Real Relationships and Ideal Intimacies: Romantic Life in an AIDS Epidemic

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ABSTRACT
Researchers studying young adult sexual activity typically use crude categories to differentiate more and less risky sexual experiences, but these distinctions mask important differences in relationship context and subjective ideals about romantic love. We introduce an alternative metric for understanding sexual relationships, which we conceptualize as individuals' ability to engage in sexual activity under conditions they *themselves* deem ideal. We collected new data in Southern Malawi using a novel card-sort technique to capture sequences of events that describe respondents' lived experiences and their relationship ideals. We use optimal matching and regression analyses to examine differences between realized and ideal relationship sequences along three dimensions: (1) the most common discrepancies between ideal and realized scripts, (2) the attributes predicting who is most likely to actualize their ideals, both in terms of specific *events* and entire *sequences,* and (3) the association between actualization of ideals and perceptions of risk within relationships. Results suggest that the actualization of sexual ideals is patterned by socioeconomic status, with more advantaged respondents reporting experiences that are closer to their ideal sequences. We also find that respondents whose lived experiences are distant from their ideal sequences perceive elevated risks of contracting HIV and of marital dissolution.

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Moral panic surrounding young adult sexuality is abundant in popular opinion and in the political realm (Cohen 2003; Crane and Dusenberry 2004; Grant 2012; Luker 2006; Schalet 2011). Empirical evidence about the consequences of sexual activity for young adults, however, has been mixed. While some scholars claim that sexual activity during young adulthood leads to negative consequences in domains including mental health (Billy et al. 1988; Hallfors et al. 2005; Spriggs and Halpern 2008a), school performance (Biddlecom et al. 2008; Clark and Mathur 2012; Sabia and Rees 2009), and delinquency (Armour and Haynie 2007; McCarthy and Casey 2008), others maintain that documented associations are attributable to selection (Bingham and Crockett 1996; Halpern et al. 2000; Harden et al. 2008; Harden and Mendle 2011; Haynie 2003; Lloyd and Mensch 2008).

Research on the negative consequences of adolescent sex tends to focus on the timing of the onset of sexual activity, in particular whether it occurs before a specific age ("early sex") and whether it occurs inside or outside of marriage ("premarital sex"). Such studies typically examine first sex as a discrete outcome—either a binary status (e.g., virgin vs. sexually active) or a decontextualized singular activity that occurs at a given point in time (e.g., sexual debut in an event history framework)—predicted by an array of attributes pertaining to the individual (see Harden et al. 2008 for a similar perspective). However, research on the relational context of sexual activity demonstrates that such approaches mask important differences among youth sexual experiences. Young adults who have sex with partners they describe as "casual" are more likely to experience poor educational outcomes (McCarthy and Grodsky 2011), emotional distress (Freitas 2008; Garcia and Reiber 2008; Paul 2006); and social sanctioning by peers (Bogle 2008; Hamilton and Armstrong 2009) than are those who have sex within "committed" relationships. Yet we know that the distinction between casual and committed partnerships among adolescents and young adults is both

fuzzy and unstable, and that these categories are false binaries along a wide spectrum of trust, intimacy, and allegiance that characterize different sexual relationships (Hamilton and Armstrong 2009; Manning, Giordano, and Longmore 2006).

In Sub-Saharan Africa, the epicenter of the global AIDS epidemic, the tendency to study sexual activity as a discrete outcome divorced from its relational and emotional context is even more pronounced (Cole and Thomas 2009). While we know quite a lot about the various risk factors predicting the onset of sexual intercourse among African youth, we know remarkably little about processes of courtship and the development of intimacy and romance between partners (Hunter 2010). What we do know suggests that the ostensibly clear distinctions between premarital versus marital sex (Clark, Bruce, and Dude 2006; Clark 2004), "early" versus age-appropriate sex (Dixon-Mueller 2008), and casual versus committed partnerships (Harrison, Cleland, and Frohlich 2008; Poulin 2007) are often blurred when applied to the local landscapes of risk and desire that young adults encounter as they become sexually active in this context.

In this article, we advance an alternate approach to studying sexual experiences— one that allows us to examine both the timing and the relational context of the initiation of sex within relationships. Specifically, our approach offers two key improvements over the current state of research on these topics. First, we consider sexual relationships as *sequences of interdependent events.* Drawing on insights from life course theory, we adopt a narrative approach to studying social phenomena, positing that the significance of an event is shaped both by its location in the overall trajectory and by the array of other events surrounding it (Abbott 1992; Abell 2004). In other words, we examine sexual relationships as series of happenings, large and small, that together shape how individuals perceive and experience intimacy (Abbott and Tsay 2000; Aisenbrey and Fasang 2010; MacIndoe and Abbott 2004). Though an important relationship

step, sexual intercourse is just one of many things young adults do together in romantic relationships, and its position in relation to these other events—"the phenomena surrounding a case" (Abbott 1995:94)—matters both for the relationship dyad and for the individuals involved.

To examine relationships sequentially, we use data collected through a card-sort technique in which respondents are asked to choose and order illustrated cards depicting common relationship events ranging from exchanging gifts to kissing to getting married. Through this exercise, we generate detailed event sequences describing respondents' relationship experiences and conceptions of an ideal relationship. In order to better understand variation in the conditions surrounding the initiation of sex within relationships, we focus on what we call the *prelude to sex*—the sequences of relationship events that occur between partners before they have sexual intercourse with each other for the first time.

Second, we acknowledge that ideals about the desirability of sex are *subjectively held and constructed*. Rather than evaluating sexual experiences according to a fixed standard, we examine whether and to what extent individuals progress to sexual intimacy under conditions they themselves deem ideal. Using optimal matching techniques, we measure the distance between ideal sequences of relationship steps and actual relationship experiences, in order to identify the patterns in and consequences of the actualization of relationship ideals. In other words, we use these sequence data to compare what "is" and, from the respondents' perspective, what "ought to be."

This subjective approach frees us from assessing sexual behavior according to standards rooted in religious, cultural, or public health models that are not always shared. Conversely, it allows us to engage the fact that the meanings of events are shaped by both individual-level experiences and aggregate-level schemas and cultural models (Sewell 1992; Shore 1998; Swidler

1986). Across contexts, young people are exposed to a cacophony of conflicting messages about sex that they filter, interpret, and meld together to form their own ideas about the kinds of sexual experiences they consider virtuous, the kinds they want to have, and those they want to avoid (Carpenter 2005; Harding 2010; Hunter 2010; Schalet 2011). While some esteem the ideal of waiting until marriage, others seek recreational sex with a few key safety measures in place (Hamilton and Armstrong 2009; Kaler 2003; Watkins 2004). We argue that it is not sexual activity itself but the failure to live out one's ideals in an actual relationship that has negative consequences for young adults.

This combined sequential and subjective approach to understanding sexual behavior from a relationship-specific perspective leads us to three key research questions:

- What are the major discrepancies between ideal and lived relationships in terms of the prelude to sex?
- What kinds of people progress to sex under the conditions they describe as ideal?
- Is the actualization of sexual relationship ideals associated with perceptions of risk in relationships?

We situate our study in Southern Malawi, where sexual debut often occurs early and outside of marriage (Mensch, Grant, and Blanc 2006), where sexual norms are changing rapidly (Cole and Thomas 2009; Lloyd 2005; Smith 2001; Spronk 2012), and where high levels of HIV prevalence imbue sex with a heightened element of "risk"—even within established relationships (Trinitapoli and Yeatman 2011; Watkins 2004).

CULTURAL MODELS AND SUBJECTIVE IDEALS ABOUT SEXUAL RELATIONSHIPS

In both industrialized and developing contexts, researchers have documented that young adult aspirations, perceptions, and decisions about romantic relationships are conditioned by shared cultural models, which vary by social class (Cole 2010; Edin and Kefalas 2011; Hamilton and Armstrong 2009; Hunter 2010), political climates (Esacove 2010; Luker 2006; Schalet 2011; Swidler 2001), religious affiliations (Agadjanian and Menjívar 2008; Regnerus 2007; Trinitapoli and Weinreb 2012), and the micro-level normative environments of schools, peer groups, and neighborhoods (Harding 2007; Meier 2007; Poulin 2007).[1] These cultural models are overlapping and contradictory (Harding 2010; Sewell 1992; Swidler 1986); individuals both deliberately and instinctively select among an array of models when interpreting events or deciding upon a course of action (D'Andrade 1995; Vaisey 2009; Harding 2010).

These heterogeneous cultural models shape the meaning of sexual intercourse, and it is these meanings, rather than events themselves, that influence the emotional and social consequences of adolescent sexual activity. In the United States, for example, the emotional impact of sex is conditioned on school-specific norms regarding the age-appropriateness of sex (Meier 2007). The effects of sex are also patterned religiously: while Evangelical Christians are no less likely than other youth to have premarital sex, because they hold different beliefs about sex, they are more likely to experience regret about doing so (Regnerus 2007). And while some consider virginity to be a source of stigma that should be concealed until it can be dispensed with, others view it as an irreplaceable gift to be cherished until it can be shared with the right individual; these contrasting cultural models color how adults remember their sexual debuts decades later (Carpenter 2005).

Due to widespread changes in the context and content of sexual experiences in recent decades, young adults in sub-Saharan Africa encounter a strikingly diverse set of models around

courtship and romantic love. Age at first marriage has risen across the region, and a growing proportion of first sexual experiences now occur outside of marriage (Mensch et al. 2006). School enrollment has increased dramatically, leading to a bifurcation in the sexual trajectories of young adults in rural communities: when compared with their non-schooling peers, in-school youth experience delayed first sex (Lloyd 2005), have fewer sexual partners (Kaufman et al. 2004), and use different sets of criteria to select their partners (Poulin 2009). In a context of high HIV prevalence, expanding access to convenient HIV testing facilities (Angotti et al. 2009), and a shifting arsenal of contraceptive options (Kaler and Watkins 2001), African youth navigate a complex and evolving set of risks and negotiations as they choose partners, maintain relationships, and make decisions about sex.

