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The association of positive sexual health and psychological well-being in emerging adulthood

Background and Aims

The positive aspects of sexual health have been repeatedly articulated but rarely studied. Although both national and international policy documents have emphasized that sexual health encompasses more than the absence of sexual violence, sexually-transmitted infection, and reproductive health problems (NCASH, 1995; US-DHHS, 2001; PAHO/WAS, 2001; WHO 2002), and the Surgeon General called specifically for increased research into sexual health and the factors related to sexual well-being(US-DHHS, 2001), public health scholarship has so far answered only a portion of this call. In particular, we know very little about sexual pleasure. This gap in our knowledge has persisted despite consensus across policy documents regarding the centrality of this aspect of sexual well-being. The Surgeon General's Call to Action to Promote Sexual Health and Responsible Sexual Behavior defines sexual health as including the ability to derive pleasure from sexuality (US-DHHS, 2001) and The National Commission on Adolescent Sexual Health (NCASH) declares that a sexually healthy adolescent "enjoys sexual feelings" (1995). Even more expansively, the Pan American Health Organization in collaboration with the World Association for Sexology notes in its *Promotion of Sexual Health, Recommendations for Action* that a sexually healthy adult will "enjoy one's sexuality throughout life" (2001).

Aside from political (and therefore financial) impediments, the most significant barriers to public health research that investigates positive sexual health have been practical and theoretical. These two barriers are related. At the practical level, there are data collection challenges. Because the positive aspects are primarily psychological processes (latent constructs), rather than physical states, a set of multi-item scales are required to accurately measure them. Such survey instruments are time-consuming, and therefore expensive, to administer. Also, since the majority of existing scales are based on a medical model that focuses on dysfunction and distress, there is still a great deal of work that remains to be done in scale development (Edwards, 2006; Heinemann, Potthoff, Heinemann, Pauls, Ahlers & Saad, 2005; Meston & Trapnell, 2005; Symonds, Boolell, Quirk, 2005; Quirk, Heiman, Rosen, Laan, Smith & Boolell, 2002; Rosen, Brown, Heiman, Leiblum, Meston, Shabsigh, Ferguson, D'agostino, 2000; Rosen, Catania, Pollack, Althof, O'Leary & Seftel, 2004) [Footnote: The funding for the development of all but two of these scales was provided by a pharmaceutical company.] At the theoretical level, there is not yet a general consensus as to the precise nature of positive sexual health and in some quarters there is a perception that the positive aspects merely reflect the norms and values of the culture. The implication, then, is that they are luxuries, unrelated to "real" health issues. Of course, this is not the position taken by the consensus documents alluded to above. However, this understanding is not universal. For example, at a recent WHO conference, while the committee could agree on definitions of most aspects of health, sexual health remained undefined, in large part because of disagreement over whether or not to include sexual satisfaction within the construct (Ahmed, 2006). In a related set of circumstances, within the applied public health field, program planners and health practitioners have been slow to incorporate a consideration of sexual pleasure and other aspects of positive sexual health into their programs and services (Dixon- Mueller, 1993; Oriel, 2005; Higgins & Hirsch, 2007). This omission reflects the continuing ambivalence regarding the appropriateness of including such matters within the health domain.

If sexual pleasure is indeed unrelated to any other aspect of well-being, then it may be true that its location within the construct of sexual health is merely an artifact of the culture, the norms and values, of those who have written the consensus documents. However, this is not the position taken by these same consensus documents. Sexual health, and by implication, sexual pleasure as an aspect of sexual health, is repeatedly asserted to impact and be impacted by other aspects of well-being. For example, the Surgeon General's *Call to Action* begins by noting that "Sexual health is inextricably bound to both physical and mental health" (US-DHHS, 2001). Similarly, the PAHO/WAS document asserts that sexual health fosters "harmonious personal and social wellness, enriching individual and social life" (PAHO/WAS, 2001). However, our knowledge of positive sexual health's relationship with specific aspects of psychological well-being remain strikingly limited.

Conducting an empirical investigation into the validity of these supposed relationships is one

potential method for ascertaining whether or not sexual pleasure is indeed an aspect of well-being. Carol Ryff and colleagues provide such a protocol in their research into the nature of positive human health (Ryff & Singer, 1996, 1998; Ryff, Singer & Love, 2004). They suggest that to establish the construct validity of supposed components of well-being, one should hypothesize a theory that links these processes to other aspects of human health and then test these postulated connections. **In this paper we propose to test the empirical validity of the experience of sexual pleasure as an aspect of positive sexual health by examining the relationship between enjoying one's sexual experiences and experiencing psychological well-being.**

An investigation into this relationship is particularly timely in light of two trends in the public health field: the increased focus on positive psychology and positive health general and youth development in particular. Positive psychology focuses on human character, strengths, potential and fulfillment, including autonomy, positive self-regard, and loving relationships (eudaimonic well-being), as well as positive subjective experiences and the absence of negative affect (hedonic well-being) (Peterson & Seligman, 2004; Ryff & Singer, 1998; Seligman & Csikszentmihalyi, 2000) The rise of the youth development movement has brought eudaimonic well-being to the fore, focusing attention on the importance of fostering the strengths and potential of young people so that they may achieve superior well-being and contribute their talents to society. Youth development advocates, policy makers, applied practitioners and researchers commonly refer to a set of goals and desired outcomes of positive youth development as "The Five C's" (Eccles, Gootman, IOM & NAS, 2002; Roth & Brooks-Gunn, 2000). This list encompasses *confidence*, *caring*, *competence* in academic, social, and vocational arenas, *character*, and *connection*. Youth who develop these assets are presumed to experience greater well-being during the years between adolescence and adulthood. However, while we know that some kinds of risky sexual behavior and mental health problems are common during emerging adulthood, less is known about the positive sexual and psychological health of this population (Arnett, 2000; Kan & Cares, 2005)

Before examining the connections between sexual enjoyment and other constructs, however, we will first examine the distribution of these measures among different demographic groups. Past research, utilizing broad summary measures, has found that sexual satisfaction does not, for the most part, differ according to **social status**. [Footnote: Social status is a human social characteristic that is universally recognized as a basic component of self-identity, that organizes one's pattern of relationships, and that effects one's understanding of the social world, including one's sexual scripts.] The 1994 National Health and Social Life Survey (NHSLS), which examined a nationally-representative sample of adults, found no difference in the percentage of respondents who reported being extremely physically or emotionally satisfied by education level or race ethnicity, except that women without high school diplomas were less likely to be extremely emotionally satisfied (Laumann, Gagnon, Michael and Michaels, 1994, p.119-121). Similarly, it found no difference in the likelihood of consistent orgasm among these groups, except that Hispanic men were more likely to report orgasms always. Even the genders were not consistently different in reports of sexual pleasure. While 70% of men 18-24 but only 22% of women 18-24 reported always having an orgasm with their primary partner in the last year, there were no gender differences in the percentage of respondents in this age group who reported being extremely emotionally or physically satisfied. (Laumann et al., 1994, p.116) However, the NHSLS and other studies have found differences by social status in the likelihood of having engaged in different sexual activities, including oral sex (Laumann et al., 1994, p.98). It is possible that the level of enjoyment derived from these activities differs along social status lines, even though overall physical satisfaction does not. It is also possible that the distribution of orgasm regularity differs by social status, even if the percentage who report orgasms *always* does not. We will investigate these questions in the analysis of emerging adults that follows.

After this exploratory analysis, we will examine the relationship between the three aspects of sexual enjoyment (enjoyment of receiving oral sex, enjoyment of performing oral sex, and regularity of orgasm) and three aspects of eudaimonic well-being (empathic responding, feeling autonomous, and having high self-esteem) and one measure of the absence of hedonic well-being (experiencing depressive symptoms).

An investigation into the relationship of sexual pleasure with psychological well-being using measures of **enjoyment of oral sex** is particularly appropriate when the sample consists of young adults. According to report of the National Commission on Adolescent Sexual Health, adolescents are ready for

mature sexual relationships when they have met a list of 14 conditions which include being "mutually kind" to each other, and having found "pleasure in non-penetrative behaviors" (1995, p.21). It is thus appropriate that a study of sexual pleasure in young adulthood would focus on sexual enjoyment of one such activity. We know that in this country, most established heterosexual couples in their early twenties have engaged in oral sex. Among both male and female young adults in the United States who are in heterosexual relationships of three months duration or longer, 87% have received oral sex from their partner at some point and 83% have given their partner oral sex at some point (Kaestle & Halpern, 2007). This study did not examine enjoyment of oral sex, however, so we do not yet know how much they like this kind of sex, and whether such pleasure is linked to any other indicators of well-being. [Footnote: We would also like to examine enjoyment of vaginal sex. However, we are unable to do so because a faulty skip pattern in the Add Health survey instrument rendered the data for this construct unusable.] **Regularity of orgasm** is a standard measure of sexual pleasure and will be examined in this study in order to enable comparisons with past research.

Feeling personally autonomous is both a key element of eudaimonic well-being according to the Ryff and Singer formulation, and is also an aspect of the youth development goal *confidence* (Eccles, Gootman, IOM & NAS, 2002; Ryff, Singer & Love, 2004). We expect that having the strength to follow personal convictions and inclinations even if they go against conventional wisdom will be positively associated with all aspects of sexual enjoyment for women, but not associated with sexual enjoyment among young men. The reason for this is that the experience of sexual pleasure is not only produced by "the manipulation of a sequence of concentrated touch-sensitive nerve endings" but is rather the product of "the specific cultural historical situation of the individual" (Gagnon & Simon, 1987). Specifically, sexual script theory predicts that sexual interactions will be constructed, interpreted and thus experienced according to the dominant cultural stories and expectations (the "scripts") that are internalized by the participants (Simon & Gagnon, 1986). The empirical literature suggests that the scripts with the most power to affect enjoyment of sexual interaction are those that specify proper female and male attitudes and behavior. That is to say, gendered sexual scripts that celebrates men who pursue and enjoy physically sexual encounters but castigates young women who do the same has a real impact on the sexual behavior and enjoyment of young people (Marston & King, 2006; Pleck, Sonenstein & Ku, 1993; Tolman 2002; Tolman & Porche, 2000; Tolman & Szalacha, 1999) Even as the expectation that young women will tend to the sexual needs of men, and the power imbalance that places young women at a disadvantage in the sexual arena may be shifting in some strata of the United States (e.g., Giordano, Longmore & Manning, 2006), gender ideology continues to limit young women's ability to acknowledge their own desires and communicate them clearly (Blanc, 2001; Fredrickson & Roberts, 1997; Tolman & Diamond, 2001). Young women with greater autonomy, may feel more able to engage in more honest and clear communication with their partners despite the cultural pressures not to do so, and may be more likely to ask for what they want and be better able to say no to what they do not want. As a result, we expect that their enjoyment of their sexual activities will be greater. In contrast, young men are expected to enjoy sex and we therefore hypothesize that there will be no relationship between autonomy and men's enjoyment of sex. [Footnote: It is possible that highly autonomous men would be less susceptible to reporting bias, in that they would be more willing to admit if they do not conform to the masculine gender ideology and in fact do not enjoy oral sex or they have infrequent orgasms. If this is the case, then we would actually see a spurious *negative* relationship between autonomy and sexual enjoyment among men.]

