 2020), and those who typically reach orgasm within 15 min or less were almost twice as likely to masturbate more frequently.

Both the satisfaction with the orgasmic response and the distress associated to orgasmic difficulty showed connection with masturbation frequency: those women who tend to masturbate more frequently tend to be more satisfied with their orgasmic response but also tend to experience more frustration or distress when they cannot reach orgasm. Women who masturbate more frequently reported needing more time to reach orgasm during masturbation but also rated their orgasmic response more satisfying. A possible explanation is that those women who enjoy masturbating will masturbate more frequently and will also make the experience last longer.

As delayed orgasm is often associated with decreased sexual interest (Humble & Bejerot, 2016) or a form of sexual dysfunction (Jenkins & Mulhall, 2015) or a side effect of SSRIs medication (Higgins, 2010), it remains a controversial topic in sexual psychology. The current research found that those women who tend to masturbate less frequently tend to experience more

difficulties with reaching orgasm and have increasing feelings of frustration regarding their orgasmic difficulties, possibly viewing delayed orgasm as sexual dysfunction or difficulty. It might be that when the orgasm is extended deliberately to enhance sexual pleasure, the sense of control is still maintained, and it reflects a positive experience; however, when orgasmic delay is perceived as an orgasmic difficulty and accompanied by the lack of control, it reflects a negative sexual experience. Further research is needed to explore these differences in delayed female orgasm.

In conclusion, the relatively high reported masturbation rates among New Zealand women, compared to other countries, puts New Zealand among the liberal sexual cultures, where masturbation is an accepted sexual behavior for women. This might be due to the bicultural nature of the country, where the indigenous, liberal Māori culture and the traditional, often Christianity-based British culture are influencing each other. New Zealand women give similar reasons for the practice as their Western counterparts, and as their sexual practices during masturbation indicate, they display similar masturbatory behaviors compared to US and Hungarian women. Overall, the results of this study were broadly congruent with findings in similar studies on female masturbation, while providing new insights into masturbation rates and practices in Aotearoa/New Zealand.

Strengths and limitations

The current study is the first of its kind to measure masturbatory practices of New Zealand women and it may be a valuable starting point for large scale studies. This study may also serve as evidence to clinicians working in the field of sexual health that masturbatory behaviors seem to be very common for women in Aotearoa/New Zealand.

The current study had a relatively large sample size and wide distribution drawn from New Zealand/Aotearoa, including all age groups over 18 regardless of sexual orientation, physical location, or socioeconomic background. The anonymity of the research was aimed at reducing the

factors related to social desirability and improving the openness in responding, allowing participants to express their opinion about sensitive topics (Ong & Weiss, 2000), such as masturbation or sexual practices and most likely contributed to many women feeling comfortable disclosing masturbatory behaviors.

However, some limitations should also be acknowledged. Firstly, the possibility of systematic bias, which is a common limitation for any non-probability study, characterized our research as well, it is most likely that potential participants from lower socioeconomic status or elderly people with lower computer literacy have less access to online survey which limits the generalizability of the results. Even though the study is not representative of the population profile, as Māori, Pasifika and Asian population were underrepresented (Stats New Zealand, 2019), it is more diverse than many studies of this sort. Nevertheless, given the underrepresentation of specific cultural-ethnic groupings, the current study did not allow a comparative analysis of masturbation practices across these groups. Future studies may want to target minority populations to include a more representative sample via community sampling, and include more information related to women's sexual histories, such as age of first intercourse, age of first masturbation, and history of abuse that might impact masturbatory patterns. Another possible future study would explore the differences between individuals with varying sexual orientations and gender identities. In our research, the sample of different orientations was too small to conduct any meaningful analyses, a separate research study focused solely on queer and non-binary orientations would be warranted here. Clinical practice suggests that mood and anxiety affect sexual practices, including masturbation. However, our research addressed this aspect using a single binary question which was not sufficient to establish such relationship. Future research could explore the relationship between masturbation frequencies, and, for example, the severity of depression, by using psychometric assessment tools such as the Beck Depression Inventory (BDI-II), the Beck Anxiety Inventory

(BAI) or the Depression Anxiety Stress Scale (DASS).

Despite the limitations, the current study represents a valuable contribution to the field of sexual psychology, and the findings of this research may inform policy makers developing the sexual education curriculum in Aotearoa/New Zealand or even in Oceanic countries having similar cultures, as well as clinical practice and future research on female sexuality.

IRB statement

All research methods were approved by and conducted in accordance with the ethical requirements of the Auckland University of Technology Ethics Board (AUTEC no. 18/96).

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Data availability statement

Raw data were generated at Auckland University of Technology. Derived data supporting the findings of this study are available from the corresponding author R.C. on request.

Funding

This work was supported by Auckland University of Technology under Contestable Research Fund [2019].

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