

Chapter 2

Unweaving the Rainbow of Human Sexuality: A Review of One-Night Stands, Serious Romantic Relationships, and the Relationship Space in Between

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Generally speaking, sex research has been plagued with implicit biases against the very act of sex itself. For instance, a content analysis of articles appearing in four prestigious journals (i.e., *The Journal of Sex Research*, *Archives of Sexual Behavior*, *The New England Journal of Medicine*, and *Obstetrics and Gynecology*) from 1960 to the present (Arakawa et al. 2013) revealed that only a slim minority of articles (7 %) investigated positive aspects of love, sex, and intimacy. The vast majority (58 %) of articles focused on the problems associated with such behavior or could not be classified (35 %). These biases are even stronger in casual sex relationships, a type of relationship that is often treated as a pathology (Cho and Span 2010; Eshbaugh and Gute 2008; Fielder and Carey 2010; Fortenberry 2003; Garneau et al. 2013; Owen and Fincham 2011; Townsend and Wasserman 2011), with emphasis on predictors like having a disordered parent–child relationship (e.g., Fielder et al. 2013; Garneau et al. 2013; Schmitt 2005), and alcohol abuse (e.g., Johnson 2013). In discussing the consequences of casual sex, the literature has focused almost exclusively on the perils of casual sex, including the dangers of community censure, shame, promiscuity, sexual disillusionment, physical danger, STIs, AIDS, and teenage pregnancies (Hatfield et al. 2012a, b; Schmitt 2004). Many articles read more like dire warnings than scholarly attempts to understand sexuality. In this chapter, however, we will attempt to take a nonjudgmental stance to the widerange of human sexuality.

In the past, social psychologists have devoted a great deal of time and energy trying to understand traditional, “serious” romantic and sexual relationships (see Hatfield et al. 2012a, b; Hatfield and Rapson 2005; Christopher and Sprecher 2000).

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Up until 5 years ago, anyone who read the research on relationships might conclude that individuals only engage two forms of relationships: one-night stands and serious, romantic relationships (Cubbins and Tanfer 2000; Fisher and Byrne 1978; Hughes et al. 2005; Li and Kenrick 2006; Maticka-Tyndale and Herold 1999). In recent years, however, a few pioneering social psychologists have become interested in more casual encounters (e.g., “one-night stands,” “hook-ups,” “fuck-buddy sex,” “friends-with-benefits,” “anonymous sex,” “no strings attached,” “booty calls,” “swinging,” “chance encounters,” “cruising,” and “dogging”). Nonetheless, research on casual sex is relatively recent and riddled with biases, questionable methods, and lack nuance.

A minority of the studies on human sexuality have upset the proverbial applecart in that they suggest there is a wider and perhaps infinite¹ array of potential relationships that individuals can engage in (Afifi and Faulkner 2000; Grello et al. 2006; Puentes et al. 2008). Today, between 25 and 75 % (Jonason et al. 2009; Lambert et al. 2003; Paul et al. 2000) of sexual acts committed by adolescents and college students happen in the context of sexual relationships that lack formal commitment (in contrast to serious romantic relationships) but are recurring acts committed by those with more than a passing acquaintanceship (in contrast with one-night stands). In addition, individuals appear to engage in nonrelational sex for reasons thought to be confined to serious romantic relationships (e.g., emotional intimacy; Jonason et al. 2010; Smiler 2008). It now seems unclear where one relationship starts and others begin.

Obscuring the Rainbow

Numerous authors have been rather loose in their definition of casual sex in their research, using one-night stands as a representative term to define the range of casual sex relationships (Forster et al. 2010; Greitemeyer 2007; Zeigler-Hill et al. 2009). In response, there have been some attempts to better understand what these relationships mean, but they tend to be characterized by three limitations. First, there has been a tendency to explicitly or implicitly treat any occurrence of sex that does not occur in the context of committed relationships as a problem (Fortenberry 2003) with a few notable exceptions (Kinsey et al. 1948, 1953). For instance, studies have noted a number of consequences of casual sex, such as greater likelihood of post-coital risky sexual behaviors (Cho and Span 2010) and emotional distress of some kind (Eshbaugh and Gute 2008; Fielder and Carey 2010; Owen and Fincham 2011; Townsend and Wasserman 2011). While these negative consequences may exist, the rates of people who engage in casual sex relationships and how it may

¹This possibility is especially the case if one accepts Jonason et al. (2009) assertion that relationships are emergent properties from intersexual negotiations as opposed to preexisting types.

serve to transition people into serious romantic relationships suggest that these relationships are not as bad as once thought (Jonason et al. 2012a, b).