Empathic responding is a key component of *caring*, one of the five goals of youth development (Eccles, Gootman, IOM & NAS, 2004). Empathy is defined as the cognitive capacity to take another's perspective, often leading to an emotional response involving congruence with another's emotional state (Chase-Lansdale, Wakschlag & Brooks-Gunn, 1995; Eisenberg & Fabes, 1990;) No study as yet has focused specifically on the relationship between empathic responding and enjoyment of sexual interactions. However, there is a substantial theoretical basis for expecting this relationship to exist.

We expect that young adults who have greater tendencies toward empathic responding will enjoy performing oral sex more than those with lesser tendencies for two related reasons. First, they will be more capable of and inclined toward sharing their partner's pleasure. Their ability to enjoy what their partner enjoys will increase their enthusiasm for giving their partner pleasure through oral sex, and this enthusiasm will in turn decrease their partner's self-consciousness and increase their partner's pleasure, thus producing a self-sustaining cycle. Supporting this theory, recent studies have linked alexithymia

(also known as disaffectation: deficiency in understanding, processing, or describing emotions) with erectile disfunction and premature ejaculation (Michetti, Rossi, Bonanno, Dominicis, Iori & Simonelli, 2007; Michetti, Rossi, Bonanno, Tiesi, and Simonelli, 2007). If men with limited understanding of their own and other's emotions experience sexual difficulties, we may also expect that men with above-average emotional intelligence would enjoy sex more than men with merely average empathic responding abilities. The second reason for expecting a positive correlation between empathic responding and liking performing oral sex rests on a more controversial supposition. Batson (1991) has theorized that motivation to help (improve the well-being) of the person for whom one feels empathy is the goal itself, rather than being an instrumental means to the goal of improving one's own well-being . According to this theory, those high in empathic responding would enjoy improving the well-being of their partner by providing oral sex not because they can take their partner's perspective (via self-other merging) and vicariously enjoy the pleasure, but because they enjoy the actual process of helping someone they love (predicated on self-other distinctiveness).

Both of these hypothesized mechanisms underlie our second expectation, namely that highly empathic people will be more likely to enjoy receiving oral sex from their partner and to have orgasms more regularly than less empathic people. This expectation arises from our characterization of the relationships we expect highly empathic people have with their sexual partners. We have already hypothesized that the partners of empathic people will be more likely have their sexual needs tended to enthusiastically. It may also be that they have their sexual needs tended to more capably. Highly empathic people might be better at intuiting their partner's sexual needs and desires over time and as they arise, both through body language and through more skillful and extensive inquiry and may thus be able to give their partners exactly the oral (and other kinds of) sex they desire. The partners of empathic people, who have been the beneficiaries of this custom-tailored sexual attention, may be more likely to feel grateful and well-cared for sexually, and thus be more enthusiastic themselves about reciprocating sexually. In addition to this, highly empathic people may be more successful in getting what they want from their partner sexually because they may be able to ask for what they want in an encouraging, non-threatening way, being as aware as they are of their partners feelings in general and responses in particular sexual situations. Finally, highly empathic people may just have higher quality relationships, because of their ability to understand their partner and their inclination to be kind to their partner in all situations, not just sexual situations. The result of all of this good will, positive feeling, and effective communication is that the empathic person would be more likely to enjoy the oral sex they receive, and more likely to have regular orgasms as a result of receiving what they want sexually from their motivated and loving partner.

One last possibility is that the enjoyment of oral sex and other kinds of sex that engender orgasms may in fact facilitate greater empathy. Empathic responding, and specifically the ability to empathize with positive feelings, is an ability and habit that develops over adolescence, and may indeed only emerge in the context of exceptionally intimate interpersonal relationships (Adams & Berzonsky, 2003). Some studies have found that those people who experience habitual hedonia are more secure and are more willing to help others (Carlson, Charlin & Miller, 1988; Hertel, Neuhof, Theuer & Kerr, 2000) Such people, including those who regularly derive great pleasure from their sex with their partners, may also have more energy available for empathic responding.

Having high self-esteem is an aspect of self-regard, one of Ryff and Singer's (1998) hypothesized elements of eudaimonic well-being, and a well-established element of good mental health (Eccles, Gootman, IOM & NAS, 2002). Self esteem is also an aspect of the youth development goal *confidence* (Roth & Brooks-Gunn, 2000).

The limited literature examining the association between self-esteem and sexual enjoyment has found a relationship, although the studies have primarily utilized small, non-representative samples (Hollar & Snizek, 1996; Nosek et al, 1993; Shackelford, 2001) One of the more rigorous studies found that among a sample of disabled women, psychological factors, including self-esteem, sexual self-image, and sense of control (and any history of abuse), explained the largest percent of the variance in sexual satisfaction (16%) after controlling for social status (which accounted for 13%). (Disability variables accounted for less than 3%) (Nosek et al, 1993) However, there have to date not been any population-based studies examining this question.

Although the empirical literature is limited, there are a number of reasons to believe that the two

constructs may be linked. The first concerns the relationship between self-esteem and specifically *sexual* autonomy. Youth with high self-esteem have been found to be less-suceptible to peer pressure (Zimmerman, Copelan, Shope & Dielman, 1997). Bisexual men with high self-esteem were more likely than bisexual men with lower self-esteem to later identify as exclusively homosexual (Stokes, Damon & McKirnan, 1997). This suggests that young adults with high self-esteem may be better equipped to speak up and act even in the face of stigma or social approbation in order to get what they want sexually. Young women with higher self esteem may be more willing to transgress the sexual script in which they focus on their partner's pleasure and the romantic relationship and downplay their own sexual desires (Tolman, 2002). Similarly, young men with higher self esteem may be better equipped to take on and admit to enjoying the less gender-normative role of sexual caretaker and provider of sexual pleasure. If this theory is correct, women with high self-esteem would be expected to experience more pleasure as indicated by all three measures, while men with high self-esteem would only have more pleasure than lower self-esteem men in performing oral sex.

Another suggested mechanism is relationship-based. Young adults with higher self-esteem may be more confident in engaging in more honest and clear communication with their partners, and may be more likely to ask for what they want and be better able to say no to what they do not want. Two studies provide support for this hypothesis. Sexual self-acceptance was related to more sexual communication among a clinical sample of adolescent girls (Tschann & Adler, 1997) In another study, self-concept was associated with communication with partner about sex, which was in turn associated with refusal of unprotected sex. (Salazar et al, 2004) Likewise, this increased communication may also enable high self-esteem young adults to negotiate with their partners for the sexual experiences that will produce heightened personal pleasure. If this theory is correct, both men and women with high self-esteem would experience more sexual pleasure as indicated by all three measures.

A third theory suggests that youth who habitually think well of themselves will be better able to navigate the transitions of the emerging adulthood life stage, including the development of established sexual relating patterns. Prior research has found links between self-enhancing evaluative processes and other kinds of psychological well-being among older women traversing significant life transitions (Kling, Ryff & Essex, 1997; Kwan, Love, Ryff & Essex, 2003). If this is the case, then the techniques used by young adults to sustain their sexual relationships may be more effective (i.e. produce more mutually pleasurable interactions) among those with high self-esteem than those with low. If this theory is correct, both men and women with high self-esteem would experience more sexual pleasure as indicated by all three measures. Since two of the three theories suggest an association among both men and women, we hypothesize that self esteem and sexual enjoyment will be positively associated for both genders.

The absence of psychological well-being, and specifically of hedonic well-being (Ryff & Singer, 1998), has often been operationalized as **depressive symptoms.** Young adults with more depressive symptoms may have more trouble communicating sexual wishes, experience lower sexual desire, and be less able to enjoy what would otherwise be pleasurable sexual interactions.

There is a well-established literature on the link between current and lifetime depression and reduced partnered sexual pleasure (e.g. Clayton, McGarvey, Clavet, & Piazza, 1997; Cyranowski, Bromberger, Youk, Matthews, Kravitz & Powell, 2004; Gitlin, 1995; Kennedy, Dickens, Eisfeld & Bagby, 1999) The relationship between emotional well-being and sexual pleasure may be particularly strong for women. For example, frequency of orgasm has been found to be linked to happiness for women but not men. In the NHSLS, the percentage of women reporting being extremely or very happy rises as orgasm frequency rises, with the exception of those in the rarely category: never 52%, rarely 39%, sometimes 51%, usually 63%, always 66%. Likewise, the percentage of women in each category who report being unhappy steadily decreases as orgasm frequency rises, after rising at the "rarely" category: never 20%, rarely 30%, sometimes 15%, usually 11%, always 9% (Laumann et al, 1994 p.358). This pattern is also seen at the other end of the hedonic well-being and sexual pleasure scales. One of the studies using NHSLS data found that women with emotional problems were much more likely to report low desire for sex, low arousal, and pain during sex (Laumann, Paik & Rosen, 1999). The only health, social status, or sexual experience variable with a larger odds ratio than that of emotional problems was urinary tract infection. In fact, the percentage of respondents reporting all sexual problems rises as the happiness level reported falls, with women more likely to report the problems but men's proportions rising faster. The one number that stands out, however, is the percentage of women who are unhappy most times who report lacking interest in sex: 76%. (Laumann et al, 1994, p.374)

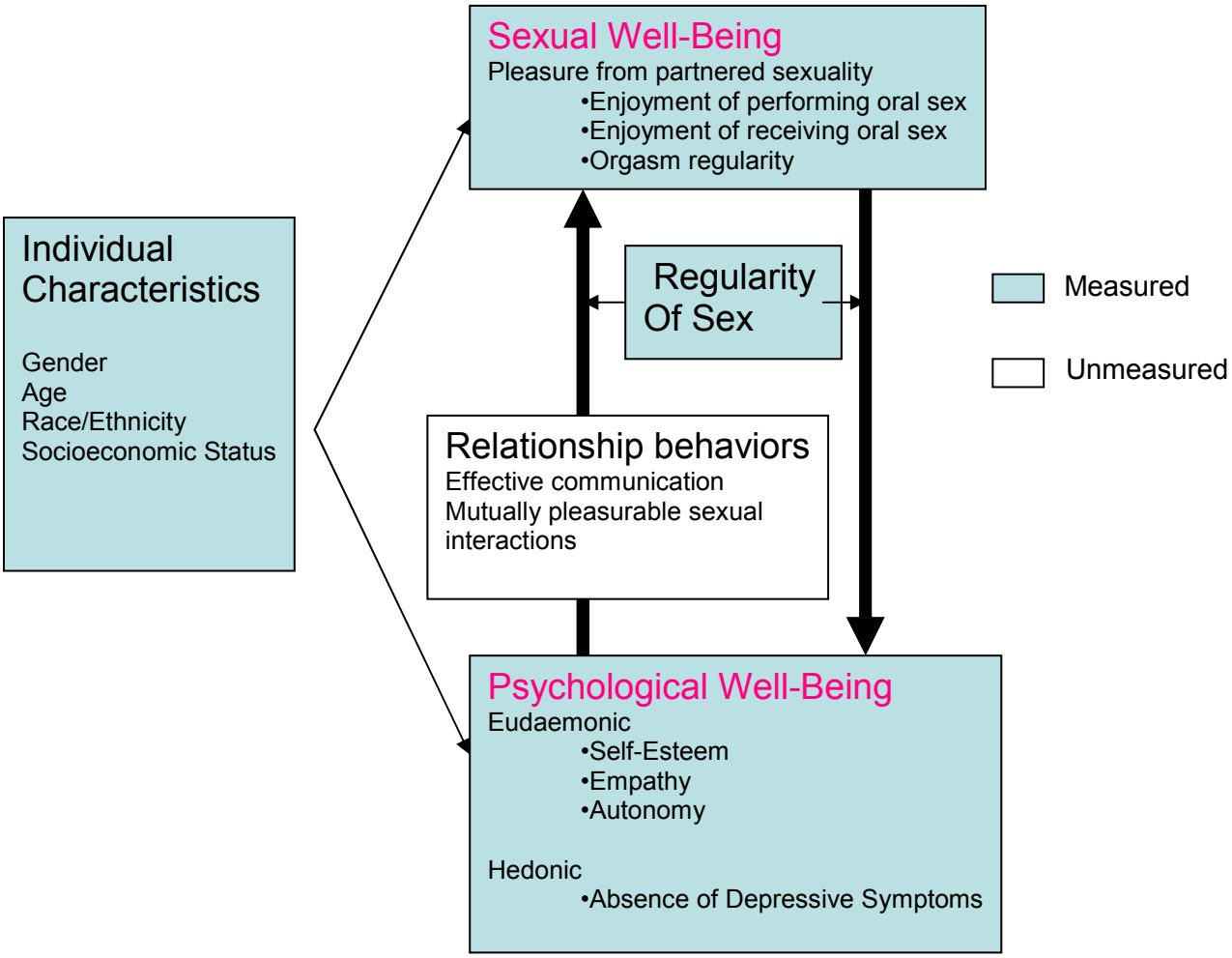
There is also evidence for bidirectional causality. In a study utilizing daily diary reports, physical

