PROFESSOR: I have what I think of as a couple of fascinating questions that I will use to occupy us for the next -- for the last couple of lectures of the course. In the context of talking about sleeping and dreams, I mentioned that the hunger drive is strong, but it's not so strong that if you wanted to, you couldn't starve yourself to death. But an interesting question would be why an otherwise healthy adolescent girl would do that. And why in doing that she would argue vociferously that there was nothing wrong with her and that she wasn't hungry even while starving herself potentially to death. That's one question. That will occupy probably today. You'll see that I did handouts for both this lecture and the next lecture rolled together in case I get to the next one today.

The second question is -- well, you might have found the evolutionary psych argument about asymmetries between the sexes in terms of what they want in relationships to be reasonably compelling. That argument about guys wanting to -- everybody wanting to propagate their genes, but because women get pregnant and are thus tied up with the baby for an extended period of time, that you end up with an asymmetry that would cause males to want more sex, more often, with more partners, than women. You might have found that appealing, at least as an intellectual construct. But how would we explain, would that explain, how might it explain why at least some males end up engaging in coercive sexual behavior, sexual behavior that does not appear to be consensual between the partners? And that's what's going to occupy us for the last lecture of the course.

Now these are very different problems, the problem of eating disorders on the one hand and coercive sexual behavior, or more colloquially, date rape on the other side. But they do have some interesting parallels, one with the other. These are outlined a bit, I guess, in the abstract part of the handout. They're both problems that are gender specific. The overwhelming number of eating disorder patients are female, and the overwhelming number of people who get into trouble for, you know, brought up on charges in coercive sexual behavior cases, for instance, are male. So they're gender specific. That's of some interest. They both serve a useful function at the end of the course, because they're both useful for bringing back theme after theme that we've seen throughout the course, themes like revisiting is it nature, is it

nurture? Is it biology or is it sociology?

And the answer always turns out to be, or often turns out to be, that these are complicated interactions. And the problems of eating disorders and coercive sex turn out to be particularly rich interactions between a number of factors. And by the same token, neither of them is well dealt with in any simpleminded, oh, give them a pill, for instance, kind of way. And they're both what could be described as being successful disasters. I'll elaborate on that later. But both of them are in a perverse sense successful behaviors and in a more obvious sense disasters, unsuccessful.

Let me start by sketching a portrait of what would be a typical patient with the diagnosis of anorexia nervosa. The term simply means -- anorexia means a lack of appetite. Nervosa is just what you stick on when it's of nervous origins. You know, you could have called it psychogenic or something like that. It just means a loss of appetite that you're not going to explain by some organic cause.

A typical patient would be an adolescent girl, say fourteen, fifteen, sixteen, who gets brought typically by her family to the doctor. Very skinny. Part of the characteristics you can see on the clinical criteria for the diagnosis -- part of the characteristic is a refusal to maintain what's considered a normal body weight. So maybe, you know, at her height and age, she should weigh about a hundred pounds. She might come in weighing seventy-five pounds looking to all the world like she is emaciated -- looking to all the world but one like she's emaciated.

One of the characteristics is a -- well, I think it's on the handout -- distortion of body image, a denial that you're actually skinny. And it's not just, you know, some sort of a cranky, you know, what did you get in biology this term? Did you flunk biology this term? No, I didn't flunk biology this term When you can see on the report card that it says F or something like that.

It's not that kind of denial. It's almost like a perceptual disorder, where a young girl who looks to everybody else like she is a famine victim looks at herself in the mirror and says, I look fat. As though she was seeing something that literally wasn't there. This is combined with an intense fear of being fat, of being overweight. And one of the official diagnostic criterion is a cessation of menstrual cycles for more than three months.

There was an interesting article -- Bo, you sent it around, right? Did you send around the *New York Times* thing about EDNOS? An interesting article in the *New York Times* science section last week pointing out one of the problems in psychiatric diagnosis. Suppose you got a patient.

She's fifteen years old, skinny as a rail, intense fear of being fat. Says she looks fat. And her monthly cycles are irregular, but they've never disappeared for a full three months. Under the official rules of the game, you can't give her a diagnosis of anorexia because she doesn't meet all the diagnostic criteria. Clearly has an eating disorder. What you end up labeling her as is eating disorder not otherwise specified. EDNOS is the official category for this.

It becomes an issue in the economics of health care because what you can get reimbursed for, what you can treat for, are real diseases. I mean, reasonably enough, you can't go to your doctor and say, you know, I want a pile of drugs and therapy that I want somebody else to pay for because I hate my calculus TA pathologically. Yeah, OK. You can't just decide that -- well, you can just decide that you're ill in something.

Or you can't just walk in and say, you know, I want you to treat me. I desperately need you to change the shape of my nose, and I'm not thrilled with my rear end and, you know, I kind of want you to reshape my whole body because, you know, my body, it's just not right. You have to get a diagnosis of, you know, body dysmorphic disorder or something like that before you can persuade the third party payers to do it.

Anyway, in psychiatric land this is a big problem because it's very difficult to come up with -- you know, there's no blood test, right? If you've got polio, there's a polio virus somewhere to look for. If you've got an eating disorder there's not. And so exactly how to label people is a substantial problem. But I'm not going to say more about it.

In any case, so here's a patient. This disorder is interesting as an interplay of mind and body in many, many ways. Part of the reason that it's interesting is because there are all sorts of psychiatric consequences that just arise from the fact that this girl -- I'll stick with it being a female patient because anorexia is about eight to one, nine to one female -- because she's starving herself. For instance, starving yourself is depressing. If you are really hungry, you also tend to have more symptoms of clinical depression. Is depression part of the eating disorder pattern? Is it part of the pathology or is it a side effect of the pathology?