Second, the research tends to be overly reliant on qualitative methodologies (Epstein et al. 2009; Manning et al. 2006; Smiler 2008; Paul and Hayes 2002). Prior attempts to provide a consensus definition were unabashedly based on “exploratory qualitative analysis” (Wentland and Reissing 2011, p. 86). Qualitative methods are useful for uncovering unknown phenomena and reducing experimenter bias, but do not provide reliable or generalizable insight into populations at large. For instance, some qualitative research only examines men (Epstein et al. 2009; Smiler 2008) and may use sample sizes as small as 19 individuals (Epstein et al. 2009). While few sex differences were reported in some recent work attempting to define various casual sex relationships (Wentland and Reissing 2011), it is unclear whether the lack of sex differences was a function of self-report biases in focus-group studies, underpowered tests caused by a small sample size, or an inestimable comparison given the purely qualitative nature of the data. In order to get a reliable sense of the human sexual landscape, we need to rely on relatively large samples and quantitative studies so as to not chase “shadows” created by anomalous effects in qualitative studies. In contrast to qualitative work, quantitative data reliably reveal sex differences in casual sex behavior and attitudes (Jonason et al. 2009; Schmitt 2005; Townsend and Wasserman 2011).

Third, research examining nonrelational sex almost exclusively comes from a sociocultural perspective (Caruthers 2006; Epstein et al. 2009; Singer et al. 2006; Smiler 2008). Those taking this perspective argue that relationships are cultural artifacts consistent with various sociostructural restraints placed on people. For instance, from this perspective, women may engage in less casual sex than men do because of the penalties they may experience in society (i.e., the sexual double standard). This is likely a function of sociocultural and structural theory researchers (e.g., Wood and Eagly 2002) having little a priori reasons to expect one outcome over another, a problem called *the failure to predict* (Confer et al. 2010). In contrast, an evolutionary approach provides a heuristically valuable model to predict how relationships might be defined. From this perspective, women may be less likely to engage in casual sex because of reproductive asymmetries in the patterns of obligations to offspring that have occurred over evolutionary time. However, only a small minority of studies on nonrelational sex has used evolutionary models (Garcia and Reiber 2008; Jonason et al. 2009, 2010; Townsend and Wasserman 2011).

Evolutionary models of mating and sexuality are based around parental investment theory (Trivers 1972). This theory explains why, in the vast majority of mammals, it is the female who invests heavily in offspring and as such she should (1) be more choosy about who she mates with, (2) try to slow the speed of which relationships escalate to sex, (3) have a lessened willingness to engage in casual sex, (4) short-term mate in a strategic fashion, and (5) attempt to test a man’s commitment to her. In contrast, males, who can invest almost nothing in their offspring should have a different psychology surrounding short-term mating. Men should (a) desire easy and quick access to willing partners, (b) be patrons of adult entertainment (i.e., strippers, prostitutes, and pornography), (c) fall in love quickly,

(d) be focused on traits that cue to fecundity, and (e) be willing to engage in casual sex. In one of the most (in)famous studies demonstrating such sex differences (Clark and Hatfield 1989), confederates asked strangers in a campus public area one of three questions: Will you have sex with me?; Will you go out with me?; and Will you go home with me? The results were impressive. No women said “yes,” whereas about 60–80 % of men said “yes,” and the men who said “no” gave pseudo-nos (e.g., “I am busy now but can I get your number”). According to evolutionary theory, men and women differ the most in relation to short-term mating psychology because they are in conflict over investment in any potential offspring (Li and Kenrick 2006; Schmitt 2008). Subsequent replications generally conform these differences in willingness have to have casual sex. For instance, while women demonstrated a greater willingness than zero if the proposer had a desirable personality or was likely to afford sexual pleasure, women (as compared to men) still needed more to engage in casual sex (Conley 2011). Men are reliably more willing than women are to engage in sex with someone who they do not know. This is seen most strongly in homosexual men where the “cruising” or hook-up culture is especially strong (Symons 1997).