Ideals regarding the sexual behavior of young adults in sub-Saharan Africa are shaped by ongoing tensions between traditional, collectivist interests in controlling reproduction and more modern, individualistic aspirations and identities. While traditional norms valorizing women's respectability and male authority and religious teachings on appropriate sexual behavior remain potent forces, individuals differ in their levels of commitment to these norms (Cole 2004; Smith 2000; Wight et al. 2006). Traditional norms and modern innovations often intersect in complex ways; for example, elite young women in Cameroon draw upon classic schemas of bridewealth as they seek husbands through websites (Johnson-Hanks 2007), and sex-workers in Malawi follow rituals of gift and exchange from generations past (Tavory and Poulin 2012). These tensions are often lived out between generations. Among young Igbo-speaking adults in Nigeria, older adults lament the sexual excesses and moral decay of youth while young adults view premarital sex as a marker of enlightenment and individual autonomy (Smith 2000). Here, sexual

relationships are "places where young people construct their identities, very often in self-conscious opposition to traditions" (Smith 2000:100; see also Kaler 2001).

Standards and norms regarding sex are also contested among young people themselves, as they grapple with competing cultural models about what is safe versus dangerous, what is authentically pious versus profane, and what is reputable versus wanton (Hunter 2002; Karlyn 2005). For example, despite an overarching ideology that characterizes premarital sex as inappropriate or wrong, many Zulu adolescents in South Africa draw upon ideals of romantic love and emotional intimacy and describe sex within serious relationships as safe and desirable (Harrison 2008). And a sizable subset of Mozambican adolescents subscribe to a set of norms that condone one-night stands, as long as they conform to standards of anonymity, discretion, and (increasingly) condom use (Karlyn 2005). As in the United States, variation in cultural models regarding love and sexuality in sub-Saharan Africa is structured by social class, educational attainment, and other dimensions of social positioning (Hunter 2010; Spronk 2012; Van der Sijpt 2011; Wight et al. 2006).

In short, subjective understandings of sexual behavior are not widely shared among populations but variably distributed throughout them. Young adults both reflexively and reflectively sort through an array of cultural models to arrive at their own moral standards, and they interpret past experiences and present opportunities in light of these standards. It is within their own unique epidemiological, religious, and relational milieu that young adults form their opinions about sex.

IMPLICITLY SEQUENTIAL PERSPECTIVES ON SEXUAL INTERCOURSE

The essential question guiding studies of sexual behavior is not "whether" but "when."[2] Empirical research on sex necessarily contains a sequential component; researchers always

examine the consequences of sex in light of the events that do—and do not—precede it. Evidence shows that when sex happens out of normative order, it leads to negative consequences, including depression, poor academic outcomes, delinquency, and sexually transmitted infections (e.g.: Clark and Mathur 2012; Eshbaugh and Gute 2008; Harrison et al. 2005; McCarthy and Casey 2008; McCarthy and Grodsky 2011; Paul 2006). The three most common approaches to studying sex and its consequences for young adults differentiate between 1) sex that occurs within and outside of marriage, 2) sex that occurs before and after a specified age, and 3) sex that occurs between casual partners and within a committed relationship. But while these binary categories of sexual activity—"premarital," "young," and "casual"—acknowledge that the events surrounding sex shape its emotional and relational significance, these measures capture only vague outlines of young adult romantic relationships and insufficiently engage the context in which sex occurs.

Premarital Sex

In the face of a generalized AIDS epidemic, public health campaigns, policy initiatives, and local organizations have promoted premarital abstinence as a key arrow in the arsenal of prevention programming. Beginning in 2003, the US President's Emergency Program for AIDS Relief (PEPFAR), a major fiscal supporter of HIV/AIDS interventions in Southern Africa, allotted a third of all prevention funds to abstinence-only programming (Dietrich 2007). At the local level, education programs based on the infamous "ABC" campaign (abstain, be faithful, use condoms) emphasized the "A" component for adolescent audiences (Miller et al. 2008; Muula 2006). Despite scholarly debates over the effectiveness of "abstinence only" policies (Cohen 2003; Crane and Dusenberry 2004; Kirby 2008), research on adolescent sexuality typically

assumes that marriage is a less risky context for sexual activity. The reigning methodological strategy is to remove married individuals from a sample in order to empirically examine the consequences of adolescent sexual activity (e.g., Cleland and Ali 2006; Kabiru and Ezeh 2007; Miller et al. 2008; Trinitapoli 2009).

But marital status is a flawed benchmark for distinguishing between safe and risky sexual experiences. In sub-Saharan Africa, marriage is not a discrete event but a heterogeneous process that sometimes spans multiple years and includes a variety of ceremonies (traditional engagement parties and weddings, religious celebrations, civil weddings) and other times rests on a verbal agreement without any formal ceremony at all (Bledsoe and Pison 1994; Hattori and Dodoo 2007; Johnson-Hanks 2006; Meekers 1992). To deal with this variability, survey researchers studying relationships in Africa tend to rely on a composite category of individuals who are "in union," combining cohabitating and married respondents (Hattori and Dodoo 2007). When considered alongside the programmatic emphasis on marriage as a boundary between "safe" and "risky" settings for sexual intercourse, researchers' inability to empirically distinguish between marital and non-marital relationships is especially problematic. At the same time, recent evidence calls into question the assumption that sex within marriage is less risky than non-marital sex for African young adults. In fact, married young women may be more at risk for contracting AIDS than their unmarried counterparts: they are less educated, more likely to be sexually involved with men who are considerably older than they, and unlikely to use condoms (Clark 2004; Clark et al. 2006).[3]

Early Sex

Having sexual intercourse at an early age is negatively associated with physical health (Hallett et al. 2007; Pettifor et al. 2004; Sandfort et al. 2008; Zabin and Kiragu 1998), emotional

wellbeing (Hallfors et al. 2005; Meier 2007; Spriggs and Halpern 2008a), social development (Ream 2006; Madkour et al. 2010), and academic achievement (Schvaneveldt et al. 2001; Spriggs and Halpern 2008b). And yet we know that the precise definition of "early" varies across cultures and over time (Dixon-Mueller 2008).

Even when analyses are limited to relatively homogeneous cultural environments and time periods, age is only a rough approximation of individuals' social and physical development. What makes "early" sex risky is that it happens before other critical developmental events: puberty and menarche (Duncan et al. 1990; Shew et al. 1994), the capacity for abstract thinking that raises the likelihood of good decision-making (Albert, Brown, and Flanigan 2003; Cook and Dickens 2000), and the knowledge and resources necessary to use contraception correctly and avoid pregnancy or sexually transmitted infections (Bankole et al. 2007; Manlove, Ryan, and Franzetta 2004; O'Donnell, O'Donnell, and Stueve 2001). In other words, early sex has negative consequences because it signals a breach in the normative ordering of sex along a young person's life-course trajectory.

Prior research has primarily relied on a binary definition of early sex, using cut-offs determined by the distribution of first sex (e.g., Meier 2007; Spriggs and Halpern 2008a) or a predetermined age at which most individuals are thought to achieve a threshold of physical and emotional maturity (e.g., Harrison et al. 2005; O'Donnell et al. 2001; Valle et al. 2005). But adolescents experience these key physical and social developmental events at varying ages, making age a poor indicator of readiness for sex: beyond extremely young ages, what is too soon for one person may be age-appropriate for another (Dixon-Mueller 2008; Patton and Viner 2007).

Casual Sex

Sociological interest in the difference between committed relationships and casual partnerships further illustrates an implicit concern with the sequential position of sexual intercourse in relation to other events. In the United States, researchers have amassed considerable evidence that sex occurring in partnerships characterized as "casual" leads to negative emotional, social and behavioral consequences for young adults, while sex occurring after partners have become "committed" to each other typically does not. Casual sexual encounters or "hook ups" correspond with diminished emotional wellbeing, particularly among young women (Eshbaugh and Gute 2008; Grello, Welsh, and Harper 2006; Paul 2006). Female college students who engage in casual sex face social sanctions as well, including gossip among friends and being labeled a "slut" (Bogle 2008; Hamilton and Armstrong 2009). Casual sex among young adults has also been associated with delinquency (McCarthy and Casey 2008) and school dropout (McCarthy and Grodsky 2011), while sex within committed relationships is not.

Across Africa's "AIDS Belt", casual sex is typically discussed in relation to its physical health consequences. Uganda's early success in lowering HIV prevalence was partially attributed to the widespread and dramatic reduction of casual partnerships (Green et al. 2006; Murphy et al. 2006). Campaigns like "Zero Grazing" wittily acknowledged the prevalence and cultural embeddedness of casual sex but warned Ugandans "to avoid indiscriminate and free-ranging sexual relations" (Epstein 2007: 162). Reducing the number of casual partners has been a key element of HIV/AIDS prevention programs across sub-Saharan Africa since at least the mid-1990s, even though "casual" partnerships are rarely specifically defined (Esacove 2012). Early in the epidemic, rural Malawians began to link casual sex and HIV infection as an inevitability

rather than a possibility—"an arrow pointing straight at AIDS infection, with no possibility of escaping unscathed" (Kaler 2003:358).