In any case, it is not an uncommon disorder. Point prevalence is jargon for saying if I go and look at a population at this point in time, how many people have the disorder I'm looking for? And if you look at a population of young women, the point prevalence of anorexia is about half of a percent. If you broaden it to this EDNOS, eating disorder not otherwise specified category, that can go up to anywhere between 2% and 5% depending on what you read. If you look at

prevalence rates, as I say, they're about eight to one female to male. So it's a very heavily female disorder.

And it's a dangerous disorder. For patients with full-blown anorexia diagnosis, the mortality rate can be as high as about 5%. That's very high for a disorder of a population that's otherwise, you know, young healthy women. What kills you, by the way, is not starving to death, but things like heart attack. Your electrolytes get to be so out of balance that your heart fails to work and things of that sort.

It is also a disorder, in a sense like multiple personality disorder, that has changed greatly in its frequency in the population in historical time, like the last forty years. It's different from multiple personality disorder in that this change may be a real change in incidence. Remember the argument was that in multiple personality disorder, dissociative disorder had been there all along, and that multiple personality was merely the way that it manifest itself, that the dissociative disorder manifested itself in modern Western culture.

In the case of eating disorders, it really may be that the disorder is itself more frequent than it's been in the past. It is certainly a -- depends on what society you are in. It was characteristically, even as recently as probably twenty years ago, it was absolutely characteristically a disease of middle-class white girls. It has since managed to embrace diversity and reach out to other groups in Western culture. For instance, virtually unknown in Japan until fairly recently, but now is a disorder showing up in Japan. I think I just read something that even more recently, it's now starting to show up in mainland China, where it was unknown.

One of the requirements for a good eating disorder population, by the way, is a culture where there's lots of food. You don't have people with eating disorders of this sort in famine. You can be seventy-five pounds when you're supposed to be a hundred pounds because there isn't enough food, but it's not because you're refusing to maintain your body weight. So it is a disorder of a society that is feeding everybody, that would be able to feed everybody successfully. So where does this come from? What's it's etiology? What are the risk factors that contribute here?

I can tell it must be time to flip pages on the handout, right? Look at that. What's the causes? And it reminds me to caution, to step back for a couple of cautions. The primary caution here is that this is not intended to be talking about you specifically. Because, well, all right, here,

let's jump ahead. We can say stuff about, again typically, the girl who is a patient. There are characteristics that -- not every -- you know, it's a big, wide distribution as usual. But we can say something about where the sort of typical patient might lie. Typically she is adolescent -- sometime after the onset of puberty is the, sort of, risk period for the onset of anorexia typically -- described as a good girl, something of a perfectionist, the one who never gave any trouble.

And now you should be immediately able to see why I put this caution in that I'm not talking about you. Who in the world gets to MIT by being a bad, evil, non-perfectionist? Well, you know, there's a couple of you here maybe who, you know, just got through because you're brilliant, bad, evil, non-perfectionists or something like that. But the rest of you spent those adolescent years being -- those of you who were women -- the rest of you didn't spend your time being women. But, you know, you spent your time being good and doing your homework and not raising a lot of trouble and stuff like that. Oh, great.

Now let's talk about the family a bit. It's an interesting disorder because it turns out to be important to talk about the family. If you are dealing with a lot of other health issues, your family background is of some interest, particularly for sort of genetic reasons, but the structure of your family is typically not desperately important. Here it may really be important.

The family -- again, wide range possible -- but the typical family would be one that's described as -- what have I got here? -- overprotective and also perfectionist, achievement oriented. And you're sitting there saying, oh my god, not only was I good, but my family, they're overprotective, and they're achievement oriented. And when I said that what I really wanted to do was go to the community college, they locked me in my room for three days until I finished the MIT application and stuff. You know, this is our history. These are our people. We know them.

The other characteristic, to introduce a little piece of jargon here, the families are described as enmeshed. This is a piece of jargon that I understand well, because I come from a family that is beautifully described, you know, beautifully fits the enmeshed idea. I don't understand how my sisters got through their, you know, youth without an eating disorder. Because every year when I talk about this, if I talk about the risk factors, you know, it just sounds like my family, our nice achievement-oriented enmeshed family.

Enmeshed means a family where people -- imagine a family, like yours maybe, where people

finish each other's sentences and stuff like that. They're sort of all over each other psychologically. You know what they want. They know what you want. The place to see it in the Wolfe family, as my wife who of course married into this found out, is go out to dinner with them. You don't want to do this, because it's pathological.

First you've got to decide where to go for dinner, right? So everybody gets together. You decide where to go to dinner. You've almost got a consensus. You're going to go to Legal Sea Foods or something. At which point one of us, it might well be me, points out my mother doesn't really like fish. Is my mother fussing about this? No, my mother's perfectly happy to go along with what everybody else wants. But, you know, I'll say, you know, but Mom doesn't like fish. Well, actually, these days I would say, but Gaga doesn't like fish. My eldest child when he was a toddler named my mother Gaga. And that's been her name ever since, which is, you know, she deals with it.

Anyway, so all right, we've got to cancel that one. So now the whole conversation starts again. And you can do this for hours. Julie, my spouse, learned the best thing to do, particularly if we're out somewhere, you're wandering around trying to decide where to go to a restaurant, is just drop about five, six paces back. You just don't want to be in this conversation.

