

BODY MASS INDEX CATEGORY, EXERCISE, AND
DEPRESSION: PREDICTING CONDOM USE
AT LAST INTERCOURSE

THESIS

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ABSTRACT

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Body Mass Index intersects with many predictors of condom use; however, few studies have viewed obesity as an independent predictor of condom use. Using a theoretical viewpoint that the obesity stigma may change an individual's behavior, I look at BMI as an independent variable predicting condom use at last intercourse. After controlling for age, race, STI diagnosis, depression, exercise, parental education, and parental income, BMI is generally not a significant predictor of condom use. However, there is an interaction between obesity and fitness: obese women who work out are 3.5 times more likely to use a condom, and obese women who do not work out are 64 percent less likely to use a condom. This finding presents implications for both health education and stigma reduction.

CHAPTER I

INTRODUCTION

According to macro sociological theories, social structure can influence the social behaviors of an individual. However, while social science has looked at many social issues that obese individuals face, including bias and discrimination (Puhl and Brownell 2001), rarely have researchers looked at how the obesity stigma can affect the decisions that individuals may make. The media is constantly discussing the “obesity epidemic” while not analyzing the underlying message: one must always be thin to be healthy, and individuals who are not thin must not be healthy. The obesity stigma suggests that obesity is an easily changeable characteristic, and that one must always strive to lose weight in order to be healthier. Yet, numerous studies show that weight is not changeable (Anderson et al. 2001), that one can improve their health without changing their weight (Bacon et al. 2005), and that the stigma against obesity may be causing many of the health issues associated with being overweight (Muenning 2008). Moreover, gender plays a major role in how obesity is viewed. When appearance and weight are a deciding factor in things such as job hiring and promotion, college admission and acceptance, and relationship and sexual behavior choices, obese people, and obese women in particular are at a disadvantaged position within the social structure (Puhl and Brownell 2001).

Even more damaging is the idea that fat people actually believe their stigmatized position (Rothblum 1992). Biased thoughts and discrimination, when directed towards people who are overweight can make overweight individuals believe they are the cause of their discrimination. This stigma may cause a change in one's social behavior.

One important aspect of social behavior is condom use. Using a condom is one of the most effective ways of preventing transmissions of sexually transmitted infections (STI) (Holmes, Levine, and Weaver 2004). While condoms are used by a large percentage of adolescents, there exist structural and demographic differences among condom users (Guttmacher et al. 1997; Majumdar 2005). However, weight and obesity have been overlooked as a possible predictor of condom use. Researching the issue of condom use and obesity, with the perspective that obesity is a disadvantaged condition and not readily changeable, can highlight changes in individuals which may be caused by societal stigma.

In addition, there has been little research about the effects of the obesity stigma within relationships; instead, researchers use obesity as an individual health risk factor, similarly as with other health risk factors such as alcohol during sex or multiple sex partners (Eisenberg, Neumark-Sztainer, and Lust 2005). In doing so, researchers have ignored the social components both of the obesity stigma and the factors that go into the decision to use condoms. One can see how the development and ramifications of the obesity stigma can affect how obese individuals, specifically obese women, feel within romantic relationships. Weight is used as stratification within appearance, in that thinner women appear more attractive for much of society (Tovée et al. 1998), and thus may feel more power within a relationship to negotiate safer sex behaviors (Gillen, Leftowitz, and

Shearer 2006). This stratification may mean obese women feel less power within a relationship, and thus may be less likely to request or use condoms during sex.

The obesity stigma may reveal important features of the interaction between societal mediated behaviors. By viewing how the members of stigmatized group internalize stigma, and then how the behavior changes, one can make assumptions about societal stigma. Stigma starts with how the dominant group in society views a social group as an outcast. Stigma, in this instance, is not something for the stigmatized individual to change, for example, for an obese person to lose weight or a black person to change his or her skin color. The changing of stigma happens from a macro sociological viewpoint, and does not depend on any actual changes of the group. By bringing another stigmatized position into this framework, one can add to the richness of stigma literature, and promote social change.

CHAPTER II

THEORETICAL BACKGROUND AND LITERATURE REVIEW

ORIGINS AND CONSEQUENCES OF THE OBESITY STIGMA

A basic assumption in popular literature is that obesity is a changeable and undesirable condition. However, this idea has questionable origins. My research proposes two main theoretical ideas regarding obesity. The first is that the assumption that weight is changeable leads to discrimination and stigma, which in turn can influence the behavior of the stigmatized group. This lays a theoretical framework that suggests that some behavior of the stigmatized group may not be directly attributable to the characteristics of the group, but rather to the assumptions of the dominant group. One must view the effects of stigma and discrimination when making any determinations of the behavior of individuals in the stigmatized group. The second proposition is that body mass is largely unchangeable, and thus the assumptions behind the obesity stigma are false. This allows BMI to be used as a rarely changing variable, and in the same manner as gender and race.

The stigmatization of obesity has been just as systematic and pervasive as previous discrimination based on race or gender. However, as sensibilities have changed, society does not view blacks or women as unfit or unclean, but rather as part of human society. As an example of a disease stigma, Deacon (2006) proposes a theoretical model of social stigmatization:

1. Illness is constructed as preventable or controllable;
2. Immoral behaviors causing the illness are identified;
3. These behaviors are associated with 'carriers' of the illness in other groups, drawing on existing social constructions of the 'other';
4. Certain people are blamed for their own infection;
5. Status loss is projected onto the 'other', which may (or may not) result in disadvantage to them (Deacon 2006:421).

While some do not follow this exact convention, other researchers follow the same general principles of differentiation of groups, undesirable traits of a population, and placing that group into an out group status (Smith 2002). Seen in this manner, (1) obesity is currently constructed as preventable and controllable; (2,3) that it is the weakness and laziness of obese individuals that contribute to their obesity; (4) thus they are to blame for their 'infection;' and (5) then they are discredited and stigmatized. "Sedentaries (now derisively called "couch potatoes" in the new pejorative of healthism) are viewed as an inferior class of people, certainly unfit, undependable, ineffective and probably unclean in mind and spirit as well as body" (Edgley and Brissett 1990:263). Indeed, a recent article claimed that one's social network was a major factor in one's obesity, in that "the person-to-person spread of obesity [may be] a possible factor contributing to the obesity epidemic" (Christakis and Fowler 2007:370). DeJong (1980) finds that bias can be decreased if the individual either attributes their obesity to a medical problem, or show evidence of recent weight loss. However, only by severely reducing their weight through surgical means are obese women able to shed some of the stigma and discrimination of obesity (Rand and Macgregor 1990). The stigma that obese people face is portrayed in these terms for much of their social life, and has many consequences.