affection or partnered sexual activity on one day significantly predicted lower negative mood and stress and higher positive mood on the following day (Burleson, Trevathan, Todd, 2006). At the same time, positive mood on one day predicted more physical affection and partnered sexual activity on the next day. Notably, the sexual activity it predicted is physical affection (not necessarily associated with sex), breast stimulation, genital stimulation, and orgasm with a partner. Although the investigators did not measure enjoyment (except orgasm), presumably the link between physical affection and bodily stimulation and positive mood indicates that the affection and stimulation were enjoyable. Finally, there is evidence from several longitudinal studies that happier people are more likely to marry and have satisfying marriages than their unmarried peers with happiness levels at or near the mean (Lyubomirsky, King & Diener, 2005) One aspect of these satisfying marriages may be sexual satisfaction. Thus, as in the empathy-sexual enjoyment theory, the relationship may be cyclical. Better mood may set the stage for more enjoyable sexual experience, and that enjoyable sexual experience may in turn improve mood. We therefore hypothesize a negative relationship between depressive symptoms and sexual enjoyment for both men and women, but in line with previous research, we expect the relationship to be stronger among women than among men.

The last steps of our multivariate analysis explore the role of sexual frequency. First, if there is indeed a link between the experience of sexual pleasure and the processes of psychological well-being, we expect that relationship to be stronger among those who regularly engage in enjoyable sex than among those who enjoy sex but rarely engage in it. This dose effect would strengthen the evidence for the connection. We will test for this effect. Second, frequency of sex is often used as a proxy for enjoyment of sex. In support of this, there is some evidence of a relationship between frequency of sex and psychological well-being. For example, those who have sex 2-3 times a week are more likely to report being extremely or very happy and less likely to report being unhappy than those who have sex less frequently. (Laumann et al, 1994 p.358). However, it is not clear if sexual frequency is indeed a good indicator of sexual pleasure (or may simply be a good unto itself, contributing to greater psychological well-being) or if the relationship between sexual frequency and psychological well-being is actually merely the result of confounding. In other words, it may be that those who have sex more frequently because they enjoy it more also experience superior psychological well-being, but those who merely have sex more frequently without enjoying it more than average have average psychological well-being. This study will explore this question.

The conceptual framework for this study is shown on the next page. Demographic factors are theorized to influence both sexual and psychological well-being, and those two kinds of well-being are in turn expected to be associated with each other via bidirectional routes. Relationship quality is hypothesized to be the mediating factor, but this is not tested in this paper. However, the moderating role of regularity of sex will be tested.

Figure 1. Conceptual Framework for the Association of Sexual Pleasure with Psychological Well-Being



The aim of this study is to test the construct validity of sexual pleasure as a component of positive sexual health among emerging adults in established heterosexual dyadic relationships. Specifically, we aim to investigate whether those who experience greater sexual pleasure also experience greater psychological well-being. This study fills the gap in the literature by exploring how three particular aspects of sexual enjoyment (enjoyment of receiving oral sex, enjoyment of performing oral sex, and regularity of orgasm) and four aspects of eudaimonic well-being (empathic responding, feeling autonomous, having high self-esteem, and maintaining a high quality romantic relationship) and one measure of the absence of hedonic well-being (experiencing depressive symptoms) covary. As the first step of this process we will examine whether men and women's sexual pleasure profiles differ and will explore the distribution of the sexual pleasure measures across different demographic groups. The study tests the following hypotheses:

a. Enjoyment of both receiving and performing oral sexual intercourse and regularity of orgasm will be higher among men than among women, will be positively associated with socioeconomic status, but will not differ by race/ethnicity or age.
b. Enjoyment of oral sexual intercourse and regularity of orgasm will be positively associated with self esteem, autonomy, and empathy, and negatively associated with depressive symptoms.

c. The associations between all measures of sexual pleasure and psychological well-being will be stronger among those who have sex more regularly.
d. Frequency of oral sexual intercourse, as measured by self reports, will not be associated with self esteem, autonomy, self-esteem, or depression, once enjoyment is held constant.

Data and Sample Description

Data for these analyses come from Wave 3 of the National Longitudinal Study of Adolescent Health (Add Health). Add Health is an ongoing study of a nationally-representative cohort of youth who were in grades 7-12 in the 1994-1995 school year. Of the 20,745 students interviewed in their homes in 1994-1995 in Wave 1, 15,197 were re-interviewed during 2001 and 2002, when they were 18-26 years old, in Wave 3.

The 15,197 respondents in Wave 3 were asked to list all sexual or romantic relationships they had been in since June of 1995 (even if the relationship started earlier, and even if it was of very short duration). For each relationship listed, respondents indicated if that relationship had included sex, defined as vaginal intercourse, oral intercourse, or anal intercourse. Respondents were then asked to order their sexual relationships by date of most recent sex and to indicate if they were still in the relationship. Of the 7,468 respondents who were still in a relationship with their most recent sex partner, 493 were excluded from this study due to the nature of their relationships. Specifically, because this study focuses on the sexual health of young adults in established heterosexual partnerships, all respondents in homosexual relationships or relationships which had not lasted at least 3 months were not included. (Some of the measures of sexual and psychological well-being used in this study are not available for respondents in the excluded relationships.)

Finally, of the 6,979 respondents in established heterosexual relationships, about half, 3,488, were randomly selected to be eligible for inclusion in a special Wave III subsample. The survey instrument administered to this subsample included additional questions that probed the respondents' thoughts and feelings about themselves and their current sexual relationships.

The sample examined in this study is the 94% of the 3,488 who had complete demographic and health information and who were asked all the sexual health questions (N=3,289). Respondents who were eligible for the sample but were missing data were more likely to be male than those who were not missing data and thus included in the analysis, so the characteristics of those retained and those dropped were compared separately by sex. The excluded men are younger than the included men (no age difference among women) and the excluded women have lower educational attainment, are less likely to be currently enrolled, and have higher depressive symptoms scores and lower autonomy scores than the included women (no difference in any of these measures for men). For both men and women, those excluded are more likely to be black, less likely to have had oral sex, and have lower empathic responding scores. Although these differences are statistically significant, most are very small in magnitude. There were no differences in employment status, self esteem, sexual frequency, or any of the sexual pleasure measures.

In all three waves, with few exceptions, the interview took place in the respondent's home. For less sensitive questions, the interviewer read the question aloud and entered the respondent's answer into a laptop computer. For more sensitive topics, the respondent listened through earphones to pre-recorded questions and entered the answers directly into the computer. In Wave III, all of the questions in sections 16-29 (including all questions related to sexual experiences) were administered via ACASI (Add Health, 2007; Joyce Tabor, Personal communication, March 2 2007). Before the ACASI segment began, the respondent was shown the function keys that corresponded to the answers "don't know", "refuse" and "not applicable". These responses were not read aloud during the other sections of the interview, but respondents were informed during the consent procedure that they could skip any question that they did not want to answer.

We retain in the sample those respondents who answered Refuse, Don't Know, or Not Applicable to any of the sex-related items. The majority of these were refusals (66-80%, depending on the item) and most of the rest answered "don't know". A tiny minority answer "not applicable". [Footnote: Among both men and women, the measure with the most non-response is performing oral sex (2.6% (N=42) men and 4.0% (N=85) of the women), then receiving oral sex (2.2% (N=38) of the men and 4.2% (N=93)of the women), then orgasm (1.6% (N=30) of the men and 2.6% (N=72) of the women). For both types of oral sex, most of these are refusals to answer whether or not the respondent had had that kind of sex with their partner. Most respondents who gave non-responses for receiving oral sex gave non-responses for performing oral sex, and everyone who gave a non-response for orgasm also did so for performing oral sex.]

Respondents who refuse to answer questions may do so because the question provokes anxiety or requires high cognitive effort, while respondents who respond "don't know" are more likely to just be challenged by the cognitive effort required by the question (Shoemaker, Eichholz & Skewes, 2000). Of

course respondents may also answer don't know or may refuse as a result of self-presentation concerns (privacy, social norm violation) unrelated to their private attitudes or feelings about the topic. They may also merely lack interest in the topic (Groves, Presser & Dipko, 2004). However, we predict that embarrassment, reluctance or difficulty in providing informative answers, derives from a discomfort with the activity, and that those who are not interested in the topic also do not particularly enjoy the activity and thus all such respondents derive lower levels of pleasure from the activity. We will test this hypothesis by examining how these respondents' scores on the psychological well-being measures compare to those who chose one of the substantive answers.

[Footnote: Preliminary support for this hypothesis is seen in the predictors of non-response. Women, who generally report lower levels of sexual pleasure, are more likely than men to give a non-response to the like-receiving and the had-performing questions (OR=9.5, 95% CI 2.3, 40.0; OR=1.6, 95% CI: 1.0, 2.3). The estimates of the odds of their giving non-responses to the other sex-related questions, compared to the odds of men doing so, are also greater than 1, though they do not reach statistical significance. Also, those who the interviewer said "ever appeared embarrassed about answering questions during the interview" (h3ir12) were more likely to give a non-response to the questions regarding whether or not they had ever had either kind of oral sex (OR=3.6, 95% CI 2.0, 6.5; OR=3.8, 95% CI: 2.2, 6.5). There were no statistically significant differences in their likelihood of giving non-responses for the like questions or the orgasm questions, though all the odds ratios were greater than one.]