But eventually we'll end up at a restaurant, at which point everybody's ordering for everybody else and is ordering stuff that they don't necessarily want to eat, but they think somebody else might want to eat. My mother is the queen of this. My mother will order things she doesn't even like because she thinks one of her children wants to try it or something like that. And this is still true now that her children are in their late forties. It's OK, Ma. I'm not starving anymore. Anyway, that's enmeshed.

These families are also characteristically intolerant of expressions of conflict and anger. It's not that there aren't conflicts in these settings, but the family will act as a unit to smooth them out. This is not a, you know, dramatic family where people throw crockery at each other and then, you know, in act five they all hug or something like that. This is a family where if there's an issue, it's dealt with in some quiet, perhaps even subterranean, kind of a way.

So that's sort of the patient and the family. And then you've got to ask, given a disorder that has been a disorder of Western middle-class culture, you've got to ask what it is about the culture that might be contributory here. Again, there are other situations in which the broader environment is important, like is it putting stress on you in some sort of global kind of a way.

But here the specific demands of the culture turn out to be of particular interest. And the particular demand that people focus on is the degree to which American culture, more broadly Western culture, is simultaneously obsessed with both food and thinness. This is a difficult combination, right? So how do we know that this is a culture obsessed with thinness? One of the most telling ways is to take a look at the ideals of female beauty. What is it that society as a whole declares to be beautiful in women?

And if you do something -- I should check if there's a cool website for this. If you just line up the pictures of Miss America, for instance, over the last fifty, sixty years -- if you take a look at Miss America from the 1940s, you would agree that she's a perfectly attractive-looking woman, but you'd think she looks a little chunky. There's a lot more on her than would be the case for a modern Miss America or a modern -- open up a fashion magazine at random and look at the models. Much skinner than the ideal would have been a couple of generations ago.

Or take a look at one that I learned about when my children became big fans of the James Bond movies. So in every James Bond movie, there's the girl, right. She's been getting a lot skinnier over the years. If you go back to the early ones -- I don't know how many of you are great James Bond aficionados. But if you go back and look at a movie like *Goldfinger* -- I will not recite all the names of the characters because they're all bad lewd puns I'm realizing as I'm thinking about this -- but if you go back and look at the girl in *Goldfinger* or in *Dr. No* or something like that, you will find again -- that's from the early '60s, mid '60s -- you'll find that she looks, you know, perfectly attractive woman. But again, there's more of her than there would be in -- who's the tart in the most recent --

AUDIENCE: Halle Berry.

PROFESSOR: Halle Berry. Yes. Nothing there, right. She's pretty skinny. And another move in the James Bond thing, which is an interesting thing in its own right, which is that they still have to end up together by the end of the movie, but they're getting a lot crankier about the whole business, right. It's like they get into this movie. They realize that by the end of the movie, I've got to, you know be in one of those silly scenes with whoever's playing Bond this week, but he's a jerk really. But anyway, that's a separate issue. Anyway they've been getting skinnier and skinnier.

Barbie has been skinny forever, but gets blamed -- is held up literally as an icon for this problem, you know. Women do not look like Barbie. If you scale Barbie up to human size, there are serious biomechanical problems that ensue, apparently. Somebody wrote a

marvelous -- there's a great engineering piece on that somewhere that I saw once upon a time. There are cantilevering problems and all sorts of very bad problems with Barbie if you scale her up.

But the notion is that the ideal of what is beautiful has been getting skinnier and skinnier. At the same time, there has been this surge in both the availability and the diversity of food available. So you're expected to be skinny while plunked down at this spectacular all you can eat buffet. And that's, you know, you can imagine that there are a certain amount of problems there.

There are specific populations, and these are unsurprising specific populations, where you see higher than average rates of eating disorders. So for instance, gymnasts, eating disorders are overrepresented in that population. If you're looking for male eating disorder patients, a great place to look is in the wrestling population. Why is that? Well, if you're wrestling in a weight class and you have to be exactly this weight, particularly since there's a pressure to wrestle in the lightest weight class you can sort of get away with, there's going to be a lot of pressure of the sort that's similar to this pressure that you might imagine being applied by an ideal of female beauty that's very skinny. So there are these pressures -- yes, yes, yes?

AUDIENCE: In wrestling they also have [UNINTELLIGIBLE] they measure you a set number of hours before the actual match.

PROFESSOR: Yes. There are all sorts of reasons why this is not inclined to produce wholesome eating behavior as I understand it. My own personal wrestling career --

[LAUGHTER]

Why are they all laughing? You know, it's only mildly -- well, I suppose maybe it's completely hilarious. It was clear that I wasn't going to wrestle heavyweight, right. But, you know, the world is full of these little tough guys as opposed to just merely little guys.

[LAUGHTER]

Kristin, that letter I was writing for you -- it's really bad when the people in your lab are the ones who are becoming hysterical. Anyway, I might as well complete this embarrassing story. High school wrestling, the gym teachers were always weird people. And so high school wrestling you had to wrestle by weight class, right. That made sense. But our guy thought it was like a circle. So you wrestled the guy next to you in weight.

Well, if you were the lightest guy, it's going to be a hoot. Let's get him to wrestle the heaviest guy. Which was actually OK because the heaviest guy was just about as athletically talented as I was. The major danger was that he would fall on me, right, because then it was just going to be all over. So I'm -- athletics was not my strong suit. So there was no danger that I was going to do him any serious damage. And there was no serious danger that, as long as he didn't fall on me, I was going to get hurt. So I figured out a way to get on his back and sort of rode him around for a while, and did sort of manly things that looked like I might be trying to flip him, but that wasn't ever going to happen.