As a result of the persistence of the obesity stigma, obese persons have lower self-esteem and body image, higher rates of depression, higher rates of stigmatization from

many aspects of society, including friends, doctors, mental health workers, even children (Rothblum 1992). Often obese individuals believe these negative stereotypes. The stigma that obese people face has more implications than simply internal viewpoints and external condemnation: the stigma may lead to lower efficacy in other life events (Puhl and Brownell 2003). One study suggests that people would rather be romantically linked to someone with a history of mental illness and suicide attempts, or to someone with a history of curable sexually transmitted infections (STIs) than with an obese person (Chen and Brown 2005). Even those who are overweight hold this bias, and prefer to date those who are not obese (Cawley et al. 2006). The bias against obese individuals may have many implications within romantic relationships in how people choose their relationship partners, and within relationships containing one or more obese partners. This persistent and pervasive stigma can change the social behavior of obese individuals.

The sociological theory of stigma management places the management of one's stigmatized identity onto the individual, and virtually ignores the societal implications of that stigma (Goffman 1963). According to stigma management, the emphasis is on the individual to change her behavior, rather than analyzing the social forces that cause her to be stigmatized. Goffman was writing in 1963, and some of the basic assumptions about stigmatized groups have changed in the decades since his publishing. As an example, Goffman discussed the stigma against people of color. His claim is that it is not race that is the mark of stigma, but rather race is an indication of the lower cultural status, which leads the individual to be stigmatized. The stigma of race is not an assumption about race itself, but about the individuals who belong to a racial group. Goffman, by assuming that race was a permanent source of stigmatization, ignored the concept that race is

stigmatized solely because of societal choice and systemic racism. The stigma that members of a minority group face has been lowered, but certainly, this has not eliminated discrimination on the basis of race. In this manner, the social aspects that drive the stigmatization process are largely ignored (Howarth 2006). Indeed, “it could be seen to argue that the stigmatized need to take responsibility for bearing the very real psychological and material consequences of stigma: that is they can and should ‘think themselves’ out of stigma” (Howarth 2006:449). Regardless if the stigma is of racism or mental health or of obesity, this individualized notion of stigma ignores the social realities that drive stigma. Only by changing the assumptions behind the ideas of stigma, in that stigma is not about the individual but about how society attributes ideas to the stigmatized groups, can the stigma be changed. Society has lowered its level of racism by acknowledging that people of color are lower in status not because of their physical appearance, but by the assumptions that the dominant society holds about that group. Only by changing the basic assumption about individuals and the group can the stigma and discrimination be lowered.

One important but overlooked aspect of the obesity stigma is that it centers on the idea that weight is a changeable part of one’s appearance. One is only obese because of a lack of willpower or energy in completing a weight loss regimen (Puhl and Brownell 2003). Although there are a vast number of studies that show short-term weight loss, only very few show any lasting weight loss. Even within the small subset of these long term studies are only minor decreases in body mass. When comparing BMI change from adolescence to adulthood, 15 percent of non-obese individuals became obese, and 15 percent of obese individuals became non-obese (Gordon-Larsen et al. 2004). Most

children and adolescents remain in their original BMI category (Dietz 1998; Gordon-Larsen et al. 2004). However, overall BMI scores were not included, and these changes may have only changed a few pounds, but changed BMI categories. An individual that is 5'7 and 159 pounds has a BMI of 24.9, placing her in the “normal” BMI category. However, if she were to gain a pound, her BMI would be 25.1, placing her in the “overweight” category. Few studies looked at changes in weight, preferring to use BMI category, and thus subtle changes in weight may result in larger changes in category. In a literature review of weight loss studies with more than a two-year follow up period, morbidly obese individuals participating in a structured weight loss program maintained an average weight loss of three kilograms (approximately 6.6 pounds) at the end of five years (Anderson et al. 2001). Another review of weight loss studies shows that several methodological issues overstate the results of the weight reduction programs, and many dieters regain more weight after their initial reduction (Mann et al. 2007). These studies conclusively indicate lasting massive weight loss is unobtainable with dieting; yet the myth that obesity is changeable persists within society. However, a study that educated participants about the genetic and physiological basis of body size did not lower bias (Teachman et al. 2003), indicating the sheer pervasiveness of the obesity stigma. The idea that obesity and body weight are changeable is a large part of the stigma, and this leads to a further perpetuation of the obesity stigma.

The obesity stigma combines the assumptions of changeability, immorality, and individual causal factors, and places the blame of stigma solely on the obese person. “As tracing indigence to poverty, for all its tautology, implies the moral responsibility of the poor for their own misfortune, so does tracing obesity to indulgence imply the depravity

of the overweight person” (Cahnman 1968:287). This “depravity” leads to the moral outrage against obesity, in that obese individuals are stigmatized by the society for their immoral choices or lifestyle, which leads to the internalization of the obese label, and the behavior of the individual may change. “The expectation that individuals be neither fat nor drunk...remains clearly a moral rather than a medical judgment” (Edgley and Brissett 1990:263). Cahnman continues, “the obese [individual] is thus doubly and trebly disadvantaged: (1) because he is discriminated against, (2) because he is made to understand that he deserves it, and (3) because he comes to accept his treatment as just” (Cahnman 1968:294). The individual changes her behavior because she internalizes the obesity label, as well as the assumptions behind it. As one can see by looking at the history of the race stigma and discrimination, it is not that stigmatized individuals must change their appearance to match the norms of the dominant group, but that the members of the dominant group must change their assumptions.

OBESITY AND HEALTH

Many researchers portray obesity as a major health problem; however, recent research calls that into question, stating that negative consequences of obesity are not of a physical nature (Saguy and Riley 2005), and that it may be the stress caused by the obesity stigma that contributes to what some researchers call “weight” related health issues (Muenning 2008). One study found “the desire to lose weight is a much stronger predictor of morbidity than actual BMI in all models” (Muenning 2008)¹. It has been shown that individuals on very low calorie diets have higher rates of depression, either from lowered caloric intake or from societal messages regarding their size (Ross 1994).

1. Online reference does not include page numbers

The ideological framework that a researcher takes is indicative of where the researcher's intentions lie. A researcher who uses the scale as a measure of health will take a framework that suggests that dieting and exercise are appropriate forms of body intervention. Another researcher who is more interested in the mental health and psychological well being of the individuals must take a radically different methodology to achieve the goals of intervention. Within the intersection of weight and self-esteem lies an ideological framework that researchers use, and which is directly indicated in the results of their studies.

Among adolescents, in a program specifically designed to encourage healthier eating and movement without specifically emphasizing weight loss or maintenance, participants did not change body image and self-esteem in comparison to the control group (Huang et al. 2007). "The Patient-Centered Assessment and Counseling for Exercise Plus Nutrition Project (PACE+) was a randomized controlled trial to determine the effects of a one-year intervention designed to increase physical activity, reduce sedentary behaviors and improve dietary behaviors among adolescent youth" (Huang et al. 2007:245). The messages sent by the program were not specifically weight and scale centered, but after a lifetime of exposure to the stigma against obesity, interventions directed towards eating and exercise are almost always linked to the promise of weight change or maintenance. However, these programs may have disastrous consequences in psychological health. An emphasis on weight and appearance has been linked to future eating disorders or disordered eating behaviors (Campos 2004). Newer eating disorder prevention programs deemphasize weight related markers and emphasize psychological markers and improving one's mental health (Stice et al. 2006).