Importantly, the advantage of evolutionary models like strategic pluralism (Gangestad and Simpson 2000) provide a much cleaner rationale for why there would be a large variety of relationship options available for people to engage in. For instance, this model suggests that individuals engage in relationships for a wide array of reasons and pursue more than one relationship type in their life as it suits their needs. A logical extension of strategic pluralism is that any one relationship should serve multiple functions just as individuals are likely to engage in numerous relationships for numerous reasons. Indeed, research suggests individuals derive several benefits for engaging in relationships, including sexual gratification, socioemotional support, relief of boredom, and to raise one’s self-esteem (Hatfield and Rapson 2010; Jonason et al. 2009; Meston and Buss 2007; Smiler 2008; Townsend and Wasserman 2011). In pursuit of these different goals, individuals may pursue different relationships like one-night stands, nonrelational sex (e.g., “hooking up”²; Epstein et al. 2009; “friends-with-benefits”³; Puentes et al. 2008; “booty-call” relationships⁴; Jonason et al. 2009), and committed relationships.

In the past, relationships, especially short-term ones, have been the most poorly defined, and despite the variety in types of short-term mating (Hatfield et al. 2012a, b; Jonason et al. 2012a, b), the term “casual sex” still tends to be used as a catch-all for any and all short-term relationships (Forster et al. 2010; Greitemeyer 2007; Zeigler-Hill et al. 2009). As such we will be more explicit. In this chapter, we will define a serious romantic relationship as one that involves social and (potentially) sexual monogamy and possesses a high level of commitment (Jonason 2013;

²Sex that occurs among individuals with little sexual commitment.

³Friends who also engage in sexual behavior together without any formal commitment.

⁴Sexual relationships that tend to occur among acquaintances.

Jonason et al. 2010). We will also define casual sex as sexual activities (e.g., mutual stimulation, oral sex, or sexual intercourse) outside of a “formal” relationship (i.e., dating, marriage, etc.), without a “traditional” reason (e.g., love, procreation, or commitment) for doing so. Such brief encounters may occur between casual friends, acquaintances, or total strangers, and they frequently “just happen” (Hatfield et al. 2012a, b). Nevertheless, these simple definitions still fail to capture the complexity and beauty of the rainbow of human sexuality. Therefore, we delve deeper into defining and describing relationships next.

Describing the Rainbow

Almost all men and women (78–99 %), in a variety of countries, consider “a faithful marriage to one partner” to be the ideal arrangement based in college student samples (Pedersen et al. 2002; Stone et al. 2005) and cross-cultural anthropological work (Fisher 1992). Regardless of scholars’ perspectives, almost all agree that men and women do differ at least somewhat in their sexual attitudes and behavior—especially with regard to casual sex (Petersen and Hyde 2010). Sociocultural psychologists have—not surprisingly—found cross-cultural differences in attitudes toward chastity, premarital sex, casual sex, other aspects of sexual activity, and sexual satisfaction (Caruthers 2006; Epstein et al. 2009; Manning et al. 2006; Singer et al. 2006; Smiler 2008; Paul and Hayes 2002). Evolutionary psychologists (Garcia and Reiber 2008; Jonason 2013; Jonason et al. 2009) tend to test predictions from the parental investment theory (Trivers 1972). This theory suggests that, as a function of asymmetries in minimum obligation to offspring, the sexes are expected to have different attitudes and behaviors in reference to short- (i.e., casual) and long-term (i.e., serious) relationships (Buss and Schmitt 1993; Gangestad and Simpson 2000). Indeed, there is significant, cross-cultural, quantitative support for their contentions (Baumeister and Vohs 2004; Hatfield et al. 2012a, b; Schmitt et al. 2004).

No review of relationship types could include all variants of relationships people engage in and we must resist the urge to think that there are fixed kinds of relationships. Instead, relationships are likely the result of negotiations, or in other words, responses to numerous socioecological constraints imposed by those within (e.g., the partners) and outside relationships (e.g., society), but also ecological conditions like the availability of quality mates and resources (Jonason et al. 2012a, b; Rusbult et al. 1998). For instance, polyandry (i.e., one female and a collection of related males) tends to occur in locations where the means by which resources are extracted from the earth are so labor-intensive that it takes multiple men to work their farm (Goldstein 1987). Alternatively, polygyny (i.e., one male and numerous females) is an option made available by a localization of resources (Orians 1969). We conjecture that polyamory—an area of human sexuality research getting a lot of attention today—might be a function of an interaction of individual differences in jealousy responsivity, the cobbling together of a one’s sexual and security needs

from multiple sources, and the desire to seek secondary benefits like excitement. While these options represent “extreme” solutions to the psychosocial and reproductive tasks organisms including humans face, they are expressions of the interaction of a mating system that is flexible to cultural conditions. For instance, the booty-call relationship (Jonason et al. 2009, 2010) could be an expression of latent mating systems that interact with technologies like the mobile phone, text messaging, and other communication technologies that put men and women in direct contact without parental oversight or familial involvement.