It was a great moment, made greater of course by the fact that -- never mind. No, I should continue. This was also -- he was -- this was full of -- this guy, deeply homophobic gym teacher who also was fond of explaining that how hard you wrestled showed whether you were a real guy. And anyway, it goes downhill from there. So in any case, the -- where were we? Oh yes. This explains why my wrestling career did not produce any eating disorders in my case.

So there are these societal or specific cultural factors that might be pushing one towards these sort of disorders. And then there's the question of whether or not there's a biological factor there. Is there some sort of a genetic predisposition towards this? The sorts of things that people point to are data, for instance, that there are family histories of depression, more depression showing up in the families of eating disorder patients than in the general population. There's also more depression in eating disorder patients themselves. But as I've said, that's hard to disentangle from the effects of starvation, that that itself produces problems.

In any case, well actually there is one thing that is potentially a biological underpinning. Has nothing to do with the brain at all, but is simply -- in diet land, these are known as set point issues. There's a notion that people come with some sort of weight that is sort of the weight that they are set for. The little thermostat in the hypothalamus is to say, you know, you're going to be 180 pounds or whatever. You can push this around, but this is where we want to be. It's related to the fact that there are certainly genetic factors that are making you one body shape versus another body shape. And if you are one shape and you're feeling strongly pressured to be another shape that is not the shape that you were sort of built to be, that's considered to possibly be a biological factor pushing people towards eating disorder. That's not like the sort of factors we're thinking about as a genetic predisposition to something like schizophrenia. That's really an interaction of body type with these sort of cultural pressures.

All right, so you've got characteristics of family, patient, the culture as a whole, possibly biological underpinnings. How might all of this contribute to producing an actual disorder? One way to think about this is to think about it as a trap that some subset of girls fall into. Not consciously. Nobody wakes up in the morning and says, "Gee, I think I'll have an eating disorder."

But the unconscious process might run something like the following. You hit puberty. So, all right, so you've been this sort of perfectionist good girl all along. You hit puberty and sort of a time that stretches or strains perfection altogether. Being perfect requires a certain amount of self-control, and you may recall the sort of wash of hormones that accompanies the onset of puberty is not particularly good for self-control. So the sense of control is not what it used to be. Your body is changing in ways that you don't control. And you're in this family where the set of ways that you can act out is very limited. There are lots of ways to act out in adolescence, but you're in a family where most of them are sort of not sanctioned. So one way to sort of re-exert a sense of control, a very culturally endorsed one, is well, let's go on a diet, right.

The percentage of women in this country on diets at any time is huge and that goes down to school-girl age. And if you ask -- you go and talk to middle school boys about diet. Ehh. They sort of grunt at you or something. You go and talk to middle school girls about diet and they can talk your ear off. Whether or not they're on some sort of a diet, they know all about it. This and the that. It's there. In fact, you might go on a diet endorsed by mom. Mom might say, you're looking a little chunky. And, you know, we can do it together. It's a mother daughter kind of thing. Well, you know, particularly since, you know, we're really enmeshed here anyway.

All right. Well, you can sort of imagine that a perfectionist on a diet, under the right circumstances, could be a recipe for disaster, you know. It's sort of like MIT and sleeping. People out there say, all right, I need to do a little extra work so I'll stay up an extra hour. MIT student says, I don't need to sleep. You know. Most people out in the world say, diet, oh, OK, we'll cut out the double dip, you know, double-stuffed Oreos and, OK, we won't deep fry the pizza. And this hypothetical perfectionist says, water. Lettuce and water. That'll work.

So anyway, you can imagine that the diet could -- that what happens when this is spiraling downwards, this diet can become increasingly severe. And at some point it becomes a real issue. It becomes a source of conflict in the family because it becomes clearly unhealthy. It's

clear to anybody except for the patient that this is unhealthy. But at that point, if you regard this as some sort of an assertion of autonomy, this is the last place where this girl has managed to find a place where she can carve out someplace where she is in control. Now the family is saying, you can't do that either. And she draws the line. This is where I'm going to make my stand. And it can become a clearly pathological state.

People in full blast anorexia deny that they are hungry in spite of being strongly malnourished. The rituals around eating, the rituals that get built up around eating can be extremely elaborate and extremely time consuming. Along with, for instance, very vigorous exercise regimens that -- basically it takes over your life. Plus being starved not only tends to make you depressed, but it also can make you delusional in a variety of ways. So it's clearly not a good place to be. So that's the sense in which it's a disaster.

It's also in a sense -- the sense in which it's a success, this notion of it being a successful disaster, the sense in which it's a success is if you regard this as an issue about control, in some sense, the patient, the daughter, has managed to take control over the family. That wasn't her goal, but there's nothing like a life-threatening condition to galvanize the attention of a family. And here in this clearly pathological way, the daughter has become the center of the family's attention. This quiet, never caused any trouble, you know, bury the problems elsewhere daughter has now successfully taken over the family.

The problem with that success is it's clearly desperately maladaptive and potentially dangerous. Well, what do you do? As you can imagine, virtually every major psychotherapeutic regimen has been tried in some fashion. The punchline, the bottom line, is that my understanding of best practice is that nothing by itself works terribly well and that what you do is some of everything.

Now, what is everything? Well, one bit of everything is you've got to get the patient to eat. Often by the time you've got an eating disorder patient who has reached the point of being in medical care, this is a potentially life-threatening situation. And the patients often get hospitalized. Under hospital settings, one of the things that works really well, and one of the things that was once upon a time touted as a magic silver bullet cure, comes straight out of Skinner boxes and behaviorist theory, you know, learning theory. And that is to set up the ward, well basically as a giant Skinner box. OK, there's stuff you want, right? You want to be able to call your friends? Good. Here's what you've got to eat. You want to be able to watch TV? Good. Here's the weight standard you have to reach.