One new movement that is attempting to change both the individual and societal stigmas against obesity is the Health at Every Size (HAES) movement. Proponents of this theory agree that the scale and body weight are poor determinants of health. Instead, individuals strive to be as healthy as possible in their eating and physical habits, without specifically the intention of losing weight. Bacon et al. (2005) conducted a trial with two groups of overweight adult women: one with a typical diet rationale, with an emphasis on food diaries and weight loss, and one with HAES ideals. These ideals included “body acceptance, eating behavior, nutrition, activity, and social support” (Bacon et al. 2005:930). After two years of follow up, the HAES group sustained improvement of benchmarks, such as blood pressure, physical activity, and total and LDL cholesterol levels. In comparison, the diet group showed initial improvement in these markers, but none were significant at follow up. Even more important is the vast improvement in psychological markers: while both groups showed an initial increase in self-esteem, the diet group had lower self-esteem at follow up, while the HAES group improved their self-esteem. In comparison to the study on adolescents, Bacon et al. (2005) specifically designed the HAES portion of their program to deemphasize the scale as a marker of health, and discouraged “diet” activities. As exemplified above, an emphasis on dieting and weight change behaviors leads to little to no self-esteem changes and possible worsening of physical health, however, an emphasis on psychological well being as well as physical health leads to both physical and psychological improvement.

OBESITY, BIAS, AND DISCRIMINATION

Numerous articles detail the many ways in which obese individuals feel bias and discrimination. In studies of medical personnel, many attributed undesirable traits to

obese individuals, implying they were lazy, self indulgent, lack willpower, and are “unintelligent, unsuccessful, inactive and weak willed” (Puhl and Brownell 2001:792). As an example of how this bias leads to discrimination, and how gender is a compounding variable, one can review employment research for evidence of discrimination. In one study, an overweight man was more likely to be hired for a position than an overweight woman. For women, 47 percent of the variance in the hiring decision was due to their weight, compared to 27 percent of the decision for men (Pangitore et al. 1994). In regard to careers, obese individuals are underrepresented in managerial and professional occupations, and obese women are overrepresented in administrative and service positions. However, obese men and nonobese men earn about equal amounts, while obese women earn less than nonobese women (Pagan and Davila 1997). Nonobese adolescents are more likely to attend college than their obese contemporaries, regardless of collegiate aspirations. This is attributed to many factors including parental bias, institutional discrimination, and socioeconomic factors (Cahnman 1968; Rothblum 1992; Puhl and Brownell 2001). One study suggests that obese individuals’ self acceptance is fully mediated by their perception of bias and discrimination (Carr and Friedman 2005).

This bias against obese individuals affects women more than men. Participants in one study were instructed to write short stories based on a description or photograph of an individual. Participants wrote stories about obese individuals that contained sad situations or unpleasant characters. The stories exhibited these characteristics more when a picture was used instead of a description, and when an obese female was depicted rather than an obese male (Hiller 1981). This attribution of personality characteristics to one

based on simply their size is applied unequally towards women. Women report more weight related discrimination from the general community than obese men (Puhl and Brownell 2006).

Using the reports of Gordon-Larsen et al. (2003), and Wang and Beydoun (2007), one can see how socioeconomic status interacts with age, race, and gender to create a complex set of associations within BMI and body mass category. Non-Hispanic blacks tend to have higher body mass categories, and individuals without a high school diploma also had a higher BMI. Women under the age of 20 had higher a higher prevalence of bring overweight and obese than men in the same age range. Parental education and income intersects with race and ethnicity to explain some of the variation of body weight in adolescents (Gordon-Larsen et al. 2003; Wang and Beydoun 2007). The Centers for Disease Control reported an average BMI increase of 3 points between 1960 and 2004 (Ogden et al. 2004). However, a gain of a few pounds might drastically increase the number of individuals who are “overweight.” Campos (2004) notes, “an average weight gain of 8 pounds among American adults produced a 61% increase in the obesity rate” (122). An individual in a lower socioeconomic status is far more likely than one of higher social status to be overweight (Rothblum 1992; Campos 2004). These complex associations must be taken into account when researching effects of the obesity stigma on individuals.

Research suggests that weight is largely unchangeable, yet men and women face discrimination and bias by virtue of their size, and in unequal ways. One must then view any negative outcomes based on weight and BMI category within this social construct, and not simply as a health effect. In addition, as female and male obesity is seen as

different in society, women may feel the implications of the obesity stigma on a more acute level than men. This may influence how obese women view sexual relationships.

OBESITY AND SEXUAL BEHAVIOR

Women who are obese may feel disadvantaged when it comes to sexual intimacy due to the many appearance pressures put onto women, and the resulting relationship outcomes that are based on that appearance. However, the effects of BMI and body image on sexual activity changed by population studied. Researchers also attempt to show body image in a way separate from either body weight or self or other rated attractiveness. One confounding variable is that BMI and attractiveness are inherently correlated (Tovée et al. 1998; Kurzban and Weeden 2005). In a statistical model, typically only one measure, either BMI or body image, will show significance when the other is used as a control. This is not to say that one aspect of BMI or body image is more important than the other, but that because these factors are so highly correlated, researchers must take both into account in their research if they wish to view body image as a separate construct.

Body mass explains many differences in dating patterns in situations that rely on attractiveness (Kurzban and Weeden 2005). BMI is inversely related to the odds of being in a romantic relationship, regardless of sexual activity (Halpern et al. 2005; Cawley et al. 2006). Each point increase in BMI averaged a six percent reduction in odds of being in a romantic relationship, either with or without intercourse (Halpern et al. 2005). Obese adolescents of either gender are less likely to date, and less likely to have sex. However, obese women were more likely to have had sex than to have initiated dating (Cawley et al. 2006). In other words, an obese female was more likely to have had sex and not dated, than to have dated, regardless of sexual activity. Cawley et al. (2006) suggests that obese

women may serve as a niche market, suggesting that they were a population that would be open for sexual activity, since sex is an inherently private experience, unlike dating which is a more public declaration of attraction. Men might prefer to date women of lower body weight, and would be less likely to date an obese woman. This suggests that obese women may feel less power within romantic and sexual relationships. This intersection between size and gender may influence how obese women view sex and safer sex activities.

For many markers of sexual activity, there are at least two conflicting studies. Obese women may be less likely to have sex (Gillen et al. 2006), or more likely to have had sex (Kaneshiro et al. 2008), or there may be no difference among BMI categories among sexually active women (Wiederman and Hurst 1998). Obese women may have more lifetime partners than average weight women (Gillen et al. 2006), or there may be no difference in “sexual orientation, frequency of sexual intercourse, number of current partners...age at first intercourse, number of lifetime male partners, and the number of male partners in the last 12 months” by BMI category (Kaneshiro et al. 2008:589). These two studies highlight demographic differences. Gillen et al. (2006) and Wiederman and Hurst (1998) had small samples of college women, while Kaneshiro (2008) used a national representative study of women aged 15 to 44. As obese women are less likely to attend college (Cahnman 1968; Rothblum 1992; Puhl and Brownell 2001), this might be a reason for the conflicting information. However, it may be due to the small sample size in the study by Gillen et al. (2006), rather than any difference between college aged populations and noncollege adult populations. In measures of sexual activity by BMI, there are mixed and conflicting reports.