The literature on casual sex from both the US and Africa offers important insights into why relationship context might condition the consequences of sex. However, the line between casual and committed partnerships is far from clear—both for scholars and for young adults themselves. Paul (2006:141), for example, defines a hook-up as "a brief sexual encounter between two youths who either do not know each other at all or who are just acquainted" and states that most expect that the hookup will be a one-time encounter. Other scholars point out that most hook ups occur between people who already know each other (Manning et al. 2006) and repeatedly between the same partners (Bogle 2008). College students themselves struggle to define hook-ups, further illustrating that there is no shared understanding of this term (Bogle 2008). Ambiguity around the concept of casual sex has also been documented in the African context. Chichewa speakers (in Malawi and Zambia) use the same word (*chibwenzi)* to describe both casual, short-lived sexual partnerships and those that are serious and expected to lead to marriage (Poulin 2007). In South Africa, Harrison et al. (2008:305) find that the distinction between casual and committed partnerships is "fluid and does not conform to expectations."

Beyond these definitional difficulties, sensitive behaviors, especially sexual ones, are frequently misreported in survey research (Laumann 2004; Luke, Clark, and Zulu 2011; Poulin 2010), and asking respondents to characterize their relationships as committed or casual leads to implausibly low estimates (e.g.: Harrison et al. 2008; Nnko et al. 2004; Powers et al. 2011). Furthermore, reporting problems are not uniform within or across populations but are patterned, most notably by gender (generally underreporting for women and overreporting for men) (Kreager and Staff 2009; Nnko et al. 2004). These well-known biases further weaken the analytic

value in drawing distinctions between casual and committed partnerships based on self-reports in survey data alone.

TOWARDS INTEGRATING SUBJECTIVE AND SEQUENTIAL PERSPECTIVES ON SEX

It is clear that these three implicitly sequential approaches to understanding sexual activity are inadequate for our purpose of examining how the meaning and consequences of sex depend on the array of other events that surround it. There are, however, some examples of more sophisticated sequential thinking about sexual partnerships in the African context, and these have provided important insights on sexual dynamics in this part of the world. By examining marital status in conjunction with earlier relationship experiences, Boileau and colleagues (2009:i32) show that the risk embedded in marriage is "trajectory dependent": both women who have sex at a young age and marry their first partner as well as women who delay sex but do not marry their first partner face elevated risks of marital dissolution and HIV infection. Perhaps the most important innovation in studying sexual relationships in sub-Saharan Africa has come from the implementation of relationship history calendars in Kenya, through which interviewers collect retrospective data on sexual and romantic relationships and capture month-to-month changes along many dimensions, including partner characteristics, condom use, and gifts exchanged between partners (Luke, Clark, et al. 2011). These data allow analysts to examine the timing of sexual intercourse *within* relationships, showing, for example, that receiving material gifts from male partners during the first month of the relationship both accelerates sex and decreases the likelihood of condom use (Luke, Goldberg, et al. 2011).

These recent innovations in studying sex sequentially have raised the standards for quantitative research on sexual relationships. But while qualitative researchers have emphasized

the subjective side of sexual dynamics (e.g.: Cole 2004; Harrison 2008; Hunter 2010; Tavory and Poulin 2012), survey researchers have not yet adequately engaged such a perspective. The only data source we know of with the capacity to provide insights into both the sequential *and* subjective nature of sex within relationships is the relationship scripts instrument, originally administered between 1994 and 1996 as part of the National Longitudinal Study of Adolescent Health (AddHealth), which collected detailed sequence data on US high-school aged respondents' relationship experiences and ideals (Bearman et al. 1997). These data have been used to show that events signaling emotional connection and social embeddedness condition the effect of sex on mental health (Meier 2007),and that heterogeneity in cultural models is negatively associated with an individual's ability to actualize his or her sexual ideals (Harding 2007).

With the intention of building upon the expanding knowledge-base about the sequential nature of sexual experiences and incorporating a subjective perspective into survey research on sexual activity, we developed an extended version of the relationship scripts instrument, adapted for use in Malawi. In this paper, we harness these data to examine three axes of contrast between ideal and lived sexual experiences in Southern Malawi. In each case, we focus on the prelude to sex and examine: (1) the most common discrepancies between ideal and realized scripts, (2) the attributes predicting who is most likely to actualize their ideals, both in terms of specific *events* and entire *sequences,* and (3) whether or not actualizing one's ideals matters for perceptions of risk in relationships.

DATA AND METHODS

Overview of the Sample

The data for the analysis come from Tsogolo la Thanzi (meaning "Healthy Futures" in Chichewa), a longitudinal survey designed to study how young people navigate the transition to adulthood in an AIDS epidemic.[4] Fifteen hundred female respondents and 600 male respondents were randomly selected from a sampling frame of 15 to 25 year olds living in census enumeration areas within 7 kilometers of Balaka, Malawi, a growing town about 90 km from the southern city of Blantyre.[5] One unique feature of TLT is the use of a centrally located research center for conducting interviews. Respondents came to the center and are interviewed in a private room where their responses could not be overheard by family members or neighbors. The relationship scripts instrument was administered as part of the fifth wave of TLT, fielded between October 1, 2010 and December 31st, 2010, to a total of 1,752 respondents.

Balaka is located in the Southern region of Malawi, which is characterized by lower levels of educational attainment and higher levels of poverty than the Northern and Central regions (WHO 2012). Southern Malawi is also experiencing a more severe AIDS epidemic than the other two regions of the country: according to recent Demographic and Health Survey data, 15 percent of the population aged 15-49 in the southern region are infected with HIV, compared with a national prevalence of 11 percent (NSO-Macro 2010).

Due to our empirical interest in the prelude to sex, and to avoid potential bias due to right censoring, we restrict our analytic sample to those who reported ever having sex with their current partners, leaving us with a total of 1,041 respondents: 189 male and 852 female. Appendix A provides descriptive statistics of our analytic sample and demonstrates how the sexually-active subsample we analyze differs from the full sample of wave five survey respondents. We apply two additional restrictions to specific analyses, which are also described in Appendix A: first, when assessing the actualization of idealized relationship events, we

exclude respondents who did not hold the event as an ideal; second, when examining perceived likelihood of marital dissolution (described below), we limit the sample to married respondents.

Measuring Relationship Sequences

To learn about the sequences of events that are idealized and actualized by young Malawians, we adapted the relationship scripts method—a hybrid between in-depth interviewing and structured surveys. This method, pioneered by Bearman, Jones, and Udry (1997) as part of the National Longitudinal Survey of Adolescent Health (Add Health) in 1994 and 1996, is a card-sort technique in which respondents are asked to work with a set of cards, each depicting a typical event in a romantic relationship (Harding 2007; O'Sullivan et al. 2007).

Through an iterative process including preliminary qualitative interviews and focus group discussions with 17 young adults living near the survey site, ongoing discussions with local research assistants, and a three-day long pilot study with a sample of 89 respondents from a nearby town, we developed a set of relationship steps that are both common and significant to young adults in rural Malawi. A local artist illustrated the relationship steps with a series of simple cartoon drawings; these pictorial depictions facilitated this exercise for illiterate and semiliterate respondents (see Figure 1). Because some of the statements are gender-specific (e.g., "*I would give her a present*" versus "*I would give him a present*)," the artist provided two parallel sets of illustrated cards—one for men and one for women.

[Figure 1 about here]

The relationship scripts instrument proceeds as follows. First, the interviewer hands the respondent the stack of cards and asks her to sort them into two piles in reference to her current or most recent relationship: the steps she has experienced and the ones she hasn't. Second, the

interviewer asks the respondent to order the "yes" cards to tell the story of her relationship with this specific partner; we refer to this as her *realized sequence*. After answering some additional questions pertaining to this relationship, the respondent is then asked to imagine that she is giving advice to a same-sex friend or relative who is around the same age as she is and is not yet in a relationship. With this person in mind, she is asked to return to the full set of cards and order them (as she did with the story of her own relationship) to reflect what she would wish for this person to experience in a new relationship "if everything worked out exactly as she would want it to." We refer to this relationship script as her *ideal sequence*.

The sequences examined here include a total of 16 cards. To simplify the complexity of the sequences for the optimal matching analyses, we combined substantively similar cards into categories[6], leaving us with 11 different types of events (see Figure 1). Consistent with our focus on variation in the events preceding the initiation of sex within a relationship, we truncate all sequences after the card denoting sexual intercourse. In other words, sex is the endpoint for all sequences we examine in this article. Descriptive statistics for the relationship sequences, along with other variables used in the analyses, are provided in Table 1.

[Table 1]

Identifying Discrepancies Between Realized and Ideal Sequences

Our first research question pertains to the major discrepancies between the conditions surrounding first sex in ideal and lived relationships. We identify these discrepancies by

subtracting the percent of respondents who place each card before sex in their realized sequence from the percent who place that same card before sex in their ideal sequence. For example, 57% of respondents place the card representing introducing the partner to friends before sex in the scripts describing their actual relationship experience, while 78% placed this event before sex in their ideal scripts, so the difference in percent for this card is 21%. Ranking the 16 cards according to this percent difference allows us to identify the events that represent the greatest barriers to the actualization of sexual ideals. We describe these as *elusive events*; they are widely desired but only seldom achieved in young adults' sexual experiences.

Measuring Actualization of Sexual Ideals

Our second research question pertains to the actualization of sexual ideals. We define actualization in two ways: in terms of specific events and in terms of entire sequences. To examine the actualization of events, we use the elusive events, creating binary indicators for each type of elusive event that distinguish between those who hold the ideal and experienced it in their own relationship (=1) from those who hold the same ideal but did not experience it (=0). This approach allows us to focus on specific events of interest, while retaining both the subjective (ideals are not universally held) and sequential (positioning of sex in relation to other relationship events) dimensions that we argue are critical for understanding the consequences of sex for young adults. We use these binary indicators in logistic regression models to identify the attributes of the young adults who are most likely to experience each type of elusive event before they have sex.