While humans, as a species, can be described as mildly polygamous (Fisher 1992), there are individual differences (i.e., variance around the species-typical disposition) in the solutions individuals find between and within relationships. What this means then is each relationship is different for each person with each partner. We contend that each relationship differs because each is the result of the implicit or explicit negotiations couples go through in defining the parameters of their relationship. Individuals may negotiate the terms of their relationships by considering (explicitly or implicitly) factors such as mate-value and the availability of attractive alternatives (Rusbult et al. 1998). In this section, we review a variety of relationships of the human sexual rainbow that may be the result of some of the compromises individuals make in response to the external and internal constraints placed on them. In particular, we review the scant evolutionary and quantitative studies on these relationships.

Serious romantic relationships. The most well studied relationship type is long-term in nature (e.g., Cubbins and Tanfer 2000; Li et al. 2002). Long-term relationships are ones that encompass both marriages and monogamous dating relationships and appear to be equivalent in response to questions about mate preferences (Li et al. 2002) and likelihood of engaging in such relationships (Clark and Hatfield 1989). In the context of long-term relationships, the sexes converge in their interests because they both need to invest heavily in the relationship and any offspring that may have resulted in ancestral conditions would have required serious investment if it were to survive (Buss and Schmitt 1993). Long-term relationships are characterized by sexual and emotional intimacy (Jonason et al. 2010) and the (perceived) primary function of socioemotional support (Jonason 2013). This should translate into similar mate preferences and interests. For instance, both sexes want a mildly hard-to-get (a good investment) long-term mate (Jonason and Li 2013). Such a mate is a good investment as they are less likely to defect from the relationship, to be of reasonably high value, but, also, not a waste of resources by being unattainable. In this type of relationship, men and women want mates who are kind, generous, and intelligent, while both sexes devalue the priority they place on attractiveness in long-term mates (Buss and Schmitt 1993; Li et al. 2002).

One-night stands. Up until the 1990s, anything not resembling a serious romantic relationship was either not studied at all or was studied as a clinical or social pathology (e.g., Sexual Double Standard; Jonason 2007). The most commonly studied form of casual sex is the one-night stand (Fisher and Byrne 1978; Li and Kenrick 2006). In this relationship, individuals meet and relatively quickly go

from zero-acquaintance to the act of sex, with little promise of future relationship potential. Such relationships are characterized by high levels of emotional and sexual intimacy that allow for the immediate escalation of the relationship (Jonason et al. 2010) and have the (perceived) primary function of sexual gratification (Jonason 2013). While some have contended that engagement in these relationships are related to an insecure attachment system (Hazan and Shaver 1987), recent cross-cultural estimates suggest otherwise (Schmitt and Jonason 2015). What may be a more important determining factor is a casual approach or attitude toward love, something more common in men than in women and may be an expression of underlying sex differences in evolved psychological systems related to sex (Jonason et al. 2015). If men benefited more over ancestral time from casual sex than women can (e.g., more offspring), natural selection may have created attitudinal biases that act as the proximal psychological factors that drive such behavior (Buss and Schmitt 1993).

Booty-call relationships. A booty-call relationship is one where a person has repeated sexual encounters with someone but intentionally restricts their interactions to sexual to ensure it does not escalate to a more serious relationship (Jonason et al. 2010). Booty-call relationships do not fit well in the apparent dichotomy of one-night stands and serious romantic relationships because they combine elements of both long-term and short-term relationships. For women, they offer some stability and access to men they might not otherwise have access to, whereas men may benefit from relatively easy access to sex (Jonason et al. 2009), which is something men appear to want (Townsend et al. 1995). Similarly, the perceived functions for booty-call relationships are less clear than in serious romantic relationships and one-night stands. Such functions may range from assessing a partner for a more serious relationship, or simply to kill time (Jonason 2013). These relationships are characterized by sexual intimacy and little emotional intimacy (Jonason et al. 2010). This evasion of emotional intimacy may be in order to keep the relationship from escalating from sexual to romantic. This may also reflect implicit negotiations the sexes are going through in order to best pursue their sexual agendas.