Body image may play a large part in sexual satisfaction, but, again, these results are mixed. In addition, one cannot completely differentiate body image from BMI, due to the societal implications of the obesity stigma. However, after controlling for BMI, any results that are significant for body image may indicate a situation in which body image can be directly influenced, and could encourage better self and sexual care. After controlling for BMI, women with better body image are more likely to initiate sex, have more sex, and have more orgasms (Ackard et al. 2000). Another study, after controlling for self assessment of their attractiveness, found that body weight and shape did not affect one's view of their sexual health (Wiederman and Hurst 1997). As previously argued, BMI is largely unchangeable, yet body image and self-esteem can be influenced positively (Bacon et al. 2005). Body image is a part of sexual activity, but is inexorably linked to body weight, and these correlations are confusing and inconclusive.

OBESITY AND SEXUAL RISK TAKING

Condoms are the most effective tool to prevent sexually transmitted infections and pregnancy (Holmes et al. 2003), and thus can be used as a measure for safer sex behavior. Obese women using contraceptives are more likely to have an unplanned pregnancy, either because of the failure rate of oral contraceptives (Holt et al. 2005), or with all contraceptives combined (Huber and Hogue 2005). While the two studies did not view condom use as a separate contraceptive, if the failure rates of oral and hormonal contraceptives are higher in overweight and obese women, it may be more effective for women who are obese to use condoms for pregnancy prevention.

HIV researchers have looked at many reasons why women may choose unsafe sexual activities. Internalized oppression may have this same implication in health risk

behaviors in obese women. Women who feel less power in their relationships are less likely to negotiate safer sex activities, due to many factors such as “passive feminine gender roles...perceptions of low power, or fear of disrupting relationships when alternative partners may not be readily available” (Amaro and Raj 2000:739). As obese women are a stigmatized group, they may feel this more acutely. Teenage women who absorb both the obesity stigma and the idea that one is only defined by her body may lead to different life decisions. Female adolescents who have a feminine ideology, such as inauthenticity and body objectification, are less likely to have protected sex (Impett et al. 2006). Obese women may feel both less power in their relationships, and inauthentic body objectification due to societal judgment, and may be less likely to use condoms for these reasons.

The literature on obesity and condom use is small, and has methodological concerns that may limit the generalizability of the findings. Most literature on adolescents regarding body weight and risky sexual activity looks at body image in addition to BMI. However, since these are linked, one cannot conclusively state that one is more important than another. High body image is linked to lower rates of unprotected sex (Wingood et al. 2002; Gillen et al. 2006). However, BMI is not correlated with condom or contraception use (Wingood et al. 2002; Eisenberg et al. 2005; Gillen et al. 2006). These three studies used small volunteer samples, either college students (Eisenberg et al. 2005; Gillen et al. 2006) or low-income contraception clinic clients (Wingood et al. 2005). However, due to the lack of nationally representative studies regarding safer sex behaviors and BMI, only limited conclusions can be drawn. Within these volunteer samples, BMI does not affect condom use.

BMI may be correlated with other unsafe sexual activities. Higher BMI is correlated with more casual sex partners in a college student sample (Eisenberg et al. 2005). In a nationally representative sample, obese men had lower numbers of lifetime sexual partners, but had similar rates of HSV-2 infections as normal weight men (Nagelkerke et al. 2006). This effect was not significant with women, as obese and normal weight women showed similar number of lifetime partners, and no significant difference in HSV-2 seropositivity.

Other factors may contribute to any effects of obesity on condom use. Obesity and depression are linked, in possibly a bi-directional manner; that is, obesity may cause depression, and depression may cause obesity (Markowitz, Friedman, and Arent 2008). Obese individuals are more depressed than others (Ross 1994; Markowitz et al. 2008), and are more stigmatized in society (Carr and Friedman 2005). In addition, many women are on diets, and low calorie diets may cause depression (Ross 1994), and repeated dieting without results or with weight regain, may also contribute to depression (Markowitz et al. 2008). Obesity does predict later depression (Markowitz et al. 2008), but this is more likely linked to the stigmatization of obesity than it is to physical symptoms.

As depression has been linked to unsafe sexual activity, one must be clear if BMI and depression are separate independent factors, or are otherwise inexorably linked when explaining condom use. Among low income women seeking reproductive care, higher depression scores were associated with not using birth control at last intercourse, and having an STI (Berenson et al. 2003). Adolescents with higher levels of depression are less likely to use condoms (Lehrer et al. 2006), even after controlling for substance use

and self-esteem (Shrier et al. 2001). This latter study also found that depression was a significant predictor of condom use when controlling for self-esteem, while self-esteem is not significant when depression was used in the model. If a link exists between obesity and safer sex, it may be mediated by other factors. Specifically, obese individuals are typically more depressed than average weight individuals (Rothblum 1992; Ross 1994; Markowitz et al. 2008). Depression has been linked to unsafe sexual behavior in adolescents (Shrier et al. 2001; Berenstone et al. 2003; Lehrer et al. 2006). However, the link between obesity, depression, and condom use has not been explored. By looking at how obesity and depression intersect with safer sex activities, one may be able to see if the stigma of obesity is still a significant predictor of condom use, or if depression is a mediating factor in the correlation.

GAPS IN THE LITERATURE

Some researchers looking at obesity and sexuality seem to infer that obesity, itself, interferes with major sexual functioning. Studies of obesity and sexuality sometimes suggest that obese women are different from normal weight women in their sexual function and capacity. For example, some researchers hold the idea that women who are less attractive or at a higher BMI or weight are less likely to date, except as possibly a niche for those who cannot obtain a more attractive partner (Cawley et al. 2006). In these studies, it seems that the researchers assume that obese individuals cannot attract partners based on their body size, and thus are relegated to either niche markets, or to partners who would otherwise be choosing smaller individuals to have sex with or date. The obesity stigma is so pervasive that researchers can make claims that obese

individuals are not seen as the same as average weight people, and thus differences in sexuality are due to their physical size, rather than the social stigmatization.

As shown in the literature review, the studies regarding obesity and sexual activity are contradictory, and do not account for many confounding factors. My research will attempt to address these issues. Samples of college students or volunteers can give different results compared to nationally representative studies. In addition, few studies viewed BMI as a separate control from either body image or attractiveness. I use a nationally representative dataset that views BMI as an independent factor. Many studies only looked at women's obesity, and did not view men's bodies as a possible predictor of sexual behavior. My research views the effects of gender, as well as separate analysis of both men and women. Lastly, many studies do show that obese individuals are more depressed than smaller people; however, they do not adjust for this factor when viewing the effects of depression on sexual activity. By viewing both depression and exercise as control variables when viewing the effects of BMI category, one can see if BMI is a factor in condom use.