We also retain in the sample those who have never had oral sex with their partner because we are interested in the entire population, not merely those who have had a particular kind of sex. Specifically, we are interested in how those who do not follow the standard sexual script among young adults in established relationships, and refrain from oral sex, differ from those who follow the script. What we cannot test directly, unfortunately, is how they feel about the sex they are not having, since this question was not asked. We do not know if they are relieved to be able to avoid having it, or if they are disappointed and frustrated. They may be enjoying the pleasure of the reprieve from an unwanted activity, or they may be suffering the unpleasant feelings of deprivation or rejection. However, using the patterns in responses among those who did have oral sex, we have developed hypotheses regarding how these respondents will differ from the others. We predict that because young men overwhelming say that that they like receiving oral sex, that young men who are not having it will have higher depressive symptoms, lower autonomy and lower self-esteem than young men who are. In contrast, since there is higher variance in the degree of liking of receiving oral sex among young women, we predict that we will not see any such relationship among women, since the higher well-being scores of those who are confidently speaking up to avoid something they dislike and the lower well-being scores of those who are too scared to ask for the sex they want will cancel each other out. For performing oral sex, since there is wide variance for both genders in reported liking, we expect that there will be no difference in psychological well-being for both genders.

Measures

Sexual Pleasure

Sexual pleasure from partnered sexual activities is measured using two conceptual approaches. The first takes advantage of a unique set of questions included in the Add Health Wave III survey instrument. For each type of sexual intercourse that the respondent reported engaging in with his or her partner (vaginal, oral-receptive, oral-performing, and anal), the respondent was asked how much he or she liked the experience. The answer options were like very much, like somewhat, neither like nor dislike, dislike somewhat, and dislike very much. As noted earlier, due to an error in the data collection for the vaginal sex item and due to the low prevalence of anal sex (only 22% had ever had it with this partner), only the two enjoyment items related to oral sex are examined. We also created categories for those who had never had the given kind of oral sex and those who were missing data on how much they liked it. Of the respondents who are missing values for the like questions, nearly all are missing because they refused to answer whether or not they'd had the kind of sex and thus were not asked the question (70-94%) or because they refused to answer the like question (0-20% depending on the gender and the question).

The second approach is more quantitative and focuses on orgasm within the context of partnered sexual activity. Respondents were asked "When you and your partner have sexual relations, how often do you have an orgasm?" The answer options were most of the time/every time, more than half the time, about half the time, less than half the time, and never/hardly ever.

Sexual Frequency

Respondents were also asked how frequently they engaged in each kind of sex that they reported participating in with their partner. They could give their answer in terms of times a day, times a week, times a month, or times a year. For purposes of analysis, all frequencies were converted to integers representing times per week. Respondents who reported frequencies greater than or equal to six times per week were coded as 6 (very few respondents reported frequencies of six times per week (less than 1%) or more than seven (less than 2%), but many reported daily sex). Using these measures, we construct a measure of maximum frequency of sex, as well as the frequency of sex during which the respondent has an orgasm, as described in the previous paragraph.

We also use the basic frequency measures to derive a measure of the relative frequency of oral sex as compared to vaginal sex. Table 3 shows, that nearly all respondents have oral sex either more frequently, as frequently, or much less frequently than vaginal sex. Less than 5% of the sample has either receiving or performing oral sex 75-99% as frequently as vaginal sex. In other words, there is a clear cut-point between those for whom oral sex is as frequent or more frequent than vaginal sex (about 30% of the sample) and those for whom it occurs much less frequently than vaginal sex (about 65% of the sample). We therefore create a binary indicator for regularly receiving oral sex and one for regularly performing oral sex, both of which are set to one if the respondent has that kind of sex as frequently or more frequently than vaginal sex, and set to zero otherwise.

Psychological Well-Being

Three aspects of psychological well-being are examined in this study: empathy, autonomy and self-esteem. The empathy and autonomy scales are both comprised of four items. Each item is preceded, in the survey instrument, by the introduction, "How often is each of the following statements true of you?" The empathy items are: I am sympathetic, I am sensitive to the needs of others, I am understanding, and I am compassionate (Cronbach alpha=0.86). The autonomy items are: I defend my own beliefs, I am independent, I am willing to take a stand, I am assertive (Cronbach alpha=0.70) . The answer options for all eight items are Never or almost true, Usually not true, Sometimes but infrequently true, Occasionally true, Often true, Usually true, and Always or almost always true. These items are taken from the Bem Sex Role Inventory instrument (Bem, 1974). We developed the scales using a conceptually-driven item selection process, followed by a factor analysis.

Self-Esteem is measured using items which are similar to those found in Rosenberg's Self-Esteem Scale (Rosenberg, 1965). Respondents were asked if they agreed or disagreed with the following statements: You have many good qualities, You have a lot to be proud of, You like yourself just the way you are, You feel you are doing things just about right. The answer options were Strongly agree, Agree,

Neither agree nor disagree, Disagree, Strongly disagree. The scale formed from the mean of these items has acceptable internal consistency (Cronbach alpha=0.78) and has been used in previous studies utilizing the Add Health data (e.g. Daniels & Leaper, 2006; Galliher, Rostosky & Hughes, 2004).

In addition to these positive measures, we also examine a more traditional measure of the absence of well-being, namely depressive symptoms. The depressive symptoms scale is composed of nine items which are taken from the Center for Epidemiological Studies Depression Scale (Radloff, 1977). Respondents were asked, "How often was each of the following things true during the past seven days?" about the following nine items: You were bothered by things that usually don't bother you. You could not shake off the blues, even with help from your family and friends. You felt that you were just as good as other people. You had trouble keeping your mind on what you were doing. You were depressed. You were too tired to do things. You enjoyed life. You were sad. You felt that people disliked you. Answer options were "Never or rarely", "Sometimes", "A lot of the time", "Most of the time". The scale formed from the sum of these items has good internal consistency " (Cronbach alpha=0.80) and has been used in previous studies utilizing the Add Health data (e.g. Paschall, Freisthler & Lipton, 2005).

Demographic Characteristics

The multivariate analyses control for age, race-ethnicity, and socioeconomic status (SES). Age is measured in years and is centered. Race/ethnicity is categorized as Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Asian, Non-Hispanic Native American, and Hispanic. SES is measured by partitioning respondents into groups according to their educational attainment, employment status, and whether or not they are currently attending college. Rather than entering the youth's educational attainment and school-work status into the models separately, a single variable was created to represent all three highly-correlated statuses at once. The categories are No high school diploma or GED; High school diploma/GED and not in school; HS/GED and in school or some college and not in school or some college and in school and working more than 20 hours a week; Some college and in school and less than or equal to 20 hours a week or obtained a college degree. The measure is highly correlated with maternal education and Wave I family income (See Chapter 2 for more information).

Table 1. Characteristics of the Sample, by Gender†

	Male	Female	Total
Age (mean)* **	22.2	21.8	22.0
Age			
18	0.1	0.4	0.3
19	8.0	12.7	10.7
20	12.0	16	14.2
21	14.4	14.2	14.3
22	16.6	19.8	18.4
23	19.0	15.3	16.9
24	22.4	16.1	18.8
25	6.4	4.8	5.5
26	0.8	0.3	0.5
27	0.3	0.3	0.3
Race/Ethnicity*			
White, Non-Hispanic	71.6	70.7	71.1
Black, Non-Hispanic	11.2	14.8	13.3
Native American, Non-Hispanic	0.7	0.5	0.6
Asian, Non-Hispanic	3.3	3.6	3.4
Hispanic	13.2	10.5	11.6
SES*			
Low (< High School)	11.6	8.9	10.1
Medium-Low (High school diploma/GED and not in school)	35.0	30.6	32.5
Medium-High (High school diploma/GED and in school OR Attended some college and not in school OR Attended some college and in school and working >20 hours a week)	29.4	32.1	30.9
High (Attended some college and in school and working <= 20 hours a week OR College degree)	23.9	28.4	26.5
Ever had oral-receiving sex	87.2	87.1	87.2
Ever had oral-performing sex	84.7	84.1	84.3
N	1,343	1,946	3,289

†Sample sizes are not weighted, but percentages are weighted

Legend: Men and women differ (chi-squared is significant) at the following level: * p<0.05 ** p<0.01 *** p<0.001

Weighted sample characteristics are shown in Table 1. At Wave III, the mean age for both men and women is about 22. More than 98% of the sample is between the ages of 19 and 25. The women in the sample are slightly younger than the men, slightly more likely to be Black, and have somewhat higher socioeconomic status. Overall, the sample is predominantly White (71.1%), though a substantial minority is Black (13.3%) or Hispanic (11.6%). A little less than a third of the sample is in the medium-low SES group (32.5%) and the same fraction is in the Medium-High group (30.9%), with the remaining third split between the lowest (10.1%) and highest (26.5%) groups. There are no significant differences between men and women in their likelihood of having performed or received oral sex with their partner. More than 80% of both men and women have had either oral receiving or oral performing sex with their partners. (A slightly smaller percentage, 79%, have had both kinds of sex with their partner and 11% have had neither (not shown).)

Analyses

The analysis is composed of five sections. All analyses will be conducted separately for men and women, both because theory predicts that the associations will differ by gender (e.g. Fredrickson & Roberts, 1997) and also because preliminary analysis revealed that the distributions of the sexual pleasure measures differ substantially along gender lines. First, we calculate descriptive statistics summarizing the oral sexual pleasure, oral sexual frequency, and psychological well-being variables and examine the distribution of the sexual pleasure measures among different demographic groups. Second, we present the bivariate associations between the pleasure measures, the sexual frequency measures and the psychological well-being measures. Third, we estimate multiple regression models with dummy variables in order to examine the differences in psychological well-being between those with differing levels of sexual pleasure, adjusting for age, race/ethnicity, and socioeconomic status. Fourth, we test for evidence of effect modification by regularity of oral sex by adding the indicator of regular oral sex (as frequent or more frequent than vaginal sex) and a pleasure-regular-oral-sex interaction term to the models. If there is indeed a link between the experience of sexual pleasure and the processes of psychological well-being, we expect that relationship to be stronger among those who regularly engage in oral sex than among those who rarely engage in it. Fifth and finally, we estimate multiple regression models with dummy variables for frequency of sex to explore the differences in psychological well-being between those with differing levels of sexual frequency, adjusting for age, race/ethnicity, and socioeconomic status, and then controlling for sexual enjoyment. Frequency of sex is often used as a proxy for enjoyment of sex. However, it is not clear if sexual frequency is indeed a good indicator of sexual pleasure or if the relationship between sexual frequency and psychological well-being is actually merely the result of confounding. We will explore this question via this last set of analyses.

All analyses are adjusted for the complex sampling design, specifically clustered data collected with unequal probability of selection (Chantala, 2006). All analyses were conducted using Stata, version 9 (Stata Corp, 2007).

Results

The distributions of the sexual pleasure variables are shown in Table 2. Nearly all respondents report liking receiving oral sex somewhat or very much, but there is more variation in respondent report of liking performing oral sex. Among those who have received oral sex, 84.2% of men like it very much and 71.2% of women like it very much and only 2% of men and 7.8% of women who have it report neither liking nor disliking it, disliking it somewhat, or disliking it very much. In contrast, only 62.1% of men who have performed oral sex with their partner report liking it very much while 12.1% of such men endorsed neither like nor dislike, dislike somewhat, or dislike very much. Similarly, only 36.7% of women who have performed oral sex like it very much but 27.3% of these women endorsed neither like nor dislike, dislike somewhat, or dislike very much. Of course, while both men and women are less likely to report liking performing oral sex very much, men are more likely to do so than women ($F(1,128)=67.08$, $p<0.0001$). As a sensitivity check, we examined these distributions in the entire sample of respondents currently in a relationship with their most recent opposite-sex sexual partner, and found nearly identical distributions.