To examine the actualization of sequences as a whole, we use optimal matching to create a global measure of the distance between the ideal and realized sequences given by each

respondent. Optimal matching algorithms estimate the distance between pairs of sequences in terms of the changes necessary to convert one sequence into the other (Abbott and Hrycak 1990; Abbott and Tsay 2000; Aisenbrey and Fasang 2010; Lesnard 2010). There are two fundamental types of changes: "indel" (i.e., inserting and deleting cards[7]) and substitution (i.e., exchanging one card for another). Each change is assigned a cost, and the algorithm tries all possible combinations of these two types of changes and selects the combination with the minimum total cost. This total cost is referred to as the *distance score*. For more information about our specifications for the optimal matching algorithm, see Appendix B. We use this distance score in an OLS regression model to identify the attributes of the young adults who are best able to actualize their ideal sequences.

Measuring Perceptions of Risk in Relationships

Our third research question examines how actualizing an ideal prelude to sex is linked to perceptions of risk in relationships. We examine perceptions of risk using subjective probabilities of three negative events: a) current HIV infection; b) infection with HIV during the next year; and c) marital dissolution over the next year. In Southern Malawi, marriage is quasi-universal, divorce is common, and concerns about HIV are an omnipresent part of life, even within marriage. Together, these two dimensions of perceived risk capture a minimal threshold of what is widely considered a "good" relationship—one that is perceived as both lasting and biologically safe. Our focus on perceptions of marital stability and biological safety rather than experiences of divorce and measured HIV status is anchored in our decision to privilege the subjective dimensions of relationships. These perceptions tap the extent to which respondents experience their relationships primarily as sources of security versus anxiety. This approach is

further supported by burgeoning literatures in cognitive psychology and behavioral economics that emphasize the need to understand the subjective expectations that underpin and motivate observable actions and choices (Manski 2004; Dominitz and Manski 1997; Attanasio 2009; Zafar 2011; Delavande, Giné, and McKenzie 2011).

Subjective perceptions of HIV risk in Sub-Saharan Africa are strongly influenced by individuals' current behavior and past sexual experiences (e.g., extramarital and causal partnerships, condom use, and history of other sexually transmitted infections) (Delavande and Kohler 2009). But subjective perceptions are also informed by supra-individual factors. Both elements of risk within partnerships (e.g., men's labor migration and perceptions of partner infidelity), and broader community dynamics (e.g., perceptions of HIV prevalence within the local community and the frequency and nature of conversations about AIDS within social networks) inform how individuals gauge their own vulnerability to HIV (Agadjanian, Arnaldo, and Cau 2011; Anglewicz and Kohler 2009; Kohler, Behrman, and Watkins 2007). In generalized epidemics, individuals tend to overestimate the likelihood that they are or will become infected, but subjective assessments of risk still accurately reflect broader epidemiological patterns (Anglewicz and Kohler 2009; Trinitapoli and Yeatman 2011). Correct or incorrect, subjective perceptions of risk are powerful predictors of behavior and behavior change—both vis-à-vis AIDS (Meekers and Klein 2002; Cerwonka, Isbell, and Hansen 2000; Adih and Alexander 1999) and in other realms of life (Trinitapoli and Yeatman 2011).

While we know of no studies that have examined perceived risk of marital dissolution in sub-Saharan Africa, this outcome has been relied upon extensively as a proxy for relationship quality in the United States and other developed contexts (e.g., Amato and Booth 1995; Davis and Greenstein 2004; Day and Acock 2013; Kalmijn 1999; Webster, Orbuch, and House 1995).

The perceived risk of divorce is associated with a host of adverse relationship outcomes, including social isolation (Lehmiller and Agnew 2007), marital dissatisfaction (Day and Acock 2013; Kalmijn 1999), and negative interaction patterns between partners (Webster et al. 1995). Respondents' subjective perceptions of the probability that their marriage will end have also been found to be significant predictors of later divorce (Previti and Amato 2004). This literature further indicates that incongruence between marriage conditions and broader ideologies elevate both the perceived risk of and actual likelihood of marital dissolution (Amato and Booth 1995; Day and Acock 2013; Davis and Greenstein 2004; Greenstein 1996; Hohmann-Marriott 2006).

In order to avoid the limitations of asking about subjective expectations using qualitative scales ranging from "very unlikely" to "very likely" (King et al. 2003; Manski 2004), we collected probabilistic estimates using an interactive technique in which respondents are given a pile of ten beans and asked to shift from one plate to another the number of beans representing the likelihood that a specific statement is true. Ten beans indicates absolute certainty that the statement is true, zero absolute certainty that the statement is false, and five a 50-50 chance. This technique offers respondents a visual and tactile way to express otherwise abstract concepts; the exercise mimics the game of *bawo*, a traditional mancala board game that is popular across Malawi. In previous studies in Malawi, this technique has been shown to generate logically consistent assessments of child mortality, HIV prevalence, and food shortages that vary meaningfully with observable characteristics and reported experiences. In other words, despite limited literacy and numeracy skills, it is clear that rural Malawians are cognizant of the differential distribution of risk across populations and can express subjective likelihoods in terms of probabilities (Delavande and Kohler 2009; Anglewicz and Kohler 2009; see also Trinitapoli and Yeatman 2011).[8]

We measure perceived likelihood of HIV infection using the prompt: "Pick the number of beans that reflects how likely it is that: a) you are infected with HIV right now, and b) you will become infected with HIV during the next 12 months." We measure perceived likelihood of marital dissolution using: "Pick the number of beans that reflects how likely it is that you will still be married with your main partner one year from now." This question is asked only of married respondents; thus we exclude non-married respondents from this component of our analysis. To ease comparison with the models predicting perceptions of HIV/AIDS risk, responses to this question are reverse coded: a value of 0 indicates no probability of dissolution and a value of 10 indicates 100% probability of dissolution. To account for overdispersion of estimated probabilities, we model all perceived likelihood variables using negative binomial regression models.[9]

Control Variables

Our models include controls for key sociodemographic factors that previous literature establishes as known correlates of sexual behavior: gender, age (measured in years), educational attainment (completed years of schooling), household wealth (a score constructed using principal components analysis of 20 household goods, personal possessions, and housing attributes)[10], religiosity (measured using a binary variable identifying respondents who report attending religious services at least weekly)[11], and rurality (measured as a function of distance to Balaka's main market, standardized to aid interpretation).

RESULTS

Discrepancies Between Realized and Ideal Sequences

Figure 2 shows the difference in the percent that placed each card before sex in the ideal sequences and realized sequences. For all but one event ("meeting to chat in private"), this difference is positive, meaning that more respondents placed the card before sex in their ideal script. This finding underscores a general trend: ideal sequences are more than two cards longer, on average, than are realized sequences (mean length of 9.67 versus 7.39, see Table 1). Going for HIV testing is the most common discrepancy between realized and ideal sequences, with a difference of 49 percent. This points to the fact that while media campaigns and NGO materials have encouraged rural Malawians to "know their status" since the mid-1990s (Kaler and Watkins 2010), HIV testing only became widely available in rural areas in Malawi since 2006 (Angotti 2010), and barriers of time and monetary costs continue to prevent many from getting tested, despite their desire to do so (Weinreb and Stecklov 2009). The second most common discrepancy is having a religious wedding, with 46 percent more respondents placing this card before sex in their ideal sequences than their realized sequences. This large discrepancy is likely due to the prominent role played by religious organizations in disseminating messages about abstinence before marriage in Malawi (Trinitapoli 2011; Trinitapoli and Weinreb 2012) and the fact that having a religious wedding involves significant financial costs.

[Figure 2]

We approached the data without an *a priori* sense of how many events should be considered "elusive;" instead we arrived at the cutoff point inductively, after noticing that the six events with the greatest difference in percent in Figure 2 coalesce around three distinct domains: HIV testing, having a modern wedding ceremony (religious wedding and civil wedding), and introducing the partner to friends and family (introducing the partner to parents, being introduced to the partner's parents, and introducing the partner to friends). All six of these events have

differences above 20 percent (see Table 2 for the percent choosing these events before sex in their realized and ideal sequences). We group these events into three substantively similar categories and create binary indicators for use in the regression models in the rest of our analyses: (1) having a modern wedding ceremony (religious or civil, as opposed to a traditional wedding), (2) HIV testing, and (3) placing three "social embeddedness" events (introducing partner to parents, being introduced to partner's parents, and introducing partner to friends) before sex.

[Table 2]

The Actualization of Elusive Events

We use logistic regression models to estimate the coefficients for enacting each of the three types of elusive events during the prelude to sex, among those holding these events as their ideal (Table 3)[12]. Model 1 shows the results for the model predicting having a modern wedding before sex; the three predictors that stand out as most significant for this event are age, household wealth, and religiosity. Model 2 presents results for the models predicting being HIV tested before having sex with a partner, among those who include this pattern of events in their ideal sequences. Those who are most likely to enact the testing ideal are older, more urban, and more educated. The significant patterns for achieving a high degree of social embeddedness before sex are quite distinct. The results from Model 3 suggest that older respondents and those residing in the most rural areas are most likely to have achieved a high level of social embeddedness as a precursor to having sex with their partners. There are no wealth or educational advantages for this ideal, among those who placed these cards in their ideal script.