There exists a significant gap in the literature when it comes to obesity and condom usage. Limited research has looked at BMI as an independent factor, nor has sexuality research used the BMI category of obese to view the social stigma of obesity on behavior. Since I wish to view BMI as an independent control to see any effects of the obesity stigma on sexual activity, I do not also control for body image. My thesis will look at body mass index (BMI) as an independent factor to view the obesity stigma and its effects on condom use. If weight is a stratifying force in our society, there may be a statistically significant difference between weight categories among women and their use

of condoms. As men are not under the same appearance pressure as women, this may not influence their condom usage with partners. If gender and weight are not a stratifying force, there will be no difference in condom usage by weight and gender. As such, my main hypothesis is that obese women will be less likely to use condoms, compared to the normal weight category, whereas there will not be a statistically significant difference in condom use of obese men compared to normal weight men. In addition, this discrepancy will continue even after adjusting for depression scores and exercise. These hypotheses will test the theory that the obesity stigma causes adverse effects within sexual relationships after adjusting for depression, exercise, and other socio-demographic controls.

CHAPTER III

METHODOLOGY

I use the National Longitudinal Study of Adolescent Health (Add Health), Wave I At Home survey. The survey is a nationally representative survey of high school students looking at social and health contexts, including behavior, risk factors, and outcomes, and thus is a rich and detailed data set to use for my analysis (Urdu 2003). Add Health data collection was designed as a cluster sample in which clusters were sampled with unequal probability. Because of this complicated sampling design, the data were analyzed using STATA, a special survey software package designed to handle observations that are not independent and identically distributed. Using more common software packages such as SAS and SPSS would have produced biased estimates and standard errors (See Chantala and Tabor 1999 for discussion).

The dependent variable is condom use at last intercourse. The respondents were asked, “Did you or your partner use any method of birth control when you had sexual intercourse most recently?” The respondents who answered affirmatively were then asked what forms of birth control were used. Those who indicated that they used a condom, either alone or in combination with other birth control methods, were placed into the “Condom Used” category. Participants that indicated either no birth control was used, or that used another form of birth control besides condoms, were placed into the “No Condom Used” category.

Major independent variables are BMI category, exercise, and depression scale scores. Respondents were asked their height, in feet and inches, and their weight. BMI was calculated by dividing weight (in pounds) by height (in inches) squared, and multiplying by 703 (CDC 2007). This calculation ranged from 13 to 50 kg/m². BMI was further reduced into categories: underweight (less than 18.5), normal (18.6 to 24.5), overweight (24.6 to 29.9), and obese (greater than 30). This calculation and categorization is consistent with the World Health Organization and the Centers for Disease Control (CDC 2007), and with previous obesity and dating literature (Cawley et al. 2006). There are other forms of classifications for adolescents into “overweight” and “obese” categories, however, these vary by country, and there is no international consensus (Cole et al. 2000; Kuczmarski et al. 2000). As BMI is used as an independent variable, and not as a largely changing variation (Gordon-Larsen et al. 2004), this calculation is used more as a grouping category, and not as a marker for any health related behaviors. Self-reported weight may not be completely accurate, however, studies have shown that this is a reliable indicator (Goodman, Hinden, and Khandelwal 2000). In addition, self reported category is not reliably indicative of BMI category. In the Add Health dataset, 47 percent of nonobese adolescents reported they were “very overweight” (Goodman et al. 2000). As such, BMI category, calculated by reported height and weight, is used as an objective measure of body mass, rather than a subjective body image question.

Exercise is not used in a way to indicate health; rather, it was used to indicate any physical activity specifically for “exercise,” and not for other active sport participation. Participants were asked “During the past week, how many times did you do exercise,

such as jogging, walking, karate, jumping rope, gymnastics, or dancing?” Those who answered one or more times per week were placed into the “exercise” category, and those who indicated “not at all” were placed into the “no exercise” category. The HAES philosophy defines exercise not by intensity or frequency, but rather of deliberate movement for exercise, as labeled by the participant. Participants may have various reasons for exercising more or less often. For the purposes of condom use and this particular theoretical model, I chose a more lenient measure of exercise to capture any level of health involvement. While some data are lost when collapsing this variable into a dichotomy, when predicting odds ratios, previous research shows this difference does not significantly affect the findings (Drane and Valois 2002).

Depression scores were calculated using a modified Center for Epidemiologic Studies Depression Scale (CES-D, Radloff 1977). A 19-question scale was used, with questions such as “you felt depressed,” “you felt that you were too tired to do things,” and “you feel fearful.” The answers were zero for never or rarely, one for sometimes, two for a lot of the time, and three for most or all of the time. Four questions were worded positively: these were reverse coded. Chronbach’s alpha equals .86, which indicates that the items are highly correlated. The 19 items were then used to create a scale, ranging from zero to 57, with higher levels indicating a more depressed individual. As this is not a scale used to diagnose major depressive disorder, the item is left on an interval.

Other control variables used include age, sex, race and ethnicity, STI diagnosis, parental income, and highest parental education level. All of these controls are related to condom use (Kirby 2002). Age was calculated by the respondents’ birthday. The interviewer, with clarifications if needed, reported sex. No comparisons can be used

between sex and gender; the dataset considered these interchangeable. Participants self identified their race, with the option of choosing more than one category. Those who chose multiple categories were then asked to answer which one category best fit their background. Race was then categorized into Hispanic, non-Hispanic black, and non-Hispanic white (reference category). Due to small sample sizes, those defining as Asian or other were not used in the model.

STI diagnosis was a dummy variable assessed by asking the participant if a doctor or nurse had ever diagnosed them with an STI, including chlamydia, gonorrhea, HIV or AIDS, genital herpes, genital warts, trichomoniasis, or hepatitis B. Those answering yes to any of these were placed into the “STI diagnosed” category. Previous research shows that those with a previously diagnosed STI are less likely to use condoms (Kasprzyk et al. 1998). However, self reports of condom use at last intercourse is not a significant predictor of an STI (Gutierrez et al. 2006) Rather than use an STI diagnosis as a predictor of condom use, this variable is used to capture the possible partner choices that an individual makes. The multiple studies show that STI diagnosis is a needed control when looking at condom use.

Parental information was used as an approximation of socioeconomic status. Parental income was asked as total income in 1994, before taxes, from all sources. Approximately 10 percent of the sample did not answer this question, and were coded into a dummy category of “No answer.” Those that answered the question were categorized in 20,000 increments, from zero to 80, and a category of “80,000 or more.” The category of 40,000 to 60,000 is used as the reference group. Parental education was put into an ordinal scale, with categories of “8th grade or less,” “more than 8th grade but

did not graduate” and “business or trade school instead of high school;” “high school graduate” and “GED;” “business or trade school after high school” and “went to college but did not graduate;” and “graduated from a college or university,” and “professional training beyond a 4-year college.”