The largest gap between men and women is in regularity of orgasm. The distribution of this measure is also negatively skewed for both men and women, but men are far likelier than women to report having orgasms most or all of the time (85.6% vs 45.4%, $F(1,128)=396.56$, $p<0.0001$) and less likely to report never having orgasms (1.1% vs. 6.3%, $F(1,128)=48.49$, $p<0.0001$).

The means, medians, and standard deviations of the psychological well-being scores are also shown in Table 2. As expected, female respondents scored higher than male respondents, on average, on empathy and depressive symptoms, and lower on self-esteem. The mean empathy score among men is 5.5, while among women it is 6.0 ($F(1,128)=115.39$, $p<0.0001$). The mean self esteem score among men is 4.3 while among women it is 4.2 ($F(1,128)=23.10$, $p<0.0001$). Finally, the mean depressive symptoms score among men is 3.8 while among women it is 4.7 ($F(1,128)=22.08$, $p<0.0001$) There was no difference in autonomy scores.

Although women report enjoying sex less than men, they report that they are having it about as frequently. As shown in Table 3, women report a mean of 1.5 days per week of both receiving and performing oral sex while men report a mean of 1.8 days per week, $F(1,128)=9.34$, $p=0.0027$. There is also agreement between men and women in their reports of the relative frequency of oral sex compared

to vaginal sex. About 30% of both men and women perform and receive oral sex either as frequently or more frequently than vaginal sex, while for about 65% their frequency of oral sex is less than 75% of their frequency of vaginal sex. For only about 5% is their oral sex frequency between 75% and 99% of their vaginal sex frequency.

Table 2. Sexual Pleasure and Psychological Well-Being, by Gender

Receiving Oral Sex, Enjoyment	Male		Female		Total	
		Had Sex, Not Missing		Had Sex, Not Missing		Had Sex, Not Missing
Like it very much***	71.8	84.2	59.3	71.2	64.7	76.9
Like it somewhat***	11.8	13.8	17.4	20.9	15.0	17.8
Neither like it nor dislike it***	1.6	1.8	4.2	5.1	3.1	3.7
Dislike it somewhat***	0.1	0.1	1.8	2.1	1.0	1.2
Dislike it very much**	0.1	0.1	0.5	0.6	0.3	0.4
Never Received Oral Sex	12.5		12.6		12.5	
*Missing**	2.2		4.2		3.3	
Performing Oral Sex, Enjoyment						
		Had Sex, Not Missing		Had Sex, Not Missing		Had Sex, Not Missing
Like it very much***	51.1	62.1	29.5	36.7	38.9	47.8
Like it somewhat***	21.2	25.8	29.8	37.0	26.1	32.1
Neither like it nor dislike it***	7.0	8.5	13.4	16.6	10.6	13.1
Dislike it somewhat***	2.0	2.5	5.8	7.2	4.2	5.1
Dislike it very much	0.9	1.1	2.0	2.5	1.5	1.9
Never Performed Oral Sex	15.0		15.4		15.2	
Missing	2.6		4.0		3.4	
Regularity of Orgasm						
Most or all of the time***	85.6		45.4		62.8	
More than half the time***	7.2		20.3		14.6	
Half the time***	2.9		16.6		10.7	
Less than half the time***	1.5		8.9		5.7	
Never or almost never***	1.1		6.3		4.0	
Missing	1.6		2.6		2.2	
Psychological Well-Being						
Mean (SD)						
Autonomy (Range: 1-7)	5.4 (1.7)		5.5 (1.4)		5.5 (1.1)	
Empathy (Range: 1-7)***	5.5 (1.8)		6.0 (1.4)		5.8 (1.1)	
Self-Esteem (Range: 1-5)***	4.3 (0.93)		4.2 (0.78)		4.2 (0.6)	
Depressive Symptoms (Range: 0-25)***	3.8 (6.0)		4.8 (6.0)		4.3 (4.3)	
N	1,343		1,946		3,289	

Legend: Differences between male and female proportions significant at the following levels * p<0.05 ** p<0.01 *** p<0.001

Table 3. Sexual Frequency, by Gender

	Male	Female	Total
Frequency of Receiving Oral Sex: **			
Median in times per week	1	0.93	0.93
Mean in times per week (SD)	1.8 (3.2)	1.5 (2.5)	1.7 (3.3)
Less than once a month	30.8	33.2	32.2
Less than once every two weeks	9.2	11.4	10.4
Less than once a week	6.6	8.3	7.6
Once a week	16.0	15.8	15.9
Twice a week	11.2	10.8	10.9
Three times a week	8.9	8.1	8.5
Four times a week	4.1	3.6	3.8
Five times a week	4.2	2.9	3.5
Six or more times a week	8.9	6.0	7.3
Frequency of Performing Oral Sex: **			
Median in times per week	1	1	1
Mean in times per week (SD)	1.8 (3)	1.5 (2.4)	1.7 (3.1)
Less than once a month	27.4	28.6	28.1
Less than once every two weeks	7.6	10.3	9.1
Less than once a week	7.1	10.3	8.9
Once a week	16.5	16.8	16.7
Twice a week	13.3	13.5	13.4
Three times a week	10.7	9.0	9.8
Four times a week	6.1	3.6	4.7
Five times a week	4.3	2.4	3.2
Six or more times a week	6.9	5.6	6.1
Frequency of Receiving Oral Sex as % of Frequency of Vaginal Sex			
0-24%	39.7	43.1	41.6
25-49%	12.6	14.6	13.7
50-74%	14	12	12.8
75-99%	3.4	2.7	3
100+%	30.3	27.6	28.8
Frequency of Performing Oral Sex as % of Frequency of Vaginal Sex			
0-24%	34.8	39.4	37.4
25-49%	11.2	16.5	14.2
50-74%	17.2	13.1	14.9
75-99%	4.9	2.5	3.5
100+%	31.8	28.5	29.9

Legend: Differences between male and female proportions significant at the following levels * p<0.05 ** p<0.01 *** p<0.001

Results, continued

In addition to comparing the sexual pleasure measures across gender, we also compared them across social statuses, i.e. race/ethnicity and SES. The results from these exploratory analyses are shown in Tables 4 and 5.

We find that although there are differences in the likelihood of having had sex by race/ethnicity and SES, there are no such pattern of differences in the responses men and women give to the question of how much they like each kind of sex. Examining first the prevalence of oral sex, we see that among both men and women, black respondents were less likely to report having had both kinds of sex than whites. Hispanic women and men are also less likely than white women and men to report having

performed oral sex, but only Hispanic women (but not men) were less likely than their white counterparts to report having received oral sex. Ninety two percent of white women received oral sex, while only 65% of black women ($F(1,128)=40.7$, $p<0.0001$) and 81% of Hispanic women ($F(1,128)=9.72$, $p=0.0023$) did so. Similarly, 91% of white women performed oral sex but only 53% of black women and 78% of Hispanic women did so. Among men, 89% of white respondents received oral sex, but only 72% of black respondents did the same ($F(1,128)=8.69$, $p=0.0038$). Eighty eight percent of white men performed oral sex but only 69% of black men ($F(1,128)=11.45$, $p=0.001$) and 79% of Hispanic men ($F(1,128)=6.05$, $p=0.0152$) did the same. There were no differences in the percentage of Asians who reported having had either kind of sex, compared to the percentage of whites. (The estimates of the differences between Whites and Native Americans may not be stable, since the sample size for Native Americans is so small.)

In contrast to these race/ethnicity differences in the likelihood of having had both kinds of oral sex, there is no such pattern of differences in enjoyment of oral sex. The one difference is that Asian women are less likely than white women to report liking receiving oral sex very much (51% vs. 71.5%, $F(1,128)=4.44$, $p=0.037$). There are no differences between race/ethnicity groups, among men, in enjoyment of either kind of oral sex. To check whether these null findings are only an artifact of reduced sample size, we calculated these values a second time, using the entire sample of respondents currently in a relationship with their most recent opposite-sex sexual partner. (The like questions were asked of all respondents in sexual relationships, whether or not they were randomly selected for the longer survey-instrument sub-sample). In this larger sample, Black men were less likely to report liking to receive oral sex very much, compared to White men (75.8% vs. 84%, $F(1,128)=5.83$, $p=0.0172$) and were marginally less likely to report liking performing oral sex very much, compared to White men (51.5% vs 62.9%, $F(1,128)=3.18$, $p=0.0770$) (not shown in a table). There were still no differences among women, and the only difference, between Asian women and White women, disappeared.

The same picture emerges when we examine these distributions among SES groups, though here the null findings for the enjoyment measure stands in sharp contrast to a strong, consistent pattern in the likelihood of having had oral sex. The percentage of both men and women who have performed oral sex increases as SES increases, from 72.3% of men in the lowest SES group to 91.7% of men in the highest SES group, and from 60.8% of women in the lowest SES group to 91% in the highest SES group. Similarly, the percentage of both women who have received oral sex increases as SES increases, from 71.3% of women in the lowest SES group to 90.6% of women in the highest SES group. The one exception is among men, in that only the highest SES group of men differs from the lowest SES group of men in percentage who have received oral sex (82.8% vs. 92.1%, $F(1,128)=4.7$, $p=0.03$). In contrast to this strong pattern, however there are virtually no differences between SES categories in enjoyment of oral sex. To check whether these null findings are only an artifact of reduced sample size, we calculated these values a second time, using the entire sample of respondents currently in a relationship with their most recent opposite-sex sexual partner. In this sample we found a clear difference between men and women in the lowest SES group and those in all other groups, in terms of liking receiving oral sex very much, and between the men in the highest SES group and all other groups in terms of liking performing oral sex very much. Specifically, there was almost no variation between the top three groups in percentage who like receiving oral sex very much, and between the bottom three groups in percentage who like performing oral sex very much, for both men and women. Thus, these three categories were collapsed and the percentage compared to the fourth group. Among women, the differences were not significant. However, men in the top SES group, compared to all other men, were less likely to report liking performing oral sex very much (53.3% vs 62.1%, $F(1,128)=6.53$, $p=0.0118$) and men in the bottom SES group, compared to all other men, were more likely to report liking receiving oral sex very much (87.6% vs. 82.0%, $F(1,128)=4.71$, $p=0.0318$).

There are no differences in regularity of orgasm by race/ethnicity or SES, except that Hispanic men are less likely than other men to report always having orgasms (73.5% vs. 87.4%, $F(1,128)=12.06$, $p=0.0007$) (not shown).