Evolutionary models are still relevant despite the apparent novelty of this relationship. For instance, when asked why their booty-call relationship ended, men say it is because she wanted more and women say it is because he only wanted sex (Jonason et al. 2009). This is consistent with the asymmetries in reproductive investment in offspring that characterize evolutionary models of mating strategies and sex differences. The technology (e.g., Tinder, mobile phones) that is integral in the formation of these relationships has merely freed up men and women to engage in another form of sexual behavior but they cannot escape the legacy of their evolutionary history. This is not the first technology to apparently alter men and women's mating psychology, as the birth control pill frees women from the reproductive consequences of sex but this has not led women to be equally promiscuous as men are. Women are still pickier than men are and are less willing to have sex with strangers (Conley 2011; Tappé et al. 2013). While women might no longer be saddled with the risk of impregnation from engaging sex like they

once were, their risk remains greater than men's. Moreover, as this technology has not been around long enough to affect gene frequencies, the actual nature of women's sexuality is likely to have changed very little. The point here is that as human sexual psychologies are heavily influenced by ancestral conditions to this day, apparent modern variance like the booty-call relationship or technologies like the birth control pill or mobile phone that might alter the conditions today are merely expressions of ancient scripts playing out on modern stages.

Friends-with-benefits. A friends-with-benefits relationship is one where you have sex with the person but also do nonsexual things in a more social/public context (e.g., Afifi and Faulkner 2000). Importantly, these are relationships between those who have a preexisting level of friendship who have decided to engage in a sexual relationship. However, in contrast to booty-call relationship, this type of relationship does not define their overall relationship in the same way. Whereas in booty-call relationships participants attempt to minimize their nonsexual time and interactions as a strategy of keeping their relationship sexual in nature (Jonason et al. 2010), friends-with-benefits are less concerned with blurring this line. These individuals are friends (first) who wish to also engage in sex with one another as a secondary part of their relationship. Negotiating this line is surely difficult given the near-inevitability of one partner developing feelings in responses to the chemical cocktail (e.g., oxytocin) associated with sex and orgasm. Functionally speaking, this relationship may serve to both satisfy sexual needs, to fill time, and also to act as a testing ground for new relationships (Jonason 2013). However popular this relationship might be—accounting for approximately 32 % of participants according to one study (Jonason et al. 2015)—it is rather hard to distinguish quantitatively from booty-call relationships. It is possible, researchers are splitting semantic hairs. Researchers should be wary of reifying terms and re-inventing the wheel. However, it might also be hard to pin down because of the fluctuating nature of men and women's sexuality. Indeed, booty-call relationships appear to paradoxically be sought out for socioemotional support to a meaningful degree (Jonason 2013). And last, it may be that both of these relationships are characterized by sufficiently similar rates of long-term and short-term aspects (Jonason et al. 2009) and that measurement error is particularly problematic.

Swinging and open relationships. Swinging is a kind of relationship in which a couple engages in extradyadic sex where both partners are in attendance, whereas open relationships are where individuals engage in couplings while simultaneously engage in extrapair copulations and independently have sex with others (Conley et al. 2012; Jenks 1985, 1998). In both cases, the relationship partners are aware, at least on an implicit level, of their partner's extrapair sexual behavior, often called consensual nonmonogamy (Conley et al. 2012). People who engage in these have a long-term partner where there is no sexual monogamy, just social monogamy. The dearth of research on these relationships may be the result of (1) researchers having an aversion to studying such swinging behaviors, (2) the closeted nature of the participants in these relationships, and (3) a lack of good theory to understand such behaviors making any work merely descriptive in nature. As there is so little known about these relationships, we offer some conjectures here.

From an evolutionary perspective these relationships may represent a unique combination of men and women's short-term and long-term mating strategies (see Fig. 1, Jonason et al. 2009). For instance, swinging may provide men with the sexual variety they need or the motivating forces of apparent sperm competition, whereas open relationships may allow men to exercise their desire for sexual variety. As women often de-prioritize physical attractiveness in their long-term partners (Li et al. 2002), some women may offset this loss by engaging in swinging or open relationships with physically attractive partners. In addition, women, who are more erotically plastic than men are, may engage in consensual nonmonogamy in order to satisfy their same sex, sexual urges (Baumeister 2000). In contrast, sociocultural researchers might contend that people's willingness to engage in such relationships are expressions of the culturally conditioned sexuality people experience. They might argue that those exposed to more sexualized content including having parents/friends who were swingers (acting as models) should predict the engagement in such relationships oneself. They might—erroneously—also contend that such a relationship dispels evolutionary models that have often drawn on evolved sex differences in jealousy. It is likely there are selection biases in who engages in these relationships that reflect individual differences in responsiveness to jealousy inducing stimuli. Natural selection assumes there is variance in adaptive and nonadaptive traits. Where the variance in ancestors resulted in more offspring, selection will take place, but the individual differences in the current generation do not refute the evolutionary argument as there is an assumption that not all members of the species will reproduce.