CHAPTER IV

RESULTS

DEMOGRAPHICS

Of the 20,746 individuals in the dataset, only 8274 (39.9 percent) answered the initial question affirmatively: “have you ever had sexual intercourse? When we say sexual intercourse, we mean when a male inserts his penis into a female’s vagina.” Those answering no to this question were skipped out of the section, and were not included in this analysis. Due to the specific wording of this question, the following analysis cannot be generalized to individuals only having intercourse with members of the same sex, and all further analysis is under the assumption that the questions are being answered assuming heterosexual intercourse. Table 1 details these demographic details. Of the individuals answering this question positively, 48.2 percent were female, and 51.8 percent were male. Eighty-two percent exercise, 6.2 percent have reported being diagnosed with an STI, and 50 percent were white. Approximately 8 percent of the sample is obese, and 54.25 percent used a condom at last intercourse.

Between men and women, there are some sociodemographic differences. Women are more likely to be underweight or obese, and men are more likely to be overweight. The depression index score for women was statistically significantly higher than for men. Women were more likely to have reported exercise in the past week, and were more

likely to report having been diagnosed with an STI. Age is statistically, but not substantially, different, with the combined average age of 17.5.

Table 1. Demographic Information for Sexually Active Sample

	Combined	Women	Men
Nonweighted N	8274	3988	4286
Condom Used at Last Intercourse	54.25	48.63	59.55
Condom Not Used	45.75	51.37	40.45
BMI Category***			
Underweight	8.74	10.96	6.66
Normal	65.45	65.55	65.35
Overweight	17.49	15.08	19.74
Obese	8.32	8.4	8.25
Depression Index*** (mean)	16.246	17.338	15.223
Exercise***	82.43	85.35	79.69
Not exercise	17.57	14.65	20.31
Hispanic	18.85	16.8	20.77
Black	30.61	30.0	31.17
White	50.54	53.2	48.06
STI***			
Yes	93.73	91.57	95.75
No	6.27	8.43	4.25
Parental Education(n.s.)			
8 th or lower	4.67	4.21	5.08
Some High school	10.56	10.24	10.86
High school Graduate	28.15	29.58	26.83
Some college	31.73	30.77	32.61
College Graduate	15.18	15.8	14.61
Post Graduate	9.71	9.39	10.02
Income			
Did not Answer	10.79	10.1	11.44
0 to 19,000	24.11	24.54	23.7
20,000 to 39,000	25.98	25.69	26.25
40,000 to 59,000	20.55	20.67	20.44
60,000 to 80,000	10.98	11.11	10.85
80,000 or more	7.59	7.88	7.32
Age (mean)***	17.45	17.46	17.43

Significant difference between sexes: * p <.05 ** p <. 01 *** p<.001

Table 2. Race and BMI Category

	Total***			Women***			Men**		
	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic	White
Underweight	7.87	6.5	10.12	8.66	7.36	13.39	7.16	5.86	6.69
Normal	61.75	62.13	68.22	59.36	66.32	68.73	64.79	58.96	64.98
Overweight	20.36	20.35	15.15	21.28	17.23	11.4	19.52	2.27	19.94
Obese	10.02	11.02	6.51	11.69	9.09	6.48	8.52	12.48	8.39

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Table 3. BMI Category and Independent Variables for Total Sample

	Underweight	Normal	Overweight	Obese
Condom Used	52.83	54.39	53.65	55.95
Condom Not Used	47.17	45.61	46.35	44.05
Exercise	82.91	82.28	83.76	80.24
Not Exercise	17.09	17.72	16.24	19.76
Race***				
Hispanic	13.97	18.07	21.71	24.16
Black	18.59	22.35	25.05	28.58
White	67.44	59.58	53.24	47.26
STI				
Yes	4.63	5.82	7.2	9.63*
No	95.37	94.18	92.8	90.38
* p<=.05 ** p<=.01 *** p<=.001				

Table 4. Condom Use and Independent Variables for Total Sample

	Exercise	Not Exercise	Black	Hispanic	White	STI	No STI
Condom Used	54.58***	47.98	59.37	48.79	52.74	41.57	54.20
Condom Not Used	45.42	52.02	40.63	51.21	47.26	58.43	45.80
Used							
* p<=.05 ** p<=.01 *** p<=.001							

TOTAL SAMPLE

In bivariate analysis of the total sample (men and women combined), BMI category did not predict condom use at last intercourse. However, exercise did predict condom use, in that individuals who reported exercising in the past week are significantly more likely to have used a condom at last intercourse than individuals who did not work out. Depression is also statistically significant: those who used a condom have lower depression levels than those reporting nonuse. Race remained significant in almost all models, in that black individuals are far more likely to report condom use. Other sociodemographic controls were not significant in all models. Individuals previously diagnosed with an STI were less likely to report condom use than those who have never been diagnosed. Obese individuals are also more likely to report having been diagnosed with an STI. BMI category did not show any significant difference in other key or control variables.

In multivariate analysis several findings were significant. BMI is not a significant predictor of condom use, except in the interaction term: obese individuals who exercise are 2.5 times more likely to use a condom. Women are 38 percent less likely to have used a condom, and black individuals are 1.54 times more likely to use condoms. Participants who reported exercising in the past week were 1.325 times more likely to have used a condom. Depression index scores were predictive of condom use: each point increase in the depression scale lead to a two percent decrease in the odds of using condoms.

Table 5. Logistic Regression Predicting Condom Use for Total Sample

	Controls	BMI	Depression and Exercise	Interaction between BMI and Exercise
Sex-Female	.667***	.667***	.680***	.679***
Age	.952	.951	.957	.957
Black	1.541***	1.537***	1.538***	1.542***
Hispanic	1.146	1.143	1.149	1.144
STI	.594***	.591***	.604***	.607***
Parental Education Income	1.084*	1.084*	1.078*	1.078
Did not Answer	.899	.898	.892	.896
Zero to 19,000	.822	.820	.827	.833
20,000 to 39,000	1.005	1.005	1.008	1.001
60,000 to 80,000	1.086	1.089	1.081	1.083
80,000 or more	1.134	1.134	1.128	1.119
BMI Categories				
Underweight		.994	.978	.771
Overweight		.977	.967	.895
Obese		1.130	1.139	.576
Other Key Variables				
Exercise			1.325**	1.179
Depression			.981***	.981**
Interaction Terms				
Underweight*Exercise				1.333
Overweight*Exercise				1.100
Obese*Exercise				2.357*

Reported as Odds Ratios.

Reference categories: BMI Normal, White, Income of 40,000 to 59,000

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

WOMEN

In bivariate analysis, BMI category did not predict condom use. Exercise, race, and an STI diagnosis did correlate with condom use for women. Unlike the combined model, BMI category is correlated with depression scores, in that underweight individuals have lower depression scores, and overweight and obese individuals have higher depression scores. In addition, obese women were more likely to report having an STI diagnosis.

Generally, in multivariate findings, BMI is not a significant predictor of condom use; however, obesity does become a significant predictor when viewed with exercise. After controlling for age, race, depression, parental education and income, obese women who exercised are 3.52 times more likely to have used a condom, and obese women who did not exercise were 64 percent less likely to have used a condom. No other effects by BMI category are seen. Among the significant control variables were race and STI status. Black females are around 1.7 times more likely to have used a condom, and individuals with an STI diagnosis were 45 percent less likely. Exercise is correlated with condom use, in that women who reported exercise are 1.6 times more likely to have used a condom. Depression scores were significant as in the combined model: each step increase in the depression index indicates two percent lower odds of using a condom. In additional analysis (not shown), depression does not significantly interact with BMI category in predicting condom use.

