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## Articles

# Interpersonal Chemistry in Friendships and Romantic Relationships

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## Abstract

Interpersonal chemistry refers to a perceived instant connection that exists when meeting a person for the first time. In this study, we inductively explored the characteristics of friendship and romantic chemistry for men and women. A social constructionist lens guided our data collection and interpretation. The sample consisted of 362 ethnically diverse individuals (men = 162, women = 200) who completed an online survey. Using textual coding methods, we identified the core themes for interpersonal chemistry as: Reciprocal candor, mutual enjoyment, attraction, similarities, personableness, love, instant connection, and indescribable factors. The similarities theme was more characteristic of friendship than romantic chemistry and the attraction and love themes were more salient to romantic chemistry. We analyzed the data separately for men and women and found that women's responses centered more on love as characteristic of friendship chemistry and similarities as a component of romantic chemistry.

**Keywords:** first impressions, relationship initiation, friendships, romantic relationships

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Social connections are essential for health and well-being. People whose social needs go unmet have greater incidence of depression, weaker immune systems, and higher mortality rates compared to those with close connections (Kern, Della Porta, & Friedman, 2014; Pressman, Cohen, Miller, Barkin, Rabin, & Treanor, 2005; Shankar, McMunn, Banks, & Steptoe, 2011). Even brief encounters, whether friendly or romantic, provide benefits such as augmenting a person's mood and overall well-being (Fingerman, Brown, & Blieszner, 2011; Vittengl & Holt, 2000). Although social bonds, including brief interactions, are beneficial for wellbeing, there is not a clear conceptualization of initial connections. In this paper, we explore the bases of interpersonal chemistry, which we define as a perceived connection with a person that is evident upon first meeting. We examine this construct using a social constructionist perspective in the context of both friendships and romantic relationships.

Friendships and romantic relationships are advantageous at a fundamental level (Seyfarth & Cheney, 2012). Friends provide emotional and social support as well as assistance during crisis (Christakis & Fowler, 2014; Mukerjee, 2013; Tay, Tan, Diener, & Gonzalez, 2013). They contribute feelings of joy and meaningfulness to a person's life and serve as a primary vehicle through which to meet romantic partners (Ackerman & Kenrick,

2009). Those with romantic ties receive emotional, social, and financial support, and have better health and happiness compared to people without such connections (Koball, Moiduddin, Henderson, Goesling, & Besculides, 2010). The first time two people meet is important because it creates the possibility for friendships or romantic partnerships, and yet the initial connections that lead to relationships are not widely understood (Harris & Garris, 2008; Sunnafrank & Ramirez, 2004).

When individuals first meet, the decision about which type of relationship to pursue -- no relationship, casual friendship, close friendship, or romantic relationship -- is often made in less than an hour (Ambady, Bernieri, & Richeson, 2000; Berg & Clark, 1986). Ambady and Rosenthal (1992) coined the term “thin slices” in reference to using limited information or short segments of time to form judgments about people. Just five minutes is enough to form accurate evaluations about compatibility indicators such as personality, affect, sexuality, and IQ (Carney, Colvin, & Hall, 2007). The accuracy of quick assessments is comparable to conclusions reached from lengthier interactions and/or exposure to more extensive information. However, thin slice accuracy is weaker when the perceiver lacks confidence in their appraisal (Ames, Kammrath, Suppes, & Bolger, 2010).

Once a decision has been made, various individual and interpersonal factors contribute to relationship development (Campbell, Holderness, & Riggs, 2015; Fehr, 2008; Sprecher & Regan, 2002). Individual factors that lead to friendship include personableness (i.e., expression of warmth, kindness), communication skill, attractiveness, and sense of humor. Dyadic factors include similarity, reciprocal liking, and mutual self-disclosure. Environmental or contextual variables such as meeting in church versus a bar may also influence friendship formation (Fehr, 2008). Similar to friendship formation, researchers have identified factors that contribute to romantic relationship establishment (Hegi & Bergner, 2010; Sprecher, Wenzel, & Harvey, 2008). In general, people seek qualities such as personableness, openness, expressiveness, and sense of humor in prospective mates (Li, Bailey, Kenrick, & Linsenmeier, 2002).

Researchers have used the term “rapport” in business and education to describe relationships that are characterized by harmony and affinity (Faranda & Clarke, 2004). The term in these fields largely refers to ongoing relationships, rather than first-time interactions. Granitz and colleagues (2009) developed a model specific to synchronous faculty-student relationships. They qualitatively identified three factors that precipitate rapport: approachability, personality (e.g., open, empathetic, positive), and homophily regarding values and demographic characteristics. These factors have been shown to underlie rapport across several types of relationships including coach-player, business-client (in sales and advertising), employee-manager, and physician-patient (Barkely & Bianco, 2010; Beck, Daughtridge, & Sloane, 2002; Castleberry & Tanner, 2013; Davies & Prince, 2005; Deeter-Schmelz, Goebel, & Norman-Kennedy, 2008; Faranda & Clarke, 2004).