[Table 3]

In predicting the actualization of elusive events, two key patterns emerge. First, older respondents are more likely to have actualized all three types of elusive events. Second, respondents who are more advantaged in terms of household wealth, education, and urban residence are more likely to actualize events that are costly—either financially or in opportunity costs (modern weddings and HIV testing). The positive correlation between social embeddedness and rural residence points to this as an alternative strategy for building trust and intimacy before sex, especially for respondents whose context might be described as "village life" (Watkins 2004).

The Actualization of Idealized Sequences

In this section, we move from the actualization of specific events to the actualization of sequences as a whole, using the global distance score we generated using optimal matching (descriptive statistics provided in Table 1). But first, to make this global distance score variable more comprehensible, Table 4 provides a comparison of two specific cases from the TLT data. Janet[13] (age 21) and Mary (age 22) have strikingly similar socio-demographic profiles: they both are married, have one child, have between one and two years of secondary education, and attend religious services on a weekly basis. In recounting their lived relationships, Mary and Janet also experienced very similar trajectories leading up to first sex. Both started by "deciding to get married",[14] followed by a series of events related to social embeddedness. Yet, as evidenced by the right-hand panel of Table 4, Mary and Janet diverge in how they think the prelude to sex should unfold under ideal conditions. Mary's ideal script is very similar to her realized script: the events occurring before sex largely relate to the social embeddedness of the partnership. The only notable difference between her ideal and realized script is the replacement of "*We attended*

a community event together" with "*My partner gave me a present."* In contrast, a simple visual comparison of Janet's ideal script to her realized script illustrates why her experience is one of we characterize as having more *distance* from her ideal. While Janet also reports having sex after a series of social embeddedness events, including introducing each other to parents and spending time together in public, Janet's ideal sequence is quite distinct: for Janet, sexual intercourse would ideally be preceded by two types of weddings, living together, and getting tested for HIV.

Our argument is that the divergent ideals that Janet and Mary hold imbue their nearly identical realized sequences with very different subjective meanings. While Mary comes quite close to actualizing her ideal in terms of the sequential positioning of sexual intercourse, Janet's experience strays far from the sequence of events that she describes as ideal and would advise for a friend. Accordingly, Mary's distance score falls within the bottom five percent of the sample, while Janet's distance score is relatively high, placing her in the 85th percentile of the sample.

[Table 4]

The results in Table 5 allow us to move beyond the specific cases of Janet and Mary to address a broader question about what kinds of individuals actualize their ideal sequences of events during the prelude to sex. Here, we use OLS regression models to predict the overall distance score. The coefficients hint at two types of socioeconomic patterns in the actualization of ideal sequences: household wealth is negatively associated with distance between realized and ideal sequences, while rural residence is associated with a higher distance score. This confirms the findings discussed above in relation to elusive events: overall, socioeconomically advantaged respondents are more likely to actualize their ideals. Unlike in the models predicting elusive events, however, here we find no association between age and actualizing ideal sequences, conceived of more globally.

[Table 5]

The Actualization of Sexual Ideals and Perceptions of Risk in Relationships

In Table 6 we shift to the task of demonstrating that the actualization of ideal sequences matters for perceptions of relationship risk. In Model 1, we estimate the associations between actualizing elusive events and current perceived likelihood of infection with HIV, as measured using beans. Net of a host of socio-demographic controls, achieving the ideal of marriage before sex is associated with a lower perceived likelihood of current infection; however, the ideals of HIV testing and social embeddedness before sex have no such protective effect. Model 2 demonstrates that the global distance measure is highly significantly associated with this same outcome. Along a 1-year time horizon, these patterns are consistent, though the magnitude of the effects are somewhat diminished: marriage before sex is associated with reduced risk of future infection (Model 3) and the global distance measure is still highly significantly associated with increased risk (Model 4).

[Table 6]

In Models 5 and 6, we examine the associations between these same predictors and perceived relationship stability, focusing on the more restricted subsample of married respondents only. Here, we see that respondents who report having gone for HIV testing before having sex estimate a lower likelihood that their marriage will dissolve in the next year. On the other hand, respondents who married their partners before having sex with them are no more confident in the stability of their relationships than those who had sex before marriage, and having actualized ideals of social embeddedness is not significantly associated with perceived

relationship stability either. Model 6 demonstrates that the global distance score is strongly and significantly associated with the perceived probability of marital dissolution in the next year.

In summary, while the enactment of some specific elusive events is protective for relationship-based outcomes, these relationships are inconsistent and fairly weak. The global distance measure, on the other hand, is consistently strongly associated with positive perceptions of relationship stability and safety. When we compare model fit using the Bayesian Information Criteria (BIC), it is clear that the global distance measure is more powerful in explaining variation in all three measures of subjective probabilities than are the elusive event measures, suggesting that the ordering of events in relation to each other matters for perceptions of risk in relationships, not just whether or not they occur before sex.[15]

DISCUSSION AND CONCLUSION

Our analysis of the sequential timing and subjective meanings of the initiation of sexual intercourse within romantic relationships in Malawi yields new insights along three dimensions, which align with our initial research questions. First, we found three major discrepancies between how the prelude to sex unfolds in ideal terms and in actual relationship experiences. In ideal sequences, respondents tend to place sexual intercourse *after* HIV testing, *after* modern wedding ceremonies, and *after* some key steps towards establishing the social embeddedness of the relationship: introductions to family members and friends. But in reality, sex frequently happens early on in a relationship, often preceding these events. Second, the actualization of sexual ideals is patterned by age and three markers of social class (educational attainment, household wealth, and distance from the town center). Third, we find strong evidence that the actualization of sexual ideals matters for the degree to which people experience safety and

wellbeing within their relationships: respondents with high levels of congruence between their ideal and realized sequences perceive a lower probability of HIV infection and of marital dissolution. We discuss these substantive findings in more detail before highlighting some methodological implications and outlining the limitations of our study.

We identified three types of events as "elusive," basing this categorization on the disparity between the percent placing the card before sex in their ideal versus realized relationship sequences. These elusive events represent a heterogeneous set of strategies that young Malawians use to increase their knowledge about their partner and establish comfort in a relationship before they have sex. While elusive was defined empirically, the categories reflect the dominant tropes of HIV prevention policies (i.e., abstain from sex before marriage, get tested and discuss your partner's status before having sex, and avoid sex with people you don't know well) (Esacove 2012). This is consistent with prior research demonstrating that rural Africans are fluent in this global language of HIV prevention (Smith and Watkins 2005; Trinitapoli and Weinreb 2012; Watkins 2004). That these events emerge not only as among the most widely idealized but also as the events for which lived experiences are most *discrepant* from stated ideals points to the fact that there remains a wide gap between the number of young people who invoke these slogans and those who are able to enact them (Watkins 2004; Weinreb and Stecklov 2009).

In asking what kind of people are best able to actualize their sexual ideals, we found strong patterns along three dimensions of social class: educational attainment, rurality, and household wealth. These results suggest that as exposure to global media has increased the cultural salience of romantic love ideals, thus changing the nature of premarital relationships (Cole and Thomas 2009; Spronk 2012), *aspirations* towards these new models have spread more

widely and more quickly than has capacity to *achieve* them (see also Frye 2012). From a diffusion perspective, cultural ideals appear to be changing at a faster pace than the ability to execute them (Casterline 2001).

Despite this common refrain, our analyses also uncover key differences in which aspects of social class structure the achievement of each type of elusive event. Among those who idealize having a modern wedding before sex, those who experience this pattern have more material resources. This likely reflects the fact religious and civil weddings require significant expenditures, and having a modern wedding (as opposed to only a traditional wedding or no formal ceremony at all) is a symbol of prosperity. In contrast, getting tested for HIV before sex is more strongly linked to educational attainment and urbanicity (i.e., living closer to the town center) than to any standard measure of wealth. Going for an HIV test requires both proximity to and fluency in dealing with the formal institutional bureaucracies of testing centers; this pattern also conforms to the known inequalities in access to HIV testing across the region (Angotti et al. 2009; Khan et al. 2006; Weinreb and Stecklov 2009).

Social embeddedness, on the other hand, is positively associated with distance from town center, suggesting that respondents in more remote, rural villages are most likely to actualize this ideal. Introducing a partner to parents and friends before having sex requires minimal material resources or institutional access, and is therefore more widely accessible in rural areas. This finding may also reflect the more traditional courtship process that is still prevalent among rural residents but is less so in urbanizing centers. Historically, a Malawian man would initiate a formal relationship with a woman by presenting gifts to her parents and expressing his intention to marry her, a process known as *chikole* (Tavory and Poulin 2012). While this practice is still common in rural areas today, young people residing closer to town are more likely to be living

apart from their natal families, an arrangement which poses an obstacle (i.e., journeying to their home village) to early introductions between partners and families.

In linking the achievement of elusive events to perceptions of risk in relationships, we demonstrate that these event-specific strategies are distinct not only in who is most likely to achieve them but also in terms of their subjective meanings. The only elusive event that is significantly associated with a lower perceived risk of HIV infection (currently and in the next year) is having had a modern wedding before having had sex with that partner. The significant association between modern weddings and perceived HIV risk further substantiates the gilded status of premarital abstinence in local understandings of prevention. Initially, it is surprising that getting tested for HIV before having sex with a new partner has no association with perceived risk of infection. But this lack of association is somewhat clarified by recent literature arguing that generalized epidemics are characterized not only by high levels of HIV prevalence but also by high levels of uncertainty about the disease (Ashforth 2005; Trinitapoli and Weinreb 2012; Trinitapoli and Yeatman 2011). Given the nature of HIV (i.e., since it takes up to 12 weeks for a new infection to be detected, test results are always retrospective (Ling et al. 2000)) and the fact that ongoing sexual relationships necessarily represent ongoing risk of exposure, it becomes more clear why it is not testing proper but trust and confidence in a partner that has the capacity to assuage AIDS-related uncertainty.