Polyamory. Polyamory is an alternative form of consensual nonmonogamy. Polyamory is the practice or acceptance of having multiple simultaneous romantic relationships where everyone involved consents (Conley et al. 2012; Easton and Hardy 2009; Rubel and Bogaert 2014; Taormino 2008), a relationship type that is subject to serious discrimination (Fleckenstein et al. 2012; Hutzler et al. 2015). Polyamorous relationships differ from swinging and open relationships by including aspects of romantic relationships that the former relationship types are less characterized by e.g., Conley et al. (2012), Klesse (2006), Munson and Stelboum (1999), Pines and Aronson (1981), Rubel and Bogaert (2014). Although polyamory includes many different styles of intimate involvements, one of the most common polyamorous relationships are characterized by a “primary–secondary” relationship configuration (Balzarini et al., manuscript under review; Veaux 2011) with primary relationships being reminiscent of serious long-term relationships in commitment duration and level, financial interdependence, and the rearing of offspring (Sheff 2013). A secondary relationship is more reminiscent to someone one might date with less investment, more independence in time and finances, and greater sexual frequency (Balzarini et al., under review; Veaux 2011).

As in the case with swinging and open relationships, research on polyamory is in its infancy and is generally descriptive (Sheff 2013) in nature or trying to show that it is not evidence of athology (Conley et al. 2012; Rubel and Bogaert 2014). From an evolutionary and sociocultural perspective, engaging in this kind of relationship may be a unique approach to solving people's romantic and sexual needs by piecing

together what one wants from numerous sources. Most strictly monogamous relationships assume that one can have all their needs fulfilled by one person. This might be an unreasonable assumption or, at the very least, might not be possible in all relationships. Indeed, the well-known, and rather high rates of infidelity and divorce might be *prima facie* evidence of this failure of single, monogamous relationships being reliably able to afford people all they need. Therefore, if one cannot get all they want in one person, they might get certain needs met by one partner and others by another. The ability to engage in these relationships will also be predicated on one's ability to either suppress volitionally or simply be characterized by less sexual jealousy.

Summary. As noted above, we cannot hope to cover all the possible relationships men and women could engage in, in theory. Indeed, much more work is needed that compares each relationship to better understand the lines between them, if any exist. Nevertheless, we expect the range of relationships to grow as researchers continue to have a better understanding of human sexuality and better instruments for seeing the colors of its rainbow. We expect relationship types to fit within a coordinate system with long-term mating and short-term mating interests as the axes. This distinction is fundamentally important in evolutionary models of mating and sex (Buss and Schmitt 1993; Jonason et al. 2012a, b; Schmitt 2005) and is not predictable from sociocultural models because they would need to assume that either the media or other sources of modeling have decided to portray/engage in versions of sexuality that they "invented" out of thin air. However, as we describe these relationships we should not fall victim to the mistake of thinking they are natural kinds of relationships. Instead, relationships, as identified by researchers, are emergent solutions in a dynamic system involved in how men and women coordinate and compete in the mating game. The conditions for these solutions will continue to fluctuate as physiological and social conditions change. However, researchers should not let apparent fluctuations (i.e., variance) around the average tendency (i.e., mean) confuse one into thinking aspects (e.g., relationship preferences; Jonason et al. 2012a, b) of sexuality and romance are social constructions. For instance, the advent of the global positioning satellite (i.e., GPS) paved the way for technologies like Tinder and Badoo where people can engage in apparently new forms of sexual and romantic behavior. Such a mediated sexual communication is new, but operates on the template provided by evolved mating systems (e.g., Symons 1997; Trivers 1972).