And so you set up a clearly defined set of rewards in response for eating behaviors. And it works very nicely in many cases. You can get people back up to weights that are appropriate for, you know, age and height. Works just fine. Why isn't it a magic bullet? Well, what happens when you go out of the hospital? You go out of the hospital, you're back in the environment that produced the disorder in some sense. And it tends to fall apart. The problem was that relapse rates were very great.

So one of the things you're going to want to do is not just treat -- people aren't pigeons. You don't want to treat them just as pigeons. You can train your pigeon to do whatever with a nice schedule of reinforcement and probably that doesn't work too well when you release the pigeon into the wild either. With a human, it's nice to talk to them.

So psychotherapeutic approaches have been -- you know, various forms of talk therapy have been tried. Freudian therapy centered around the idea that -- the core issue here was a fear of growing up in the sort of typical Freudian tendency to sexualize everything under the sun, this gets described as a fear of pregnancy, that, well, you know, if you manage to suppress menstrual cycles and things like that, you're not going to become pregnant. And by starving yourself, your body will be more like that of a little girl. It's a little like the sort of metaphoric senses of trying -- of Snow White's evil stepmother trying to keep Snow White as a little girl. But anyway the Freudian notion was that there is a certain terror about getting older, you know, growing up, that the patients are dealing with.

Just talking to him about it didn't turn out to be a huge success, in part because patients who are that undernourished are a little like schizophrenic patients. They're not good candidates for psychoanalysis or for much other in the way of talking therapy. Delusional people are not great at insight. So combining some sort of conversation, some sort of therapeutic conversation, with something like the behavioral modification technique, that helps.

There is evidence that pharmacology helps. There is an obsessive quality to the thought processes of anorexic patients. They're deeply obsessed with food. In fact, you get these fascinating case histories where the anorexic is doing all the cooking for the family. She loves to cook for everybody. She just doesn't eat any of this. You know, absolutely obsessed with food, swearing they're not hungry and engaging in elaborate rituals around eating. You know, that's an obsessive kind of behavior that turns out to be broken up by Prozac and similar drugs quite well. So one thing to do is to feed them an antidepressant like Prozac, in part because

they may be depressed and in part because it acts against the obsessive thoughts.

Just feeding them an antidepressant by itself has no great track record. But, all right, let's combine a little antidepressant medication with a little behavior modification, a little talk therapy, this is all working -- this all might have some meat to it. One of the things that seems to be an interesting part of treatment regimens in eating disorders, more so perhaps than elsewhere, is it's often useful in anorexia particularly to talk with the family also. Because that family, they're actually -- there are clinicians who argue that anorexia is a disorder of the family where it just happens to be that the girl is the designated patient, that the family as a system is sick and that the daughter is showing the symptom. And that if you want to have this work out, that what you need to do is to treat the family and get the family out of each other's faces a little more, and more willing to express feelings to each other perhaps and things of that sort.

The prognosis is a little reminiscent of Anna O., if you remember that story from the history of Freud's development. Anna O. had symptoms that Freud and Breuer could treat, but when those were treated, something new popped up. There's a flavor of that when you read about case histories of anorexia, that you can -- most patients recover. They become non-anorexic. But the population sees more depression going forward than a typical population. The population sees more other eating disorders than a typical population, as if there's something that was not dealt with. And exactly what that is, we clearly don't really know, but that anorexia was a particular crisis and that there are issues that may need to be dealt with on a long-term basis.

Now, one of the disorders that you can, sort of, progress to, if you like, not infrequently, or you can manage to generate it all by itself, is bulimia, or more technically, bulimia nervosa. Though anorexia nervosa gets called anorexia nervosa, bulimia often just gets called bulimia. Oh, did we just switch? Oh, look at that. It's so much fun to watch everybody go [SWISHING SOUND]. It's glad to know you're following along.

So bulimia is -- one of the reasons -- a follow-on disorder -- well, I don't know if it's a reason. It's not surprising it's a follow-on disorder. It's characteristic of an older population. Typical onset in college age or twenties and a different kind of, sort of a different story. So one important characteristic is these are patients typically who are outside of the family situation. They're not embedded in their family. They've gone off to college or they've gone off to work or something of that sort.

A bit insecure -- let's go back to this we're not necessarily talking about you thing. A bit insecure -- right. Who isn't? The ones who aren't a little bit insecure are the people, you know, near and dear to us who are insufferable. So a little bit insecure, maybe. Maybe a bit more insecure than usual. A bit impulsive. What's impulsive? When you get the family history, sorry, the patient's history, you get anecdotes about, you know, dumb impulsive things. Oh, on a whim I shoplifted once. It's not like I'm a chronic shoplifter. You get sort of dumb single incident kind of things in these reports. And self-esteem not great, and wants to fit in, which of course qualifies for most of us also, at least the wants to fit in part.

So the dilemma faced by this woman now living independently is that the fitting in piece involves socializing. And the socializing involves a lot of eating and drinking. Fitting in also involves, rather literally, fitting into those jeans or whatever that were designed for some half-starved model in the fashion magazines somewhere. And so you've got this conflict between food and thinness made quite concrete.

And these are our patients who, in a sense, stumble on a trick. And the trick is that if you eat and then you get rid of the food, those calories don't end up on your hips, right? So if you eat and then take a laxative or throw up, then you don't get the calories, right?

Now, that's a solution, but it's not a really great solution. It's not a great solution for any number of reasons. One of them is that, interestingly, it feels shameful. That's interesting because you could go onto a whole thing about why -- no -- I suppose no is probably too strong. A typical bulimic is not going to have a buddy bulimic who, you know, let's go off and go to this party and eat and go throw up together. I mean, it even sounds weird -- oh, by the way.