While not associated with the perceived risk of having or contracting HIV, getting tested before having sex with a partner is the only event that significantly reduces the perceived risk of marital dissolution. This can be interpreted in three distinct ways. First, early efforts to communicate about and plan for sex, with HIV-related concerns as an explicit part of these conversations, may lay the foundation for more communicative and egalitarian relationships,

ultimately improving relationship quality. Second, getting tested before having sex may indicate a more deliberate commitment to and strategic orientation toward the relationship—both at its earliest stages and as the marriage progresses. And third, the relationship between early HIV testing and perceived relationship stability may echo and extend insights by Reniers (2008) that partner choice and divorce are important marital strategies that Malawians use to manage the risk of HIV that surrounds them. In contrast to Reniers's original argument, however, these relationship-based prevention strategies may not be pursued independently but instead represent a distinctive orientation toward managing risk throughout the course of sexual relationships (Reniers 2008; Smith and Watkins 2005).

These associations between elusive events and perceptions of risk in relationships suggest that specific widely-desired but seldom-achieved orderings may play a role in shaping the subjective experience of romantic relationships. But across all three indicators of relationship risk, the predictive power of the global distance score far surpasses that of the elusive events, modeled individually and in tandem. This suggests that it is not merely the position of a relationship step with reference to sex that matters. The positions of relationship events *in relation to each other* matter as well; as a complex bundle, the history of a relationship influences how individuals perceive their relationships today and into the future.

Beyond these substantive insights, our study has several methodological implications. By studying actualization both in terms of *events* and *sequences*, we are able to examine the value added by collecting these more nuanced data on the ordering of events. This card-sort technique is time-intensive, and if the elusive event variables had performed similarly in capturing variation in subjective perceptions of risk in relationship, the utility of collecting complex sequence data would be questionable. Instead, we find that the overall trajectory vis-à-vis

ideals matters more for perceptions of relationship risk than does actualizing any set of particular events. This suggests that collecting and analyzing detailed sequence data about relationships is indeed a worthwhile endeavor, as this type of data provides much greater insight into romantic life than would a series of questions about whether or not particular events occurred during the prelude to sex.

These analyses also demonstrate that the challenges inherent in carrying out complex survey modules in developing contexts are not insurmountable. Working with the relationship scripts cards is a cognitively complex task. Concerns that these types of exercises may prove too challenging for individuals with low levels of formal education and little experience with abstract thinking have long deterred researchers from using respondent-driven data collection techniques in developing settings. Our data illustrate that despite low levels of education and literacy, Malawian young adults effectively used the card sort approach to tell us about the history of their own particular relationships and about how they think about relationships generally. While our interviewers reported that they spent a substantial amount of time familiarizing respondents with the cards and guiding them in narrating their relationships as they ordered the cards, the same interviewers also confirmed what is clear in the data: all respondents who participated in the verbal survey were able to complete the card-sorting exercise. We have no missing data for either the realized or ideal sequences, and our data contained only a small handful of illogical orderings, such as placing pregnancy before sex. Further, the substantively meaningful results presented in this study suggest that these sequences reflect real differences in the patterning of events within relationships in Malawi.

The consensus among our field staff was that the card sort method generated more spontaneous discussion and animated participation from respondents. As one experienced

interviewer remarked, “Respondents were much more flexible to share their feelings and experiences using this method.” It is our view that nonverbal, respondent-driven data collection techniques offer substantial advantages over the conventional question-and-answer format that drives quantitative research. As evidence continues to mount that interactive survey tools are, indeed, feasible in contexts characterized by low levels of literacy and numeracy, these innovative methods should be more widely tested and implemented in a variety settings.

Despite these empirical and methodological contributions, our study suffers from some limitations. First, despite being embedded in a longitudinal survey, the data we use for this project were collected at a single point in time. In Add Health, respondents were asked about their relationship ideals during wave one, and then questioned about their relationship experiences during wave two. Our decision to not mimic this design was intentional, based on differences in relationship context between the two study populations. A one- to two-year lag helped to ensure that realized relationships occurred subsequent to the collection of data on ideal sequences among US high school students, for whom relationships tend to be fleeting. In our context, however, where the majority of respondents are married and average relationship duration approaches five years, such a staggered design would only have increased the recall bias in the realized sequences. In order to collect ideal sequences before realized relationships begin, one would have to either restrict the sample to those who were not in a relationship at the time of the survey or collect ideal sequences when respondents are in their early adolescence and then follow them until most have become sexually active. The first would have severely limited the generalizability of the results while the second would have been prohibitively expensive and time-consuming.

While we know of no viable alternative, we recognize that the cross-sectional nature of our data collection limit our ability to fully separate relationship ideals from actual experiences. We tried to address this limitation in designing the prompt for the ideal sequences. Rather than asking respondents to imagine what their own relationships might look like under ideal conditions, a style of questioning that has been shown in fertility surveys to be subject to revision and *ex-post* rationalization (Casterline and el-Zeini 2007), we asked respondents to imagine that they were offering advice to a close friend or relative who is about their age but who is not presently in a relationship. By asking respondents to picture a relationship that involves other people and that has not yet begun, we attempted to measure ideal sequences as a distinct and independent construct from their own lived experiences. Still, we cannot completely rule out the possibility that individuals who perceive the highest levels of security within their relationships are engaging in a kind of revisionist accounting of their own ideal and/or realized scripts.

Second, our data are drawn from a small geographic area around Balaka. We can think of no reason why the patterns we describe here would be specific to this small corner of the world but acknowledge that further research is needed to examine whether our findings extend beyond Southern Malawi. We are also limited by the small number of male respondents in the TLT data; the original sample includes two and a half times as many female respondents as male respondents, and because men have sex for the first time at older ages, our analytic sample further restricts the number of male respondents. While the analyses presented here are weighted to reflect this inequality in sample size between male and female respondents, our ability to detect significant differences by gender is limited.

Third, our analysis focuses on subjective perceptions of relationship risk, rather than on observed relationship-specific outcomes. Our focus on the perceived likelihood of events is

germane to our interest in how subjectively held ideals shape people's perceptions of relationships, but a natural next-step would be to connect these perceptions to lived experiences. Future research should explore whether the actualization of sexual ideals predicts marital dissolution or HIV infection, as well as other salient relationship outcomes, such as domestic violence, relationship satisfaction, or unwanted pregnancies. However, perceptions provide an ideal starting point for the line of questions we have tried to move forward here. Subjective probabilities tend to be accurate assessments of the present and predictors of the future (Delavande & Kohler 2012; Delavande & Rohwedder 2011; Trinitapoli and Yeatman 2011). More importantly, risk perceptions capture the way individuals see the world and are, therefore, highly relevant to decision making. Indeed, in the case of HIV, perceived risk may be more relevant to behavior than the presence of the virus itself—especially prior to the onset of the symptoms associated with full-blown AIDS.

Cultural models about romantic love are inherently sequential in their content and their meanings. People experience and think about their relationships from their own particular vantage points and always in sequential terms, and it is clear from our study that the ability to live out one's ideals matters for how sexual relationships are subjectively experienced. Scholars can and must begin to approach relationships this way in our work. Beyond the romantic realm, future research should examine how subjective ideals shape individual experiences of other life transitions that are sequentially ordered, such as career trajectories, family formation, and end-of-life decisions and events. Distances between what "is" and what "ought to be" in these other domains of life—both in terms of the events themselves and the order in which these events unfold—may have important implications for perceived risk and wellbeing.

ENDNOTES

[1] We follow Shore in defining cultural models as "shared mental associations [that] constrain attention and guide what is perceived as salient" (1998, p. 46).

[2] Aside from a very small proportion of the population who will remain celibate for their entire lives (Bogaert 2004).

[3] In Southern Malawi, where our study is located, the high rate of divorce among young married couples, dating back to at least the early 1950s, adds to the multitude of factors that make marriage a poor indicator of "safety" (Kaler 2001).

[4] TLT is designed by Jenny Trinitapoli and Sara Yeatman and funded by a grant (R01-HD058366) from the National Institute of Child Health and Human Development. For more information, visit https://projects.pop.psu.edu/tlt.

[5] The TLT survey was designed to allow for the sexual partners of female respondents to enter the sample through respondent-driven sampling; thus, our random sample of men is smaller than that of women. We weight all models to account for this asymmetrical sampling design.

[6] We combined three cards depicting different types of weddings, two cards showing a member of the relationship meeting the other's parents, two cards showing the couple exchanging gifts, and two cards showing the couple spending time together in public.

[7] Deleting an element from one sequence and inserting an element into the other sequence are considered equivalent when calculating the distance between two sequences.

[8] Before asking about the probability of sensitive or personal outcomes, the respondent is led through a set of exercises to familiarize respondents with the method, the instrument begins with questions about more trivial topics, such as respondent's likelihood of winning in a game of *bawo* or going to the market in the next week, and slowly builds up to more sensitive and personal questions. Respondents are asked to use the beans measure at every wave of the survey, so by wave 5 (the data used for this analysis) most respondents are familiar and comfortable with this technique.

[9] We also estimated these equations using zero-inflated negative binomial regressions, which account for excess zeros. However, non-significant Vuong tests confirm that the zero-inflated negative binomial models do not fit our data better than a standard negative binomial model.