Limitations, Future Directions, and Conclusions

Despite this extensive review, what we know about human sexuality is severely limited; here, we discuss some of those reasons. First, there may be a prudishness/sexual naiveté among researchers. Dealing with topics like sex makes some researchers "blush" and, therefore, avoid and even derogate such work and its researchers. This happened in the early years of the evolutionary revolution in

biology. Victorian sentiments of the animal world (e.g., lions lay down with lambs) may have created an overly rosy and romanticized image of the natural world. Such sentiments may still persist in the academy in relation to sexuality, thereby obscuring our understanding of it, the acceptance of articles about it, and the distribution of grant money to study it.

Second, beyond sexual naiveté, studying human sexuality is often seen as trivial and a waste of time. At the very least, the rates people engage in various casual sex behavior should be cause enough to study it (e.g., Katz and Schneider 2013). Researchers and laypeople often mistakenly see questions about sexuality and romance as less important than other scientific questions. While this may be true in comparison with curing cancer, for example, there will never be a more important decision one makes in their life than who and who not to mate with (survival is necessary; reproduction sufficient). The evolutionary and social consequences of mate choice and relationship psychology should not be undersold.

Third, paradoxically, the agenda to “free” human sexuality has also been a limitation for sex research. That is, the political movement around sexual liberalism actually works against an objective and broad understanding of human sexuality. In the book *Sex at Dawn* (Ryan and Jetha 2011), the authors advance their apparently scientific case that humans are far more sexual than society allows. They suggest the tendency to view human sexuality and evolution through the lens of the chimpanzee paints an inaccurately violent and male-dominated view of human sexuality; that bonobos would be better. However, such a claim is problematic albeit having the promise of creating more accepting and female-friendly sexuality and social contexts. Primarily, researchers appear to be making the naturalistic fallacy by arguing for how the sexual world should be. Secondly, they imply that humans evolved from bonobos which is not true as bonobos, chimpanzee, and humans shared a common ancestor 6–10 MYA when none of these species even existed (Wrangham and Peterson 1997). Tertiarily, they are implicitly adopting a group selectionist framework ignoring that selection works on the genes of individuals as it is only individuals who actually reproduce. Last, they ignore that the peaceful and bountiful conditions that permitted bonobos to evolve (i.e., lack of interspecific competition with gorilla) over the last 3 million years simply did not and do not exist for the 10 million years or so of hominin evolution. Sexual variance, whether it is homosexual or heterosexual, monogamous or polyamorous, is part of the species-level sexual repertoire. There is huge variance in all things biological so this should be of no surprise and any political agenda to highlight any particular variant has the opposite effect as desired.

Fourth, beyond these philosophical limitations, there are methodological limitations that characterize sexuality research. Some of these limitations may be the direct or indirect result of the way society and science views and de-prioritizes sex research. Whatever the reason, these are limitations worthy of note. Almost all sex research is conducted with WEIRD (i.e., Western, educated, industrialized, rich, and democratic; see Henrich et al. 2010) samples that are modest in size. There are few large-scale and international (e.g., Schmitt 2005) studies of human sexuality. These studies tend to show rather convergent results across the world which would

be of no surprise if one takes an evolutionary approach (Schmitt 2008). Issues surrounding sexual conflict are part of the human (as opposed to American or French or Japanese) sexual psychology and should, therefore, be rather universal (with some variance per culture). Alternatively, most sex research (not all) relies on some laboratory or self-report methodologies. This may actually undermine the search for the varieties in human sexuality because of the spotlight effect (i.e., one finds things where they are looking). This problem is slightly attenuated in qualitative designs given the flexibility to explore new areas and is strongest in quantitative designs. We encourage researchers to adopt mixed methods approaches where they use qualitative designs to uncover new aspects of human sexuality and then quantitative methods to validate, define, and understand that same sexual flavor.

The idea of unweaving the rainbow comes from Newtown's revelation, with the prism, that the white light we all see is really made up of a range of light waves we call colors. Evolutionary biologist Richard Dawkins has taken this idea and tried to suggest that evolutionary theory allows us to unweave the complexity of biological life (Dawkins 1998). If we base our psychology research into sexuality and romance on the assumptions provided by evolutionary theory, we might appropriate the metaphor to understanding human sexuality and advancing beyond its classic descriptive traditions. That is, with evolutionary theory, we can better unweave and understand the apparently wide range of contradictory and self-destructive manifestations of human sexuality. We have attempted to provide some insights into the range of human sexuality but also to elucidate the limitations for that process. We hope future research will discover even more beauty and awe that the natural (sexual) world can offer.

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