Table 6. BMI Category and Independent Variables among Women

	Underweight	Normal	Overweight	Obese
Condom Used	47.15	48.99	47.4	49.99
Condom Not Used	52.85	51.01	52.6	50.01
Exercise	86.88	58.35	84.81	84.35
Not Exercise	13.12	14.65	15.19	15.65
STI***				
Yes	5.78	7.72	10.23	14.13
No	94.22	92.28	89.77	85.87

Table 7. Condom Use and Independent Variables among Women

	Exercise	Not Exercise	Black	Hispanic	White	STI**	No STI
Condom Used	50.86	35.85	56.26	40.63	47.73	35.99	49.78
Condom Not Used	49.14	64.15	43.74	59.37	52.27	64.01	50.22

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$ n.s. =not significant

Table 8. Logistic Regression Predicting Condom Use among Women

	Controls	Adding BMI	Adding Depression and Exercise	Adding Interaction between BMI and Exercise
Age	.927	.925*	.933	.933
Black	1.682***	1.670***	1.711***	1.721***
Hispanic	1.086	1.082	1.091	1.086
STI	.555***	.552***	.550**	.548***
Parental Education	1.110	1.112	1.102	1.104
Income				
Did not Answer	1.262	1.259	1.245	1.249
Zero to 19,000	.888	.886	.881	.896
20,000 to 39,000	1.091	1.091	1.095	1.105
60,000 to 80,000	.936	.935	.918	.919
80,000 or more	1.207	1.200	1.197	1.177
BMI Categories				
Underweight		.939	.929	.554
Overweight		.978	.998	.913
Obese		1.11	1.127	.359*
Other Key Variables				
Exercise			1.660***	1.379
Depression			.982*	.982*
Interaction Terms				
Underweight*Exercise				1.820
Overweight*Exercise				1.104
Obese*Exercise				3.779*

Reported as Odds Ratios.

Reference categories: BMI Normal, White, Income of 40,000 to 59,000

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Table 9. BMI Category and Independent Variables among Men

	Underweight	Normal	Overweight	Obese
Condom Used	61.78	59.47	58.14	61.84
Condom Not Used	38.22	40.53	41.86	38.16
Exercise	76.79	79.41	83.02	76.32
Not Exercise	23.21	20.59	16.98	23.68
STI				
Yes	2.85	4.02	5.03	5.32
No	97.15	95.98	94.97	95.75

Table 10. Condom Use and Independent Variables among Men

	Exercise	Not Exercise	Black	Hispanic	White	STI	No STI
Condom Used	60.79	54.73	65.37	57.42	58.12	52.2	40.06
Condom Not Used	39.21	45.27	34.63	42.58	41.88	47.8	59.94

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$ n.s. =not significant

Table 11. Logistic Regression Predicting Condom Use among Men

	Controls	BMI Category	Depression and Exercise	Interaction between BMI and Exercise
Age	.972	.974	.981	.980
Black	1.435**	1.436**	1.416*	1.420*
Hispanic	1.213	1.209	1.208	1.199
STI	.660	.658	.683	.692
Parental Education Income	1.056	1.057	1.503	1.052
Did not Answer	.654*	.655*	.654*	.657*
Zero to 19,000	.748	.744	.752	.750
20,000 to 39,000	.930	.929	.928	.924
60,000 to 80,000	1.248	1.247	1.241	1.237
80,000 or more	1.078	1.082	1.095	1.088
BMI Categories				
Underweight		1.064	1.056	1.193
Overweight		.957	.929	.862
Obese		1.107	1.107	.689
Other Key Variables				
Exercise			1.147	1.070
Depression			.978*	.978*
Interaction Terms				
Underweight*Exercise				.862
Overweight*Exercise				1.099
Obese*Exercise				1.892

Reported as Odds Ratios.

Reference categories: BMI Normal, White, Income of 40,000 to 59,000

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

MEN

In bivariate analysis, exercise and depression were significantly correlated with condom use for men, though BMI was unrelated. Compared to the combined model, race is still a significant finding in the multivariate analysis, but another anomaly arose in that men whose parents refused to answer the income question had a significant finding, in that they were less likely to use condoms. Rather than impute the data to create an index

estimating the missing household income, this variable is left as a control, independent of the other dichotomized income categories. In contrast with women and the combined model, men who have been diagnosed with an STI were not significantly less likely to have used a condom. Depressed men were less likely to use condoms, in the same magnitude as the other models. As expected, for men, BMI is not a significant influence on condom use, either alone or with an interaction with exercise.

CHAPTER V

DISCUSSION

BMI category is not significantly related to condom use, except when looking at the interaction of obesity with exercise for women: obese women who work out one or more times per week are 3.5 times more likely to use condoms, and obese women who do not work out are 64 percent less likely to use condoms. However, without looking at that specific interaction, obesity has no significant correlations to condom use; neither does any body mass category. In the previous literature, BMI is unrelated to condom use; however, it may be related to other sexual risk factors such as multiple sexual partners and drinking (Shrier et al. 2005). In addition, previous studies did not view the intersection of obesity and exercise, thus missing an important interaction of health and size.

There are many ways that one may view these findings. Those who take care of their physical health by exercising, regardless of their weight and regardless of the intensity or weekly frequency of exercise, are more likely to use healthier safer sex behaviors. This shows in the model by exercise being a significant predictor of condom use, even after controlling for BMI category. Remember, exercise is a dichotomous variable: the individual reported working out one or more times in the past week, or the individual reported no exercise. One cannot correlate this exercise variable to specific

healthy intentions; however, health related behaviors are the goal of this report. Exercise has a larger impact on condom use for obese women than for normal weight women. The particular intersection between obesity and exercise may be that obese women in particular should be encouraged to exercise: not because it will help them lose weight, but because the messages sent about health are relevant regardless of size. This accords with previous Health at Every Size literature, in which women who are educated about healthy habits maintain these actions more if the framework is not weight loss directed (Bacon et al. 2005). That is, women should be encouraged to be healthier for the sake of being healthier, without a specific focus of weight change. This finding may lead to future promotion of HAES initiatives that also include a sexual activity component; empowering women to both accept their body and choose healthier choices, without weight loss as a goal.

However, the finding that obese women who do not work out are less likely to use condoms, does uphold the idea that the obesity stigma affects the behavior of individuals. A major tenet of the stigma is that obese women are part of the out-group, and discriminated against by the majority of the society (Cahnman 1968; Rothblum 1992; Carr and Friedman 2005). The marked difference between obese women who work out and those who do not could be related to this stigma. An obese woman who has internalized the stigma that she is somehow not a valuable person may be less likely to insist on condom use. In comparison, an obese woman who exercises may receive positive sanctions for participating in her healthy behavior, or those positive sanctions may be related to her attempting change her weight. Either instance suggests that the obesity stigma is related to her behavior.