[10] The household goods used in the index include a bed with a mattress, television, radio, landline or mobile phone, refrigerator, bicycle, motorcycle, animal-drawn cart, automobile, and Bible.

Personal possessions include a mobile phone, watch, pair of jeans, luggage, and more than one pair of shoes. Housing characteristics include whether or not the household has electricity and its type of: water supply, toilet, flooring material, and roof. Weights are assigned to each asset using principal-components analysis in accordance with the same procedure used to construct Demographic Health Surveys' wealth index.

[11] Ancillary analyses also included a variable distinguishing between the major religious denominations represented in our data: Protestant (47 percent), Catholic (30 percent), and Muslim (23 percent). These variables weren't significant in any of our models, confirming

research showing that religious attendance is a more significant predictor of sexual behavior and attitudes towards HIV risk than is denominational affiliation (Trinitapoli 2011, Trinitapoli and Regnerus 2006).

[12] We ran the same models with the entire analytic sample, including a binary variable indicating whether or not respondents list the events before sex in their ideal scripts. The results were substantially similar, with the only notable difference being that in the models with the larger sample, the coefficient for male gender is significant and negative for the models predicting HIV testing and social embeddedness (gender remains insignificant in the model predicting having a modern wedding before sex).

[13] We use pseudonyms to protect the anonymity of our survey respondents.

[14] This card was placed as the first step in about 45 percent of both realized and ideal relationship scripts. From qualitative interviews and discussions during the pilot, we learned that because Malawi lacks a cultural norm of "getting engaged," and because many young adults embark on relationships with the clear goal of finding a spouse, "deciding to get married" is often synonymous with "deciding to become a couple."

[15] When examining model fit statistics, we compared the models included in Table 6, along with a set of models including each elusive event separately and a set of models with both elusive events and the distance score included (not included, results available upon request). We used the Bayesian Information Criteria (BIC, included in Table 6) and the Akaike Information Crieria (AIC); for all three outcomes in Table 6, both measures provided very strong support for the models including only the distance score.

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Table 1: Descriptive Overview of the Analytic Sample

VARIABLES	Mean/Proportion (s.d.)	Min	Max
Sociodemographic Background			
Male	18.15%	0	1
Age	21.53 (2.99)	16	26
SES Score (standardized)	-0.28 (2.18)	-3.37	8.27
Years of Education	7.61 (2.88)	0	12
Attends Religious Services at Least Weekly	64.03%	0	1
Distance from Town (standardized)	0.14 (1.00)	-1.26	4.33
Relationship Background			
Currently Married	71.66%	0	1
In a Non-marital Relationship	28.34%	0	1
Age at First Sex	15.96 (2.58)	8	26
Relationship Sequence Measures			
Actual Sequence Length	7.39 (3.47)	1	16
Ideal Sequence Length	9.66 (3.84)	3	16
Optimal Matching Distance Score	1.48 (0.22)	0.65	1.96
Beans Measures			
Current Likelihood of HIV/AIDS Infection	2.01 (2.70)	0	10
Likelihood of Infection within 1 Year	3.54 (3.15)	0	10
Likelihood of Union Dissolution within 1 Year*	1.78 (2.26)	0	10
N	1041		

Note: *N=757 (married respondents only)

Table 2: Descriptive Overview of Elusive Events

VARIABLES	Place card in realized sequence	Place card in ideal sequence
Modern Weddings		
Religious Wedding	9%	56%
Registering Marriage with the Government	57%	77%
At least 1 Modern Wedding Event	**58%**	**93%**
HIV Testing	**32%**	**81%**
Social Embeddedness		
Introduce Partner to Parents	41%	71%
Be Introduced to Partner's Parents	45%	66%
Introduce Partner to Friends	57%	78%
3 Social Embeddedness Cards	**37%**	**61%**
N	1041	

Note: Items in bold identify the measures used in the regression models in Tables 4 and 6.

Table 3: Logistic Regression Models Predicting Actualization of Elusive Events Before Sex

VARIABLES	(1) Modern wedding[a]		(2) HIV testing		(3) Social embeddedness[b]	
Male	-0.0633		-0.3089		-0.2604	
	(0.2765)		(0.1990)		(0.2129)	
Age	0.1723	***	0.1120	***	0.1811	***
	(0.0412)		(0.0269)		(0.0307)	
Socioeconomic Status	0.2351	***	-0.03909		-0.0309	
	(0.0586)		(0.0408)		(0.0513)	
Years of Education	-0.0384		0.1312	***	0.0409	
	(0.0394)		(0.0364)		(0.0370)	
Attends Religious Services at Least Weekly	0.6690	**	0.1357		0.1877	
	(0.2281)		(0.1653)		(0.1744)	
Distance From Town Center (Standardized)	-0.0022		-0.3066	**	0.2078	*
	(0.1255)		(0.1043)		(0.1008)	
Constant	-5.8621	***	-4.2621	***	-4.4246	***
	(1.0397)		(0.6648)		(0.7462)	
N[c]	970		844		639	

Note: Standard errors in parentheses. †=0.10, *=0.05, **=0.01, ***=0.001.

[a] Defined as placing either religious wedding or civil wedding before sex.

[b] Defined as placing three "social embeddedness" events (introducing partner to parents,

[c] For each model, samples are restricted to respondents who place each elusive event before sex in their *ideal* relationship sequence. See Appendix A for additional information on filters and sample restriction.

Table 4: Example Relationship Scripts to Illustrate Distance Score

Actual Relationship Script	Ideal Relationship Script
LOW DISTANCE: MARY	
We decided to get married	We decided to get married.
We told close friends that we were a couple.	My partner met my parents.
My partner met my parents.	We told close friends that we were a couple.
I met my partner's parents.	I met my partner's parents.
We attended a community event together.	We attended a community event together.
We had sex.	My partner gave me a present.
	We had sex.
HIGH DISTANCE: JANET	
We decided to get married	My partner gave me a present.
My partner met my parents.	My partner met my parents.
I met my partner's parents.	We decided to get married.
We walked around alone together as a couple.	I met my partner's parents.
We attended a community event together.	We had a traditional wedding.
We had sex.	We had a religious wedding.
	We got tested for HIV/AIDs.
	We started living together.
	We had sex.

Table 5: Ordinary Least Squares Regression Models Predicting Distance Between Actual and Ideal Relationship Sequences

	(1)	
VARIABLES	OM Distance Score	
Male	0.0081	
	(0.0172)	
Age	-0.0018	
	(0.0022)	
Socioeconomic Status	-0.0270	***
	(0.0037)	
Years of Education	-0.0020	
	(0.0027)	
Religious Services: Attend 1+ Times Per Wee	-0.0137	
	(0.0132)	
Distance From Town Center (Standardized)	0.0155	*
	(0.0072)	
Constant	1.5307	***
	(0.0544)	
N	1,041	
R-Squared	0.1002	

Note: Standard errors in parentheses. †=0.10, *=0.05, **=0.01, ***=0.001.

Table 6: Negative Binomial Regression Models Predicting Perceived Relationship Risk

VARIABLES	(1) Current HIV Infection	(2) Current HIV Infection	(3) HIV Infection in 1 Year	(4) HIV Infection in 1 Year	(5) Relationship Dissolution in 1 Year[a]	(6) Relationship Dissolution in 1 Year[a]
ELUSIVE EVENT MEASURES						
Modern wedding before sex[b]	-0.4180 ***		-0.1680 *		-0.1492	
	(0.1065)		(0.0682)		(0.1119)	
HIV testing before sex	-0.0488		-0.0131		-0.2879 *	
	(0.1014)		(0.0655)		(0.1147)	
Social Embeddedness before sex[c]	-0.1177		-0.0424		-0.1412	
	(0.0990)		(0.0666)		(0.1096)	
GLOBAL DISTANCE SCORE						
OM Distance Score		0.9891 ***		0.4522 ***		0.6950 **
		(0.1901)		(0.1244)		(0.2268)
CONTROL VARIABLES						
Male	-0.1797 †	-0.1081	-0.0894	-0.0649	0.1450	0.1532
	(0.1007)	(0.0986)	(0.0671)	(0.0658)	(0.1297)	(0.1323)
Age	0.0341 *	0.0175	0.0160	0.0094	-0.0177	-0.0156
	(0.0146)	(0.0142)	(0.0099)	(0.0095)	(0.0180)	(0.0180)
Socioeconomic Status	-0.0076	0.0126	-0.0020	0.0108	-0.0554	-0.0199
	(0.0271)	(0.0254)	(0.0166)	(0.0166)	(0.0338)	(0.0350)
Years of Education	-0.0170	-0.0012	-0.0202	-0.0151	-0.0531 *	-0.0440 *
	(0.0192)	(0.0184)	(0.0124)	(0.0122)	(0.0211)	(0.0213)
Attends Religious Services at Least Weekly	-0.0264	-0.0130	-0.0250	-0.0158	-0.0874	-0.0537
	(0.0849)	(0.0843)	(0.0563)	(0.0562)	(0.0982)	(0.0985)
Distance From Town Center (Standardized)	-0.0020	-0.0118	0.0012	-0.0046	0.1244 *	0.0935 *
	(0.0450)	(0.0446)	(0.0320)	(0.0311)	(0.0491)	(0.0475)
Constant	0.2663	-1.1405 *	1.1490 ***	0.5189 †	1.1938 **	0.1362
	(0.3611)	(0.4792)	(0.2371)	(0.3069)	(0.4485)	(0.5689)
N	1041	1041	1041	1041	757	757
BIC	3572.9	3551.0	4586.8	4568.1	2353.8	2340.2

Note: Standard errors in parentheses. †=0.10, *=0.05, **=0.01, ***=0.001.