This is not unknown culturally, though I realized talking to my concourse class this morning that it's apparently much less known than I thought. Because my eight year old can tell you all about this. But in Roman culture, sort of high Roman Empire culture, there were, I don't know how widespread this was, but certainly in the orgy class, there was a custom of having these, you know, very elaborate parties where you'd eat and eat and eat and then you couldn't eat anymore. But you wanted to keep eating so you went to the next room, you threw up, and you came back and you ate some more. And so there are even villas with rooms that are designated as the vomitorium. And so how many people knew about this? All right, so it is a minority. It's absolutely fascinating to a certain round of eight year-old boys, who think this is, you know, really very interesting. Not something they want to try, thank you, but you know,

that's really -- well, they like other gross stuff.

Anyway, the problem is that first of all it's something that feels shameful and needs to be done in private. It's clearly sort of an odd solution. So maybe you try a more mainstream solution. Let's go on a diet. And maybe it becomes a fairly severe diet. But unlike anorexics, who deny their hunger and really don't seem to feel that hunger, bulimics feel hungry. They feel really hungry. And so the diet doesn't work.

And what you end up with is that the diet breaks down at some point. You go off the diet, perhaps in some spectacular bingy kind of a way. Well, that feels lousy too. And so, well, you figured out this trick once. You go and purge again in some fashion. And that gives you some transient release from the shame of having broken the diet. But again, the purging thing isn't great either. But this can become -- and in full-blast bulimia it becomes a very ritualized behavior in its own right.

Actually, somebody was telling me that some bulimics plan things very carefully so that they eat the nutritive foods first in a sort of a binging session and then finish up with the half gallon of ice cream and the jar of mayonnaise. I mean, the things you read people -- seriously, the things you read the people eating on bulimic binges are really quite amazing. Imagining sitting down and eating a thing of mayonnaise is just very odd, but this is the sort of thing that gets, that apparently -- anyway. But you stagger it in such a way so that you get at least enough of the nutrients that you need before you go and purge that you're not starving yourself.

And bulimia, unlike anorexia, can be a very long-term disorder. People can maintain body weight for a long time doing this. It's clearly not adaptive. I mean, it's a success in, again, in a limited sense. Let's you eat and lets you maintain this skinny weight. But in many other ways it's a disaster. First of all, repeated purging is very bad for, you know, do a variety of bits of permanent damage to you physiologically. It carries with it its own risk of mortality. Again, typically from heart attack from getting electrolytes sufficiently imbalanced to stop the heart.

And it does really bad things to that hunger drive circuitry in places like your hypothalamus. Because what happens is the body is smart. It says, we ate a half gallon of ice cream and a thing of mayonnaise. And we got this much caloric bounce out of that. You know, that's odd. I don't know what the problem here is, but I know how to adapt to that. If it is the case that huge amounts of food are not providing me with the calories I need, me up in the hypothalamus here, well, the answer is something's wrong in the gut. But the answer is I better eat more. I've

got to make this sucker hungrier, ramp up the hunger.

Bulimia, the word comes from to have an appetite like an ox, like a bull. Because what happens is that the body learns that food isn't doing it for you anymore and you just keep eating it. It's a vicious cycle. You've got to eat more and more. Well, this other -- it's two chunks of your brain fighting. This hard-wired chunk of hunger drive is saying, need this many calories. If it takes, you know, this many truck loads of food to get it, well, go out and eat that truck load. And you've got this other chunk of the brain saying, we're getting in those jeans, man, so go and throw up again. And these two are fighting with each other in a way that's clearly at this point maladaptive.

Now, we have this -- the regular population away from the eating disorder population runs into the same problem, by the way, with diet foods. Diet foods don't give you the caloric punch of regular foods. That's the whole idea. So these little chunks of the brain say, hey, eat twice as many. See the label? It says half as much fat. Brain says, eat twice as many. And the other thing it says is, you know, what do you like? Well, you're built to like -- brain says, we like double-stuffed Cheerios -- Cheerios. Oreos. There's probably double-stuffed Cheerios now too. Anyway, we like double-stuffed Oreos because they've got lots of calories and this little piece of my brain is still, you know, foraging around on the savannah. And when I found double-stuffed Oreos on the savannah, man, I could live for a week off of one of those suckers. It's great stuff.

Now, you're eating the low-fat reduced everything version of this, and the brain is saying, lousy stuff, man. You're eating bark and twigs here. So it doesn't taste good to me no more.

Even though it tasted perfectly -- this is one of the reasons why diet foods cycle through the supermarket much more rapidly than high-fat foods, which is that any diet food tends to have a fall off in its appeal to the population fairly rapidly. The Oreos stay there forever because people love them. The reduced fat all-twig Oreos have to be replaced next week by the, you know, low carb, reduced fat, high cardboard Oreos or something, in a brand-new package so that you'll go out and try it. Because, well, you know, those low fat ones, they were OK for a while, but my hypothalamus is now telling me they weren't that good. So you have to keep churning the product line in order to keep you happy.

Treatment turns out to be much the same story as with anorexia. Nothing by itself works. There are a couple of big differences. One is, as I said before, you can go for a very long time

without seeking treatment because it's not as acute a disorder as full blast anorexia is. It's not good for you, but you can maintain this. Plus it's a very private disorder and so you can tend to maintain it all by your little lonesome for a fairly long period of time.