Perhaps the exercise itself predicts safer sex activities. Women who exercise may also practice other healthy habits, which may lead to higher efficacy in taking care of their sexual health. The use of condoms by this population would be sensible, as sexual health is a large part of physical health. Therefore, healthy behavior education, outside the scope of weight loss, should increase condom use as well. Sexuality is a large part of physical and emotional health, and additional emphasis on safer sex behaviors along with health education would benefit all involved.

Women may associate exercise with increased self-esteem. However, self-esteem is rarely significant in models that also include depression (Shrier et al. 2005). In models also run by the researcher (not shown), self-esteem was not significant in a model with either fitness or depression. Exercise decreases levels of depression in clinically depressed individuals, and this benefit exists as long as the exercise is continued (Babyak et al. 2000). Regardless of potential changes in depression or self-esteem, exercise may motivate individuals to make healthier choices with their bodies, including using condoms. Physical changes from exercise may, perhaps, change the self-efficacy of women and their choices. When women lose weight, they temporarily increase their self-image (Bacon et al. 2005), which may lead to a physical empowerment.

As for men, the only significant findings were in race and depression, suggesting that BMI category and fitness are not related to condom usage. Men receive different messages about size and sexuality, which may influence how men choose safer sex behavior. Men are more likely than women to use condoms, and this has been attributed to the gendered notions of sexuality. However, the relevant ideas surrounding the obesity stigma that affect women's obesity and exercise interaction did not show in men; thus

suggesting that men may receive different messages regarding body size, body image, athleticism, and condom use.

However, depression is still a significant predictor in every model. Each point increase in depression leads to around a two percent decrease in the odds of using a condom. Depression means in bivariate analysis were only approximately one point lower in people who did not use condoms; however, this was statistically significant in all bivariate models as well. This finding agrees with Lehrer et al. (2006), which found depression as a significant predictor of condom use. However, this finding differs from Shrier et al. (2001), who found depression was not a significant predictor for women, but significant for men in some models predicting condom use, after controlling for self esteem. Their theoretical attributions suggested that the locus of control was partly an explanation for STI diagnosis, but perhaps not for condom use.

There are many methodological strengths of my study. First, I use a nationally representative dataset; this allows my findings to be generalized to the greater adolescent population. Many of the studies done on smaller volunteer or college samples had methodological weaknesses that lead to results that were contradictory with other researchers (Wiederman and Hurst 1998; Gillen et al. 2006; Kaneshiro et al. 2008). By using a representative data set, I can avoid sample bias. Secondly, I use a distinct and direct measure of condom use at last intercourse. Rather than asking a frequency question, I am specifically looking at their behavior at last intercourse. This prevents ambiguity in the interpretation of a frequency question, in which one might answer “always” but not have used a condom. Methodologically, this is one of the many ways to

measure condom use, and has been used in other research on adolescents and condoms (Majumdar 2005).

As with any analysis regarding sexuality, there are many points of interest to keep in mind. First, this analysis does rely on self-reports by the adolescents, on both indications of height and weight, and of condom use. Weight is a sensitive subject for many teenagers, and so may vary from actual weight. However, Wave II for Add Health included both self reported weight as well as interviewer measured weight. These were highly correlated at .95 (Goodman et al. 2000). Most reported weights were within a few pounds of measured weights, if anything, there was a slight underestimation. In addition, asking about contraceptive use at last intercourse provides a higher measure of specificity, rather than asking about frequency of condom use. This may produce bias in relationships that recently changed their condom and contraception use, or may have been increased due to social desirability bias.

Since the analysis only looks at individuals who have made a contraceptive choice in sexual intercourse, there is no analysis of which individuals are choosing to have sex. Obese adolescent females are less to have sex or to date (Cawley et al. 2005). There may be a discrepancy in that obese women who may not choose to use contraception are waiting longer to have sex, and thus are not included in this early analysis.

This analysis focuses on individuals and their contraception choice. Sexual relationships by nature involve more than just the individual. It may be that the choice to use or not use a condom is not the choice of the individual but of the sexual partner. Partner characteristics do affect sexual choices and contraceptive use (Ford et al. 2001), but no studies have looked at partners of obese individuals. Condom use is typically

higher in casual relationships, and obese women are more likely to be in a casual sex situation than dating: their condom use may be higher for that reason. Future research should look at relationship duration and intensity, and the physical and health characteristics of the partner as a determination of condom use.

The dataset is an older set, collected in 1994 and 1995. Add Health is currently collecting its fourth wave of data, and respondents are currently between the ages of 24 and 32. Either the age of the dataset could be used as a baseline for a longitudinal study, or as an historical data point to view adolescent behavior in a similar survey conducted more recently. However, historical condom use can be a predictor of future use, thus individuals' past decisions may still persist currently. A recent study suggested that condom use at initial intercourse is correlated with both condom use at later intercourse and a lifetime reduction in sexually transmitted infections (Shafii et al. 2004). Perhaps a lifetime of early fitness in combination with safer sex may have other positive health and sexuality related results. Using exercise and fitness as an additional correlate in safer sex behaviors may be useful, and would provide more incentive to encourage exercise. Thus, an older dataset may not provide up to date information, it does provide a baseline estimate to which future estimates and correlates may be drawn upon.

CHAPTER VI

CONCLUSION

“The interpersonal factor, which is the truly sociogenic factor and which in its extreme manifestation stamps obesity with the stigma of moral turpitude, would seem to be of considerable, perhaps decisive, impact...The stigma cannot be removed except by moral treatment whose primary objective is to consider the patient as a potentially normal human being who is as capable of the healthy exercise of all his faculties as anybody else” (Cahnman 1968:298).

Using a condom is the best way, besides total abstinence, to prevent the spread of sexually transmitted infections (Holmes et al. 2004). Now we have further understanding of how obesity and exercise play into the use of condoms by adolescents. Predicting the use of condoms, and cataloging possible factors of this prediction, adds to the growing literature on condoms and safer sex. In addition, adding to the information regarding the obesity stigma and its possible effects on behavior, and how those effects may be moderated by other factors, plays an important part in the new literature for size acceptance.

The analysis of this data, presented in a sex positive and size positive manner, leaves room for several future studies. Combining the Health at Every Size study by Bacon et al. (2005) with sexual empowerment and communication perhaps would have a synergistic effect and lead to positive results in adolescents. Dismantling the obesity

stigma, or the ideas that lead to the stigma, in a group at risk for eating disorders and fat phobia may lead to increased self-efficacy, in both condom use and in other areas of life. Part of the dismantling process involves changing the assumptions of the dominant group. With the stigma of obesity affecting young people, specifically young women, from a very early age, changing this stigma can lead to far different life trajectories as individuals age.

Teaching both Health at Every Size information and encouraging healthy behavior outside of the weight emphasis could lead to more efficacy in other areas of physical and health behavior. The emphasis of healthy behaviors should be health, rather than any arbitrary figure imposed by dominant society. The emphasis of sex education should be quality relationships and the tools of safer sex, rather than the arbitrary sex negative context that is pervasive in our culture. Respecting the body, and all its many activities and forms, will lead to a richer society and lowered stigma for all groups.

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