Table 4. Percentage had oral sex, like oral sex very much, and dislike oral sex or dislike it very much, by Gender and Race/Ethnicity

	Men					Women				
Receiving Oral Sex										
	White	**Black**	**Native American**	**Asian**	**Hispanic**	**White**	**Black**	**Native American**	**Asian**	**Hispanic**
Had it	89.6	72.2**	100.0***	91.8	84.6	92.2	65.0***	68.0~	91.4	81.8**
Like it very much	84.4	83.4	92.6	87.0	82.2	71.5	77.9	39.6	51.0*	70.7
Dislike it (very much)	0.2	0.0	0.0	0.0	0.1	2.4	3.8	0.0***	7.2	3.3
Performing Oral Sex										
	White	**Black**	**Native American**	**Asian**	**Hispanic**	**White**	**Black**	**Native American**	**Asian**	**Hispanic**
Had it	88.0	69.1**	77.3	86.3	79.2*	90.9	53.1***	68.1	90.1	78.3**
Like it very much	63.5	48.7	46.0***	55.2	65.9	37.0	31.3	9.7**	26.4	44.5
Dislike it (very much)	2.9	7.4	0.0**	1.7	5.7	9.7	9.7	32.4	9.9	8.2

Legend: Differences between White and other race/ethnicity proportions significant at the following levels:
~ p<0.1 * p<0.05 ** p<0.01 *** p<0.001

Table 5. Percentage had oral sex, like oral sex very much, and dislike oral sex or dislike it very much, by Gender and SES

	Men				Women			
Receiving Oral Sex								
	Low SES	**Medium-Low SES**	**Medium-High SES**	**High SES**	**Low SES**	**Medium-Low SES**	**Medium-High SES**	**High SES**
Had it	82.8	84.3	88.5	92.1*	71.3	86.4**	89.1***	90.6***
Like it very much	84.2	83.3	88.4	80.5	75.9	71.0	71.7	69.8
Dislike it (very much)	0.0	0.0	0.3	0.2	2.5	4.1	2.9	1.4
Performing Oral Sex								
	Low SES	**Medium-Low SES**	**Medium-High SES**	**High SES**	**Low SES**	**Medium-Low SES**	**Medium-High SES**	**High SES**
Had it	72.3	82.2~	86.9**	91.7***	60.8	81.0***	87.2***	91.0***
Like it very much	67.4	63.3	65.6	54.5~	47.1	36.6	31.3*	40.3
Dislike it (very much)	3.2	2.8	1.6	7.1	7.6	11.4	10.1	8.1

Legend: Differences between Low and other SES group proportions significant at the following levels:
~ p<0.1 * p<0.05 ** p<0.01 *** p<0.001

Results, Continued

Before conducting the multivariate we analysis, we explored the bivariate relationships between the key measures for preliminary evidence of association. The results are shown in Tables 6, 7, and 8. Table 6 shows the mean psychological well-being scores for each sexual pleasure and gender category. The categories for the enjoyment of oral sex measures are collapsed to ensure sufficient cell size. These statistics exhibit a pattern that does not contradict the hypothesis that psychological well-being and sexual pleasure co-vary. For both men and women, as reported pleasure decreases, mean autonomy, empathy, and self-esteem scores tend also to decrease, while mean depressive symptoms scores tend to increase. In general, the largest differences in mean psychological well-being score are between the high-pleasure category and the other categories. As hypothesized, there is also a pattern in the scores of those who are missing data on sexual enjoyment or who have not had the given kind of sex. The mean autonomy and empathy scores of respondents who are missing these data or who have never received oral sex or performed oral sex tend to be in or below the range of those with complete data who have had the relevant kind of oral sex and neither like nor dislike it or who dislike it, or who have complete data but report the lowest frequency of orgasm.

We next examined the bivariate relationship between sexual enjoyment and psychological well-being just among those with complete data (i.e., those who had had the kind of sex and had reported how much they liked it/their orgasm frequency). As shown in table 7, the Spearman rank correlation coefficients have signs consistent with the hypotheses and all but two are significant at the $p<0.05$ level. Among men, the correlations between liking oral sex and the psychological health measures are small but significant, with the exception of the correlation between liking performing oral sex and autonomy, which is not significant, and the correlation between liking performing oral sex and self-esteem, which is moderate ($r=0.11$, $p=0.0003$). Among women, the correlations between liking oral sex and the psychological health measures are all small to moderate and significant at the $p<0.05$ level. For both men and women, the correlations between orgasm regularity and the psychological health measures are all moderate and significant at the $p<0.01$ level, with a particularly large correlation between orgasm regularity and autonomy, $r=0.18$, $p<0.0001$.

In contrast to these strong and consistently significant correlations, the correlations between sexual frequency and psychological well-being are smaller and rarely significant (Table 8). Furthermore, among those who report liking sex very much, we found no relationship between sexual frequency and psychological well-being for either men or women.

Table 6. Mean psychological well-being scores, by sexual pleasure and gender

	Men				Women			
	Autonomy	Empathy	Self-Esteem	Depression	Autonomy	Empathy	Self-Esteem	Depression
Receiving Oral Sex, Enjoyment								
Like Very	5.51	5.55	4.33	3.53	5.56	6.08	4.19	4.42
Like Somewhat	5.38	5.42	4.19	4.4	5.45	5.99	4.13	4.79
Neither (Women) or Neither/Dislike/ Dislike Very (Men)	5.33	5.19	4.24	6.01	5.48	5.83	3.97	6.74
Dislike/Dislike Very (Women)					5.49	5.62	3.88	6.45
Never Had It	5.17	5.32	4.29	3.78	5.39	5.72	4.28	4.8
Missing	5.13	4.55	3.93	6.5	5.18	5.84	4.19	5.85
Performing Oral Sex, Enjoyment								
Like Very	5.5	5.62	4.35	3.52	5.61	6.15	4.23	4.48
Like Somewhat	5.47	5.52	4.25	4.04	5.48	6	4.12	4.18
Neither	5.56	5.37	4.19	3.71	5.48	5.95	4.11	5.53
Dislike (Women) or Dislike/Dislike Very (Men)	5.52	5.2	4.15	4.46	5.39	6.09	4.06	4.97
Dislike Very (Women)					5.31	5.94	3.97	6.18
Never Had It	5.12	5.13	4.31	3.73	5.45	5.7	4.25	5.27
Missing	5.34	4.93	3.98	6.27	5.25	5.86	4.26	4.91
Orgasm Regularity with this Partner								
Most or all of the time	5.52	5.55	4.3	3.65	5.68	6.13	4.22	4.33
More than half the time	5.38	5.49	4.29	4.06	5.47	6.04	4.17	4.35
Half the time	4.51	4.96	4.21	5.17	5.31	5.78	4.15	5.15
Less than half the time	4.58	5.11	4.11	5.24	5.26	5.83	4.04	6.48
Never or almost never	4.26	4.47	4.22	4.27	5.31	5.79	4.09	4.81
Missing	4.89	4.43	3.35	4.48	5.11	5.65	4.18	5.37

Table 7. Correlations Between Sexual Pleasure and Psychological Well-Being Measures, by Gender

	Correlations between Sexual Pleasure and Psychological Well-Being Measures, by Gender					
	Men			Women		
	Receiving Oral Sex, Enjoyment	Performing Oral Sex, Enjoyment	Orgasm Regularity	Receiving Oral Sex, Enjoyment	Performing Oral Sex, Enjoyment	Orgasm Regularity
Autonomy	0.07	0.03	0.18	0.08	0.09	0.18
	(0.03)	(0.35)	(<0.0001)	(0.009)	(0.004)	(<0.0001)
Empathy	0.07	0.07	0.13	0.10	0.11	0.15
	(0.02)	(0.03)	(<0.0001)	(0.0008)	(<0.0001)	(<0.0001)
Self-Esteem	0.06	0.11	0.08	0.09	0.12	0.10
	(0.03)	(0.0003)	(0.0061)	(0.0004)	(<0.0001)	(<0.0001)
Depressive	-0.07	-0.08	-0.12	-0.07	-0.06	0.12
Symptoms	(0.01)	(0.006)	(<0.0001)	(0.0067)	(0.09)	(<0.0001)

Legend: rho (p)
Estimates are unadjusted

Table 8. Correlations Between Sexual Frequency and Psychological Well-Being Measures, by Gender

	Correlations between Sexual Frequency and Psychological Well-Being Measures, by Gender			
	Men		Women	
	Receiving Oral Sex, Frequency	Performing Oral Sex, Frequency	Receiving Oral Sex, Frequency	Performing Oral Sex, Frequency
Autonomy	0.01	0.04	0.06	0.02
	(0.63)	(0.24)	(0.02)	(0.36)
Empathy	-0.03	0.02	0.06	0.06
	(0.29)	(0.58)	(0.01)	(0.03)
Self-Esteem	0.02	0.07	0.08	0.04
	(0.49)	(0.04)	(0.0012)	(0.10)
Depressive Symptoms	-0.01	-0.07	-0.01	-0.004
	(0.71)	(0.03)	(0.64)	(0.87)
	Correlations between Sexual Frequency and Psychological Well-Being Measures, Among Those Who Report Liking that Type of Sex Very Much, by Gender			
	Men		Women	
	Receiving Oral Sex, Frequency	Performing Oral Sex, Frequency	Receiving Oral Sex, Frequency	Performing Oral Sex, Frequency
Autonomy	ns	ns	ns	ns
Empathy	ns	ns	ns	ns
Self-Esteem	ns	ns	ns	ns
Depressive Symptoms	ns	ns	ns	ns

Legend: rho (p)
Estimates are unadjusted

Results, Continued

To investigate whether the bivariate relationship between sexual enjoyment and psychological well-being measures holds even after controlling for demographic covariates, we conduct a series of multiple regressions of psychological well-being on sexual enjoyment, represented by dummy variables, adjusting for demographic factors. The formula for this regression is given by $E(Y|X) = \alpha + \sum \boldsymbol{\beta}_j \mathbf{X}_j + \sum \boldsymbol{\beta}_k \mathbf{Q}_k + e$, where Y is the psychological well-being score, α is the constant, i.e., the mean value of the psychological well-being score for a respondent with values of 0 for all the covariates, X is a vector of variables each of which is equal to one if the respondent is in that liking/orgasm frequency category and set to zero if not, and Q is a vector of vector of variables, each of which is set to one if the respondent is in the given category for that demographic measure and set to zero if not. The like categories are collapsed as necessary to ensure that each category represents more than 2% of each gender's sample. As noted earlier, all regression estimates are adjusted to account for sampling design and unequal probability of selection.

Among men, empathy and depressive symptoms continue to be associated with liking receiving oral sex even after controlling for demographic covariates, as shown in Table 9. Men who report liking it very much score, on average, 0.21 (95% CI: 0.001, 0.42) higher on the empathy scale and 0.96 (95% CI: 0.09, 1.8) lower on the depressive symptoms scale than men who report feeling any other way about it. Women also differ according to receptive oral sex enjoyment level for the same two psychological well-being measures, empathy and depressive symptoms, as well as for an additional one, self-esteem. Women who dislike or dislike very much receiving oral sex score 0.53 (95% CI: -0.85, -0.20) lower on empathic responding and women who neither like nor dislike receiving oral sex, or dislike it to either degree score about 0.2 lower on self-esteem and about 2 points higher on depressive symptoms.

Turning to the regression of psychological well-being measures on enjoyment of performing oral sex, there is a clearer difference between men and women. As shown in Table 10, for men, only self-esteem is related to liking performing oral sex. Men who report liking it somewhat or who report disliking it, score slightly lower on the self-esteem measure, on average, than men who report liking it very much. In contrast, among women, all four psychological well-being measures are associated with enjoyment of performing oral sex. There is a strongly significant positive relationship between enjoyment of performing oral sex and autonomy and self esteem, and a moderately significant positive relationship between this enjoyment and empathy and a negative relationship with depressive symptoms.