The other thing is that it no longer turns out to be desperately interesting to talk to the family about this. You're outside the family. But in place of that what turns out to be an interesting component of treatment is group therapy. This has been a very isolating disorder, and when you finally come to treatment, you say to yourself in some fashion, I am so weird. There's nobody else like me in the world. And that doesn't help you. That's just depressing and off-putting in its own right.

If you're with a group of other people with a similar disorder, you're saying, look, hey, it turns out there are other people like this. We'll work through this thing together. And that turns out to have some therapeutic value. Again like anorexia, people tend to get over this and then tend to have, to need to sort of be vigilant about food issues and vigilant about other such issues ongoing past that as if there were some underlying issue that hasn't quite been addressed.

So, well, I think what I will do unless there's some -- oh, no, I got to all the various words on the handout. Look at that. Let's take a break, and then what I'll do is at least set up the problem of coercive sexual behavior and we'll go on from there.

[PRIVATE CONVERSATION]

AUDIENCE: Is there any good evolutionary reason that girls get anorexia or is it just that we idealize the girls --

PROFESSOR: The mainline argument I think is the pressures are exerted on girls much more than boys, that if the ideal guy had -- there are sort of muscle building-ish disorders in guys that might be comparable. AUDIENCE: Is it

formally diagnosed?

PROFESSOR: Is it formally diagnosed? I don't know.

[INTERPOSING VOICES]

AUDIENCE: [INAUDIBLE]

PROFESSOR: I would be amazed if it wasn't because everything is formally diagnosed somewhere. But, you

know, what really shows up there, I think, is substance abuse, right? In this culture it's much less that you get somebody who's pathologically working out in the gym, though I'm sure that happens. They go and pop enough steroids to get themselves into trouble. AUDIENCE: What about the cases where people make themselves throw up but not particularly related to food?

PROFESSOR: Well, OK, there's a whole -- and I don't actually know much about the whole set of self-harming disorders. Actually I should probably sometime teach myself something about it. Because there's another pathology that is new, I think. Or if it's not new it was deeply hidden before, the notion of people cutting themselves and things like that. So it may be that there's a -- I don't know anything about it, but there may well be a make yourself throw up in the self-harming kind of category. AUDIENCE: Have you ever heard of

the anorexia Web sites? Like not the --

PROFESSOR: The anorexia --

AUDIENCE: Like, Web sites --

PROFESSOR: Oh, yes, yes, yes, yes. I read an article about it at one point, where people are busy encouraging each other in their eating disorders. Not wholesome, I wouldn't say.

AUDIENCE: Yes, clearly. But did they change the [INAUDIBLE] at all, or the way anorexia --

PROFESSOR: I don't know. I don't know. And I don't know if it's widespread enough to be -- I mean, I've just seen a couple of, you know, I think sort of popular press things about it. I just don't know how widespread that is. I know who to ask at MIT. There are a couple of people who are good experts on that at MIT.

Anyway, the dangers of relatively complete handouts or of comparatively complete handouts is that if I don't then hit all the lines on the handout, there's a danger that somebody's going to want to know what I meant by magic cures for imperfections and the superwoman myth. So let's jump back to societal pressures pushing people towards anorexia.

The magical cure thing is the notion that we're a culture that firmly believes that you should be able to cure your problems right now and without too much real hard work. So that if you are not sexy enough, here is the mouthwash, the clothes, and the six amazing acts that you can perform in the privacy of your own room that will do it all for you. And you can read these at the supermarket checkout, right?

One of my favorite -- I mean, you get stuck at the supermarket checkout -- I love bouncing down just the headlines of what are described as the women's magazines, *Cosmo* being the best of these. Because *Cosmo* is always willing to make you completely sexy by next month. And amazingly they need to do it all again the next month. But, you know. This move will drive your man wild, once a month on the -- anyway, it's great stuff. At least I suppose it's great stuff. I don't get to read the journal much. It's not one of the technical journals in my field.

All right, so there's the magic cure piece. And then the superwoman myth, which many of the superwomen here may relate to, is a -- I can't remember who coined the term -- but it's the idea of the woman, or the guy for that matter, who can do it all, right. She's got the high-powered career based on her great MIT degree. And she also is the mother of fifteen and making it to all the school plays and making the food and of course knitting the clothes by hand and stuff like that. There's typically not a similar superman myth because even in these more egalitarian days, it still remains the case that the burden of child rearing falls more heavily on the female than on the male typically across this culture. So if anybody is going to be massively stressed out by trying to balance the home and career thing, it's more likely to be the woman. At least, that's the argument that's being made here.

All right, let me jump then to this other topic of coercive sexual behavior. And let me advocate that you should take advantage of your time in Cambridge sometime to go to the American Repertory Theater just off the Harvard campus, across the street from Radcliffe. Because I think -- my recollection is -- actually I haven't checked lately because I haven't been a student for a long time. Students used to get in amazingly cheaply. And so you should do this. They put on a range plays from modern to classic, but almost always with some kind of out there attitude about it.

So I remember this great production of a Handel opera, which they had decided to set -- act one was set in a trailer park in a Florida swamp, and act two was set on Mars, neither of which I believe were described as the settings in the original libretto. Somebody -- that kind of thing. Anyway, some years ago, I saw a production of Shakespeare's *Midsummer Night's Dream* there. And at the beginning of the play, what they had done was they staged a practice fight. It was clear that these were two knights practicing rather than fighting in an actual battle, sparring with each other.

And they're whacking away at -- the lights come up and they're whacking away at each other.

And finally one of them flattens the other and pulls a sword and it's at the neck of the guy on the ground. And at that point, the lines you hear are, "Hippolyta, I wooed thee with my sword; and won thy love doing thee injuries. But I will wed thee in another key, with pomp, with triumph, and with reveling."