[a] Sample limited to currently married respondents.

[b] Placing either religious wedding or civil wedding before sex.

[c] Placing three "social embeddedness" events before sex.

Figure 1: Relationship Scripts Card Illustrations and Categories

Marriage

We had a traditional wedding.

We registered our marriage with the chief.

We had a religious wedding.

Exchanging Gifts

I gave my partner a present.

My partner gave me a present.

Embeddedness: Friends[1]

I told my friends that we are a couple.

Embeddedness: Parents

I introduced my partner to my relatives.

My partner introduced me to his relatives.

Embeddedness: Community

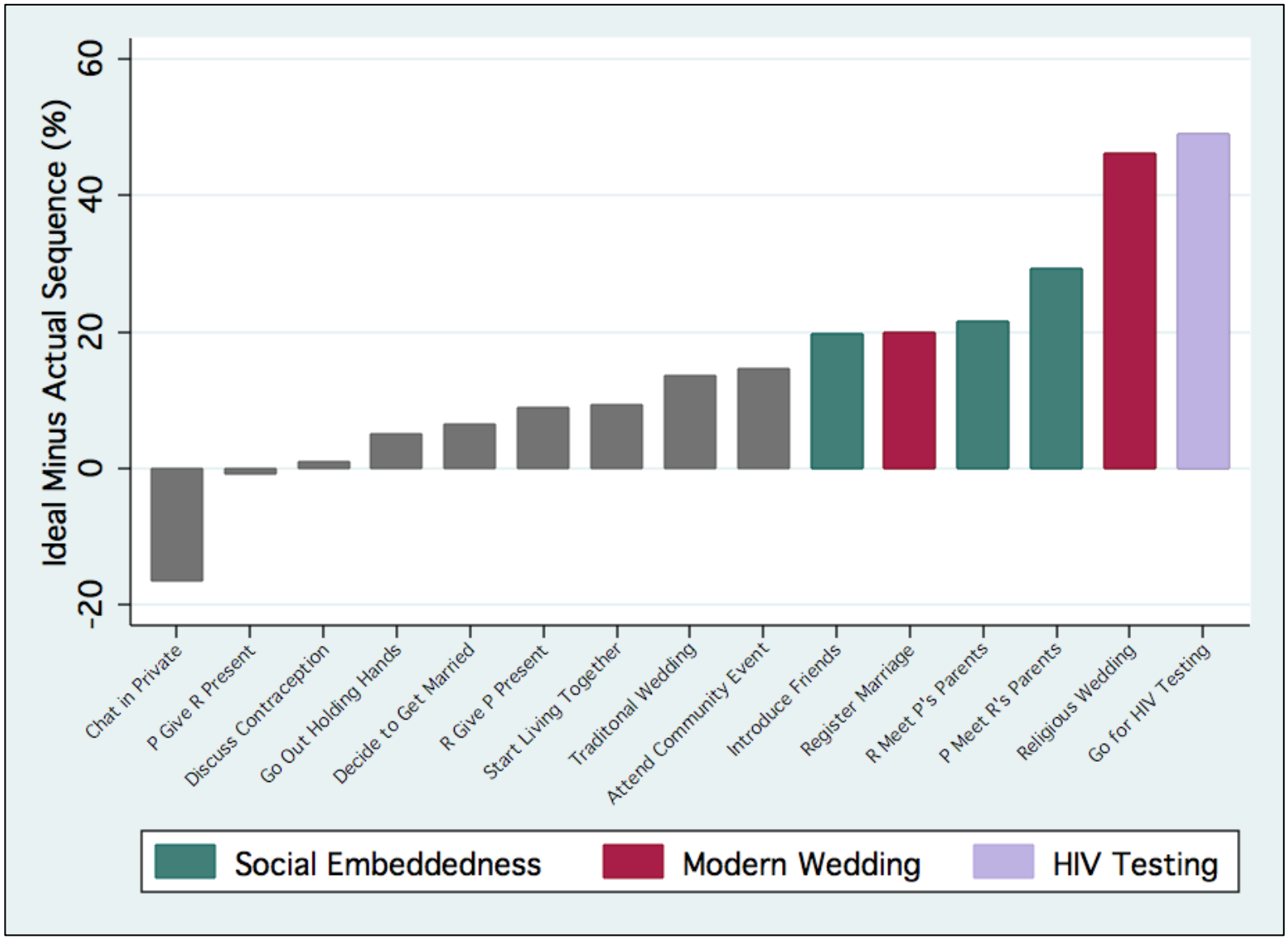
We attended a community event together.

We walked around alone together as a couple.

[1] Only one of these cards was used in the relationship scripts module, depending on the gender of the respondent.

Private Meeting  *We met somewhere to chat in private.*	**Decide to get married**  *We decided to get married.*	**Coresidence**  *We started living together.*
Discuss contraception  *We talked about contraception.*	**HTC Testing**  *We went for HIV testing and discussed our status.*	**Sexual Intercourse**  *We had sex.*

Figure 2: Difference in Percent Placing Cards Before Sex Card in Ideal and Actual Sequences



APPENDIX A: TABLE DISPLAYING SELECTION FILTERS

Table A1: Descriptive Comparison of Analytic Samples

	Full Sample	Reported having Sex with Current Partner	Placed "Elusive Event" Before Sex Card in Ideal Sequence			Currently Married
			Modern Marriage	HIV Testing	Social Embeddedness	
Age	20.42 (3.24)	21.53 (2.99)	21.54 (3.00)	21.52 (2.98)	21.79 (2.93)	22.21 (2.71)
Male	26.94%	18.16%	17.11%	19.67%	16.74%	12.03
SES	-0.025 (2.38)	-0.284 (2.18)	-0.266 (2.19)	-0.174 (2.218)	-0.320 (2.12)	-0.629 (1.91)
Years of Education	8.19 (2.86)	7.61 (2.87)	7.69 (2.87)	7.89 (2.83)	7.64 (2.76)	7.03 (2.78)
Married	42.87%	71.66%	72.16%	70.26%	78.87%	100%
Attends Religious Services at Least Weekly	63.81%	63.59%	64.12%	64.69%	64.32%	63.54%
Standardized Distance from Town	0.14 (0.99)	0.14 (1.00)	0.14 (1.01)	0.10 (0.98)	0.13 (0.98)	0.18 (0.98)
N	1752	1041	970	844	639	757

APPENDIX B: OPTIMAL MATCHING ALGORITHM AND SPECIFICATIONS

The optimal matching approach, rooted in computer science (Hamming 1950), seeks uncover similarities and differences in overall trajectories (Abbott 1995). Applying such an approach to TLT respondents' ordered narratives of their real and ideal relationships allows compare each person's lived experience to his or her stated ideal and create a global measur actualization of ideal sequences, which we refer to as a *distance score*. This notion of distance combines both the subjective and sequential dimensions of relationship histories we think a critical for understanding the consequences of sex for young adults. Essentially, we use the algorithmic approach—optimal matching—to create a single that captures the distance betw each respondent's ordered narrative about how relationships ought to unfold in an ideal wo how they progressed in real life.

Optimal matching algorithms estimate the distance between pairs of sequences, in te how many changes an analyst would have to make in order to convert one sequence into the (Abbott and Tsay 2000; Abbott and Hrycak 1990; Aisenbrey and Fasang 2010). There are tw fundamental types of changes that are used in optimal matching analyses: *indel* (i.e., insertin deleting cards[1]) and *substitution (i.e.,* exchanging one card for another). To calculate the over distance between two sequences, an optimal matching algorithm tries all possible combinati these two types of changes and selects the combination with the minimum cost.

While early optimal matching analyses weighted all types of changes equally, it is no understood that the relative weight assigned to substitution versus indel costs is a substanti decision type of information contained in the sequences (Lesnard 2010; Aisenbrey and Fana 2010). Substitutions alter the patterning of events within a sequence, while insertions and d alter the temporal dimension of all other elements in the sequence. If the ratio of substitutio indel is set to less than 1, the algorithm favors matches that preserve the *contemporaneity of*

[1] Deleting an element from one sequence and inserting an element into the other sequence a considered synonymous from the perspective of calculating the distance between two seque

sequences, or the extent to which the sequences are aligned over "time" (in this case, the number of steps). If the ratio of substitution to indel is greater than 1, the researcher is favoring matching that reveals *common subsequences*, regardless of where they occur in the two sequences. We follow Lesnard (2010), who suggests that for most topics of inquiry within the social sciences, contemporaneity is more meaningful than common subsequences, which can distort the temporal dimension of sequences.

Following Stovel, Savage, and Bearman (1996) and Harding (2007), we define insertion and deletion costs as the maximum substitution cost. The substitution costs are assigned according to the transition rates for each pair of elements observed in the complete set of realized and ideal sequences in the data (Harding 2007; Hollister 2008; Abbott and Tsay 2000). The transition rate between state i and state j is the probability of observing state j at time $t+1$ given that state i has been observed at time t, or $p(i \mid j)$. For $i \neq j$, the substitution cost is equal to the inverse of the sum of conditional probabilities for each pair, or $2 - [p(i \mid j) + p(j \mid i)]$. In our particular analyses, the substitution costs range from 1.502 for "*we had sex*" and "*we started living together*" to 1.983 for "*I told my friends that we were a couple*" and "*we started living together*."

Following Harding (2007) and Abbott and Hrycak (1990), we account for variation in sequence length by normalizing the distance score for each pair of sequences; specifically, we divide each distance score by the length of the longer script, so that the distance score reflects the average cost per event in the longer script. Distance scores range from 0.65 to 1.96, with a mean value of 1.48.