There is a similar gender difference in the relationship of psychological well-being to orgasm regularity. As shown in Table 11, among men, only the positive associations with autonomy and empathy persist after demographic covariates are added to the models regression psychological well-being on orgasm regularity. Men who report orgasms half or less than half the time or never have autonomy scores between 0.93 and 1.1 points lower than men who report orgasms always, and a similar pattern is seen for empathic responding. Among women, those who report orgasms half, less than half the time, or never have autonomy and empathy scores about 0.3 points lower than women who report orgasms always. Women who report orgasms less than half the time or never have, on average, self esteem scores about .1 lower than women who report orgasms always. Curiously, only women who report orgasms half or less than half the time score higher, on average, on the depressive symptoms scale than women who report orgasms always. Women who report never having orgasms do not score any differently, on average, than women who report always having orgasms.

We also examined whether those who were missing sexual information scored differently, on average, on the psychological well-being measures than those who reported the most pleasure. Across the three different sexual pleasure measures, women missing information scored between 0.29 and 0.4 lower on autonomy. For both kinds of oral sex, men missing sexual information score lower (between 0.27 and 0.76 points lower) on empathic responding than men who reported liking that kind of sex very much. Also, men missing sexual information about performing oral sex scored lower 0.26 lower on self esteem than men who reported liking it very much. There were no significant differences for any of the psychological well-being measures between men missing orgasm information and men who have orgasms all the time.

Finally, we examined whether those who never had the two kinds of oral sex with their partner scored differently, on average, on the psychological well-being measures, than those who reported the most pleasure. Men who have never performed oral sex on their partners score about 0.3 lower on autonomy and empathic responding then men who like performing oral sex very much and women who have never performed oral sex on their partners also score about 0.3 points lower on empathic responding than women who like doing so very much. There were no significant differences, for either men or women, for any of the psychological well-being measures between those who had never received oral sex from their partners and those who had received it and enjoyed receiving it very much.

Table 9. Coefficients from regression of psychological well-being on Liking Receiving Oral Sex

Men (N=1,343)	**Autonomy**		**Empathy**		**Self-Esteem**		**Depression**	
Like Very Much	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
All other answers	-0.16	-0.17	-0.21	-0.21*	-0.11	-0.12	0.95*	0.96*
Never Had It	-0.23	-0.17	-0.07	-0.05	-0.07	-0.05	0.59	0.62
Missing	-0.29	-0.26	-0.74***	-0.76***	-0.16	-0.21	1.29	0.97
Age		-0.01		-0.03		-0.01		-0.06
White		Ref		Ref		Ref		Ref
Black		-0.1		-0.02		0.16**		0.78
Native American		-1.15		-1.49		-0.22		0.22
Asian		-0.43*		0.01		-0.29**		2.13*
Hispanic		-0.21		-0.04		0.05		0.75
Low SES		Ref		Ref		Ref		Ref
Medium-Low SES		0.15		0.26		0.1		-0.81
Medium SES		0.34*		0.46***		0.12		-1.47*
High SES		0.53***		0.50***		0.17*		-1.89***
Constant	5.51***	5.29***	5.55***	5.23***	4.33***	4.21***	3.56***	4.53***
F	3.2	4.25	5.3	4.03	2.2	3.19	3.33	4.8
R^2	0.02	0.06	0.03	0.06	0.01	0.04	0.02	0.07
Women (N=1,946)	**Autonomy**		**Empathy**		**Self-Esteem**		**Depression**	
Like Very Much	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Like Somewhat	-0.11	-0.12	-0.1	-0.12	-0.06	-0.05	0.46	0.61
Neither	-0.11	-0.07	-0.23	-0.19	-0.19*	-0.18*	2.34***	2.20**
Dislike (Very)	-0.27	-0.22	-0.57**	-0.53**	-0.25*	-0.24*	2.27**	2.14**
Never Had It	-0.13	-0.1	-0.31**	-0.19	0.11*	0.07	0.16	-0.44
Missing	-0.31*	-0.28*	-0.11	-0.05	0.02	0	0.71	0.5
Age		0.01		0.03		0		-0.19*
White		Ref		Ref		Ref		Ref
Black		0.07		-0.16*		0.21***		0.39
Native American		0.3		0.05		-0.01		-0.31
Asian		-0.31		-0.2		-0.04		0
Hispanic		-0.28**		-0.44***		-0.02		1.15*
Low SES		Ref		Ref		Ref		Ref
Medium-Low SES		0.14		0.13		0.08		-1.46*
Medium SES		0.33**		0.33**		0.11		-2.55***
High SES		0.35**		0.37***		0.17*		-2.95***
Constant	5.55***	5.33***	6.08***	5.90***	4.18***	4.05***	4.44***	6.40***
F	1.73	2.8	5.2	5.35	3.98	4.47	3.96	6.57
R^2	0.01	0.03	0.02	0.07	0.02	0.04	0.02	0.08

Legend: Probability that the coefficient is different from zero: * p<0.05 ** p<0.01 *** p<0.001

Table 10 Coefficients from regression of psychological well-being on Liking Performing Oral Sex

Men (N=1,343)	**Autonomy**		**Empathy**		**Self-Esteem**		**Depression**	
Like Very Much	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Like Somewhat	-0.01	-0.02	-0.11	-0.13	-0.1	-0.11*	0.47	0.49
Neither	0.09	0.05	-0.21	-0.22	-0.12	-0.13	0.13	0.15
Dislike (Very)	0.01	-0.07	-0.36	-0.48	-0.2	-0.25*	1.02	1.12
Never Had It	-0.35**	-0.27*	-0.43**	-0.39**	-0.09	-0.11	0.56	0.12
Missing	-0.3	-0.26	-0.70**	-0.75**	-0.19	-0.26*	1.89**	1.54
Age		0		-0.03		-0.01		-0.07
White		Ref		Ref		Ref		Ref
Black		-0.1		0.02		0.17**		0.75
Native American		-1.02		-1.3		-0.17		0.13
Asian		-0.41*		0.03		-0.28*		2.11*
Hispanic		-0.2		-0.02		0.05		0.77
Low SES		Ref		Ref		Ref		Ref
Medium-Low SES		0.13		0.24		0.1		-0.86
Medium SES		0.32*		0.43**		0.12		-1.54**
High SES		0.50***		0.49***		0.18*		-1.98***
Constant	5.50***	5.29***	5.62***	5.30***	4.35***	4.23***	3.54***	4.58***
F	2.1	3.41	5.26	3.99	1.72	2.92	1.98	4.38
R^2	0.02	0.06	0.04	0.07	0.01	0.04	0.01	0.06
Women (N=1,946)	**Autonomy**		**Empathy**		**Self-Esteem**		**Depression**	
Like Very Much	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Like Somewhat	-0.14*	-0.15*	-0.14*	-0.14*	-0.11*	-0.12**	-0.29	-0.25
Neither	-0.21*	-0.24**	-0.22**	-0.24**	-0.12*	-0.13**	1.28***	1.39***
Dislike (Very)	-0.28*	-0.29**	-0.12	-0.12	-0.20**	-0.20**	1.04*	1.0*
Never Had It	-0.19	-0.16	-0.39***	-0.26**	0.01	-0.04	-0.11	-0.11
Missing	-0.29*	-0.29*	-0.25	-0.19	0.02	0	-0.35	-0.35
Age		0.01		0.02		-0.01		-0.17*
White		Ref		Ref		Ref		Ref
Black		0.09		-0.14		0.22***		0.3
Native American		0.34		0.08		0.03		-0.97
Asian		-0.31		-0.22		-0.05		0.13
Hispanic		-0.26**		-0.40***		-0.03		1.28*
Low SES		Ref		Ref		Ref		Ref
Medium-Low SES		0.15		0.13		0.08		-1.44*
Medium SES		0.37**		0.34**		0.12		-2.62***
High SES		0.36***		0.36***		0.18*		-2.90***
Constant	5.62***	5.39***	6.14***	5.96***	4.23***	4.10***	4.47***	6.46***
F	2.69	3.46	6.86	5.21	3.65	4.5	4.09	5.54
R^2	0.01	0.04	0.02	0.06	0.02	0.05	0.02	0.08

Legend: Probability that the coefficient is different from zero: * p<0.05 ** p<0.01 *** p<0.001

Table 11. Coefficients from regression of psychological well-being on Orgasm Regularity

Men (N=1,343)								
	Autonomy		**Empathy**		**Self-Esteem**		**Depression**	
Most or All the time	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
> Half	-0.26	-0.24	-0.21	-0.21	-0.01	-0.03	0.37	0.21
Half	-0.99***	-0.93**	-0.61*	-0.57*	-0.1	-0.09	1.26	1.01
< Half	-0.79*	-0.74*	-0.46	-0.41	-0.17	-0.18	0.64	0.36
~ Never	-1.26**	-1.30**	-1.08***	-1.13***	-0.08	-0.11	0.55	0.69
Missing	-0.51	-0.46	-0.67	-0.66	0.07	0.04	1.35	1.09
Age		-0.01		-0.03		0		-0.1
White		Ref		Ref		Ref		Ref
Black		-0.12		-0.08		0.13*		0.82
Native American		0.11		-0.3		-0.53**		1.68
Asian		-0.42*		0.02		-0.29*		1.95
Hispanic		-0.13		0		0.04		0.71
Low SES		Ref		Ref		Ref		Ref
Medium-Low SES		0.13		0.2		0.06		-0.65
Medium SES		0.33*		0.43**		0.09		-1.44*
High SES		0.53***		0.47**		0.12		-1.76**
Constant	5.52***	5.30***	5.55***	5.26***	4.30***	4.22***	3.72***	4.58***
F	5.03	5.01	4.35	3.53	0.72	2.77	0.84	3.35
R^2	0.05	0.09	0.03	0.05	0	0.03	0.01	0.05

Women (N=1,946)								
	Autonomy		**Empathy**		**Self-Esteem**		**Depression**	
Most or All the time	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
> Half	-0.20**	-0.19**	-0.09	-0.08	-0.06	-0.04	0.02	-0.01
Half	-0.37***	-0.37***	-0.33**	-0.32**	-0.07	-0.08	0.92*	0.88*
< Half	-0.42***	-0.42***	-0.30**	-0.30**	-0.18**	-0.19**	2.10***	2.11***
~ Never	-0.38**	-0.37**	-0.34*	-0.32*	-0.14	-0.15*	0.46	0.43
Missing	-0.36*	-0.40*	-0.09	-0.1	0.02	-0.01	0.32	0.45
Age		0.01		0.02		0		-0.17*
White		Ref		Ref		Ref		Ref
Black		0.08		-0.18*		0.25***		0.18
Native American		0.26		-0.01		0		-0.32
Asian		-0.32		-0.24		-0.04		0.25
Hispanic		-0.24*		-0.41***		-0.03		1.16*
Low SES		Ref		Ref		Ref		Ref
Medium-Low SES		0.15		0.14		0.07		-1.36*
Medium SES		0.36**		0.35***		0.11		-2.42***
High SES		0.37**		0.39***		0.17*		-2.83***
Constant	5.67***	5.43***	6.12***	5.94***	4.22***	4.09***	4.35***	6.17***
F	5.28	4.11	3.92	5.18	3.04	5.2	4.27	6.25
R^2	0.03	0.06	0.02	0.07	0.01	0.05	0.02	0.08

Legend: Probability that the coefficient is different from zero: * p<0.05 ** p<0.01 *** p<0.001

Results, Continued

We next turned our attention to question of whether the associations we found would be stronger for those who have oral sex regularly compared to those who only have it sometimes. To investigate this, we added a regularity indicator to the model which was set to 1 if the respondent had that kind of oral sex as regularly or more regularly than vaginal sex, and set to 0 otherwise. We also added a set of interaction terms, as many as there were dummy indicators for the like variable, set to 1 if the respondent had oral sex regularly and reported liking sex at that level, and set to zero otherwise. There were no significant interactions (tables not shown).