What the A.R.T. had done was at the moment that the fight was over, the guy on the floor is reciting those lines. And the other person takes off her helmet. And of course to make it dramatic, her big hair fluffs out all over the place. The beginning of *Midsummer Night's Dream* is the set up -- the set up is that there's going to be a wedding between Theseus, Duke of Athens, and Hippolyta, the Queen of the Amazons, who he has conquered and is now going to marry. But the notion of "I wooed thee with my sword and won thy love doing thee injuries" does not sit well in, at least not in a Cambridge academic kind of setting.

And so the A.R.T. played this against type, right, with Theseus on the floor saying, "I wooed you with my -- oh, get that away from my neck." But it's an interesting, curious thought that you might woo somebody with your sword and win their love doing them injuries. I suspect there aren't very many women present who would subscribe to the notion that that would be a marvelous form of courtship, and maybe not even an awful lot of guys.

But forms of relations that become coercive are by no means unheard of. And the place we typically end up hearing about them is when they end up in court. How do they end up in court? Well, let me tell you a court case. This happened about ten years ago now. This is a court case where a woman is suing a collection of -- she's suing them? No, I think this was actually a rape case in the criminal court. They're charged with rape and she's the plaintiff. What happened? Well, considerable disagreement about what happened when you end up in court.

But what basically seems to have happened is that the woman and one of the guys met at, I think it was rifle practice, some sort of athletic practice. He invited her back to his residence. Alcohol followed and she ended up having some variety of sexual relations with like six different guys and subsequently charged them with rape. She argued that she had been passing in and out of consciousness and that they had basically abused her. They argued that this was consensual. I think what happened in this particular case, by the way, is that there was no conviction for rape but several of the guys ended up being expelled from school.

There are lots of things one could talk about here. I'm not in the business for a psych course

of giving a sort of an RO week lecture about, you know, good behavior or something like that. But the interesting issue -- well, there are lots of interesting psych issues. The interesting psych issue that I want to focus on is the question of how this could come to pass given that probably nobody wanted it to come to pass.

It is extremely unlikely that she went to whatever it was, rifle practice, saying, oh gee, I think I'll go home with this guy, get smashed out of my mind, and have sex with all of his roommates. Doesn't seem likely. Nor does it seem very likely that he said to himself, oh I think I'll take this friend of mine home and we'll all have too much to drink and she'll have sex with everybody under the sun. So it's pretty clear that this is not what anybody particularly had in mind. How does it come to pass?

Oh, look at that. I must have said that on the handout. What am I talking about next? Lots of questions, most of which we cannot address. All right. So let's address some of the ones we can address.

As it says there, very gender-specific problem. There are certainly instances of sexual coercion going the other -- female- on- male sexual coercion. And within homosexual relationships there are certainly instances of sexual coercion. But the great bulk of these cases are male- on- female coercion.

In fact, the female- on- male coercion incidents is vastly higher in the erotic literature than it is in reality apparently. Well, remember the example from earlier on about imagine that you're on the subway and some member of the sex that you find attractive begins to touch you surreptitiously on a crowded subway car. Is this a good thing or a bad thing? Women uniformly say this is not good, and guys, well, not quite uniformly, say mmm, OK.

You can get similar data with coercive relations. You know, the leather-bound woman who shows up and says, "You're having sex with me right now" is a fantasy figure. The leather-bound guy who comes up to a woman and says, "You're having sex with me right now" is not typically a fantasy figure. So there's this odd asymmetry there.

So there are lots of ways to understand how this could come to pass. One of the reasons, as I said earlier, for making this an end of the term kind of topic is it does sort of neatly recapitulate an awful lot of the themes about causality that have shown up in the course of the term. And then what I'll probably, oh, very clearly do next time is weave a story that combines many different threads into one.

Let me just say a word about incidence today, and then we'll go on to etiology when we pick up next time. How common is this as a problem? Well, you've got a real problem here, which I have mentioned before, which is the data on sexual behavior are lousy. Because people don't -- well, first of all we don't collect that much of it. And second of all people lie. Recall that if you ask males how many sexual partners have you had and you ask females how many sexual partners have you had, you discover that there's a third sex out there somewhere. Because the math doesn't add up.

You see that too in -- well, maybe you see that in the data on -- that's gotten basically from survey data -- on coercive sex. If you ask females, "have you ever been coerced into sexual intercourse?", in at least one study the answer is 15% of women say yes. If you ask men, "have you coerced anybody into having sexual intercourse?", only 7% of males say yes. Now there are a number of possible explanations, like serial coercers or things of that sort, but you can see that there may be reporting issues that are difficult there.

One last point on this, on the incidence point, if you ask have you ever -- 25% of women in one study back from the mid '80s reported intercourse because quote "they were overwhelmed by a man's continual arguments and pressure." That's an interesting statistic in a couple of ways. First of all it's interesting because it's quite high. Second of all it's interesting because it points out the very distinct status of sexual relationships.

If I am coerced into buying a used car by the man's continual arguments and pressure, that's too bad, right. If I decide that I'm going to strangle -- who am I going to strangle? Oh, I don't know. I won't strangle anybody particular. Oh, maybe I'll strangle Kristin because she was laughing at me earlier. I'll strangle Kristin because I was pressured by Anna's continuous verbal demands or something like that to do this. You know, I can make the case that it was her demands that made me do this, but I'm still going to jail. It doesn't explain away my behavior. Sexual relations are interestingly different from other relations in that way.

And, OK, we'll pick up on, at our last meeting, on how this all comes to pass.