Lastly, we turned our attention to the question of whether psychological well-being is associated with sexual frequency, the traditional measure of enjoyment of sex. The bivariate analysis suggested that there would be some association between frequency of performing oral sex with self-esteem and depression, among men, and that there would be some association among women between frequency of receiving oral sex and autonomy, empathy, and self-esteem, and between frequency of performing oral sex and empathy. To investigate this, we regressed the psychological well-being measures on a set of frequency-of-sex indicators which were set to one if the respondent had that kind of sex with that frequency and zero otherwise. We then added the demographic covariates and the enjoyment of sex indicators to the models. For both receptive and performing oral sex, for both men and women, in the bivariate regression models, a few of the frequency coefficients were significant at the 0.05 level, but there was no pattern of association. In the full models, none of the coefficients were significant for any of the four measures of psychological well-being. (tables not shown)

Discussion

This study explored the distribution of sexual enjoyment by social status, and then examined the relationship between sexual enjoyment and psychological well-being.

In the exploratory analysis, we found consistent differences by gender but inconsistent differences by race/ethnicity and SES. While men and women were exactly as likely to have had both kinds of oral sex, there were significant differences in how much they enjoyed the experience. Women were less likely than men to report liking receiving oral sex very much, less likely than men to report liking performing oral sex very much, and less likely than men to report having orgasms all or most of the time. Women were also more likely than men to select nearly all of the lower liking/regularity options in response to these questions. While, overall, the difference in enjoyment of receiving oral sex between men and women is relatively small, the gender difference for the other two measures is quite large. The percentage of men who reported liking performing oral sex very much, and the percentage of men who reported having orgasms all or most of the time is nearly double that of women – 62% vs. 37% and 86% vs 45%. These findings contrast with the NHSLS findings in that in that study men and women in this age group were equally likely to report being extremely physically satisfied. Also, that study found that only 70% of men 18-24 and 22% of women 18-24 always had orgasms with their primary partner (Laumann et al,1994, p.116).

These differences, first, underscore the importance of measuring specific aspects of sexual enjoyment when the goal is to understand the distribution of sexual pleasure. Global measures may hide important patterns in the distribution of sexual pleasure by social status. Second, these differences illuminate the importance of answer option word choice and sample definition. Both NHSLS and Add Health offered a 5 point scale for the orgasm regularity question, but the NHSLS options were always, usually, sometimes, rarely, and never, while those in Add Health were all or most of the time, more than half the time, half the time, less than half the time, and never or almost never. It is unlikely that the percentage of women 18-24 who always have orgasms doubled between 1994 and 2001. A better explanation is that women found "all or most of the time" to be a better description of their orgasm regularity than the absolute "always". Another likely explanation for the discrepancy is that this study's sample is limited to young adults in established relationships, while NHSLS asked the orgasm question of all respondents. Young women in established relationships, who have had more time to become comfortable with their partners, and whose partners have had more time to learn about their sexual preferences and desires, are apparently, and not surprisingly, more likely than the general population of women 18-24 in partnerships of varying lengths to have orgasms very consistently.

We also found almost no evidence of differences in regularity of orgasm or enjoyment of oral sex by race/ethnicity or SES. The differences in liking performing or receiving oral sex among men in different SES groups, and between Black men and White men (that we found in the sensitivity analysis) were statistically significant but small in magnitude. Our null findings are mainly consistent with the NHSLS (Laumann, et al, 1994, p.114-121). They too found no relationship between these social statuses and sexual satisfaction overall. Oddly, the one key difference between their findings and ours is that they found that Hispanic men were more likely to have orgasms always, while we found that Hispanic men were *less* likely to have orgasms always. This difference may again be explained by the difference in age composition between their study as opposed to ours.

In the multivariate analysis, all significant results were in the predicted direction, namely that for both men and women, greater sexual enjoyment was sometimes associated with higher scores on measures of psychological well-being and fewer depressive symptoms. However, the relationship between enjoyment and these measures was neither linear nor consistent across measures of sexual enjoyment.

Contrary to our expectations, we found a relationship between autonomy and sexual enjoyment for both men and women. The strongest of these relationships was among women for orgasm regularity. Women who experienced orgasm anything less than most or all the time had lower mean autonomy than women whose orgasms were extremely reliable. A less consistent but still statistically significant relationship was also found, among women, with enjoyment of performing oral sex. Among men, autonomy and regularity of orgasm was also related, though not as strongly, and men who had never

performed oral sex on their partner also scored lower on average on autonomy than men who enjoyed performing oral sex very much. These results suggest that autonomy may matter for sexual enjoyment in some sexual domains but not others.

We found moderate support for the hypothesis that young women who are able to derive enjoyment from sexual activities that provide pleasure to their partner also have a higher tendency toward empathic responding, but only very limited evidence that this process operates among young men. Both men and women who had never performed oral sex on their partner scored lower on empathic responding, on average, than those who had. However, only among women did we find a difference in empathic responding by level of enjoyment of this activity. In contrast, we found clear support among both men and women for the hypothesis that enjoyment of receiving oral sex and regularity of orgasm is positively associated with empathic responding. This study was not able to test the mechanism of this connection, but that question could be explored in future studies.

We found evidence of a positive association between self-esteem and sexual enjoyment among women for all three of the sexual pleasure measures, but only for liking of performing oral sex among men. Men who dislike performing oral sex have about the same mean self-esteem as men who gave non-informative responses to one or both of the performing oral sex items – and both categories of men have lower self-esteem, on average, than men who enjoy performing self-esteem very much. These results support the individual- tenacity in the face of social opprobrium theory more than the romantic relationship or life transition theories, but does not provide enough evidence to disprove the later. Further studies will be necessary to probe the nature of mediating mechanism. We must also be alert to the possibility that floccinaucinihilipilification, “the action or habit of estimating as worthless”, may have given rise to a spurious correlations between self-esteem and this other construct, enjoyment of oral sex (Baumeister, Campbell, Krueger & Vohs, 2003).

We found that depressive symptoms were associated with all three of the sexual enjoyment measures for women, but only associated with enjoyment of receiving oral sex, among men. These results conform to our expectations and previous research, in that the relationship was stronger for women than for men.

Contrary to our expectations, there were no differences in psychological well-being between men who had not received oral sex from their partner and those who had received it and liked it very much. In line with our expectations, there were also no such differences among women. Contrary to our expectations, there were differences (in autonomy and empathy for men, and just empathy for women) between those who had never performed oral sex with their partner and those who had and enjoyed it very much. Those who had never performed it scored lower. In fact, their scores on average were similar to those who had performed oral sex and disliked it.

Across the measures and gender[footnote: with the exception of self-esteem, which was frequently zero], even when they were not significant, the coefficients for the missing-information indicator were in the same direction as those for the lower-enjoyment indicators. However, we only see a statistically difference in psychological well-being between those who gave non-responses and those in the highest pleasure category for some psychological measures. Men who gave non-responses for receiving oral sex have significantly lower empathic responding scores, and men who gave non-responses for performing oral sex score lower on average on empathy and self-esteem than those men who enjoy the respective kind of oral sex very much. Women who gave non-responses to all three sexual enjoyment measures scored lower on autonomy, on average, than women who gave the highest-enjoyment response. We therefore have limited support for the hypothesis that non-response is a proxy measure of discomfort with sexual activity, but not strong enough support to disprove the hypothesis that non-response merely reflects non-interest in the topic or heightened self-preservation concerns.

Finally, we did not find support for our hypothesis that the associations between all measures of sexual pleasure and psychological well-being would be stronger among those who have sex more frequently. There was no evidence of effect modification by regularity of sex. However, we did find support for our hypothesis that frequency of oral sexual intercourse, as measured by self reports, would not be associated with self esteem, autonomy, self-esteem, or depression, once enjoyment was taken into account. There was no evidence of a relationship between frequency of sex and psychological well-being once we controlled for enjoyment of sex. The first finding may be the result of insufficient power. The second finding suggests that sexual frequency is a poor proxy for sexual enjoyment.

The limitations of this study are the possible effects of selection bias and the circumscribed nature of the sexual pleasure measures. These results may not be as generalizable to males, blacks, and those with poorer psychological health, because these groups were more likely to have been dropped

from the sample due to missing data. This study is also limited by the measures available in Add Health. The measurement of enjoyment of oral intercourse and orgasm regularity are respectively innovative and standard, and provide a good starting point for the scholarly exploration of sexual pleasure, but are only the tip of the sexual pleasure iceberg. These measures are summative subjective assessments of the experience, and are not broken down by physical pleasure, emotional pleasure, the reasons for the pleasure, or any other factor. There are also, of course, many other kinds of sexual behavior whose enjoyment we did not examine. We were also unable to examine sexual pleasure that arises from other sources, such as other kinds of partnered sexual touching, and other kinds of sexual interactions such as visual or verbal interactions.

The strengths of this study are its conceptual framework, innovative research questions, and data quality. No studies to date have examined the relationship between sexual pleasure and psychological well-being using population samples, so this study opens a new field of inquiry. It does so using data that is free of recall bias (since it takes as its subject respondents' current relationships) and in which social desirability bias has been minimized. Previous studies have shown that information on sexual topics collected using ACASI, the data collection method used for the sensitive items central to this study, is more valid that data collected using other formats (Tourangeau & Smith, 1996; Turner, Ku, Rogers, Lindberg, Pleck & Sonenstein, 1998). This study thus updates and expands our knowledge of sexual pleasure (i.e., beyond what we learned from the NHSLS). It also lays a strong foundation for the research that will follow in this field. For example, there are cultural differences in the extent to which autonomy, self-esteem and even individual hedonic well-being are valued as aspects of well-being, compared to group-focused aspects (such as empathy) (Baumeister, et al, 2003; Garcia Coll & Magnuson, 2000; Shweder et al, 1998). Future studies can examine how the relationship between psychological well-being and sexual pleasure vary by race/ethnicity and immigrant status.

The implication of this study is not that enjoying oral sex or having regular orgasms are essential to sexual pleasure or psychological well-being. Rather, this study provides preliminary evidence of a link between psychological well-being and the degree to which individuals enjoy the sexual experiences they are having, whatever those experiences may be. The findings of this study suggest it would be worth committing the substantial resources needed to field studies using reliable and valid measures of sexual pleasure examining population samples, since such studies would be likely to yield fruitful results. Further research is needed to examine the nature of and demographic variations in the connections between sexual pleasure and psychological well-being– the causal pathways and moderating factors. The understanding of interrelationships and causality gained from such studies can inform youth development programs, public health promotion efforts, and clinical practice.

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