In the field of psychology, Tickle-Degnen and Rosenthal (1990) theorized about non-verbal, behavioral components of rapport and used meta-analytic techniques to identify the central components. They described rapport as consisting of three interrelated qualities: mutual attentiveness (i.e., demonstrating an interest in each other), positivity (friendly, caring attitude), and coordination (synchronous, balanced interactions). These characteristics are expressed through behaviors such as smiling, nodding, leaning forward, and posture-mirroring. The relative importance of each component was proposed to vary over the course of a relationship with mutual attentiveness and positivity being salient early on and attentiveness and coordination taking precedence over time. The authors indicated, “individuals experience rapport as the result of a combination of qualities that emerge from each individual during the interaction. This experience is expressed clearly when

people say they ‘clicked’ with each other, or felt the good interaction to be due to chemistry” (p. 286). They noted that a majority of research has relied on observers’ assessments—which remains largely the case (e.g., Hall, Roter, Blanch, & Frankel, 2009)—and emphasized a need for work examining participants’ subjective reports of rapport.

Since Tickle-Degnen and Rosenthal’s (1990) study, interpersonal chemistry has primarily been examined in the context of sexual or dating relationships (Leiblum & Brezsnyak, 2006; Peretti & Abplanalp, 2004). Using a college student, dating sample, Peretti and Abplanalp identified the underlying components of sexual chemistry as (ordered from most to least common): Physical attractiveness, similarity, spontaneous communication, reciprocity, warm personality, and longing. The researchers indicated that all participants in their sample were cognizant of chemistry as a part of the dating process, which provided support for the construct’s pervasiveness. However, participants were reporting on chemistry within their relationship in general, rather than the initial interaction. In a review article, Leiblum and Brezsnyak (2006) used clinical and evolutionary perspectives to describe sexual chemistry as a “state that feels driven, mostly pleasurable, and exist[ing] in the context of an interpersonal relationship.” The authors believed it results from a good fit or match between partners, and that its purpose is to facilitate reproduction. They also noted the need for empirical research in this domain and hoped their paper would stimulate such work.

In sum, impressions are created within moments of first meeting. A majority of research on interpersonal chemistry has examined ongoing relationships rather than first encounters. The studies pertaining to first-time meetings have largely reported on observers’ rather than participants’ assessments. The purpose of the present study was to identify the underlying components of interpersonal chemistry from the participants’ perspectives. This information will help create a measure to assess interpersonal chemistry in friendships and romantic relationships. Further, clinicians will be able to incorporate the core factors underlying initial rapport as part of treatment with individuals who struggle to form relationships. Clinical approaches that are informed by a social constructionist framework, such as Narrative Therapy (White & Epston, 1990) or Solution-Focused Brief Therapy (Franklin, Trepper, McCollum, & Gingerich, 2011) are especially suited to address the unique impressions created through social interactions. The scarcity of research on this topic as well as the need for subjective assessments suggests that a qualitative or open-ended design is optimal. This method will highlight the participants’ perspectives and propose a structure for interpersonal chemistry that is rooted in lived experiences.

## Method

### Methodological Framework

We used a social constructionist perspective to guide our data collection and interpretation. According to this perspective, meanings are formed through social interactions (Creswell, 2013). It is assumed that one’s knowledge is relational and generated through language (Anderson, 1997). As such, we propose that the language used to describe characteristics of interpersonal chemistry will offer a useful means for isolating the core components of this construct. It is also assumed that our participants’ descriptions of interpersonal chemistry reflect their perceptions of reality, which were co-constructed in their initial interactions with others. We used open-ended questions for data collection to provide the flexibility for participants to fully describe their

experiences. Participant quotes are incorporated throughout our results to demonstrate the connection between the participants' words and the researchers' interpretations.

## Participants

Initially, 380 individuals completed an online survey. Of those, 18 indicated that they had not experienced either friendship or romantic chemistry and were excluded from the analyses. The data reported herein are derived from 362 adults (men = 162, women = 200) with a mean age of 25.02 years ( $SD = 8.28$  years; Range = 20-66 years). Participants were residing in regions across the U.S. including 68% in the west, 12% in the east, 10% in the south, and 10% in the midwest. In terms of ethnic background, 43% identified as European American/White, 37% were Hispanic/Latin American, 10% were African American, 7% were Asian American, 2% were Native American, and 1% identified as "other." A majority identified as heterosexual (92%).

## Procedure

Prior to recruiting participants, the researchers obtained study approval through the Department of Psychology subcommittee of the university Institutional Review Board. Participants were recruited through professional listservs, websites (e.g., Craigslist.org), and university student pools. The sole requirement for participation was that individuals were at least 18 years of age. Interested persons read an online consent form and electronically indicated their willingness to participate using an "I agree" option. The survey, which was hosted on Qualtrics.com, contained questions to assess friendship chemistry, romantic chemistry, and demographic traits (outlined below). Upon completing the survey, participants were given the option to enter a draw for a \$50 gift card. University students earned 2 extra credit points for their classes. The survey took approximately 20 minutes to complete. Participants were treated in accordance with the Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 2009).

## Materials

### Friendship Chemistry

Participants were presented with our definition of interpersonal chemistry and asked if they had experienced it in a platonic context. If they answered "yes," they were presented with the following prompt, "Please use the space below to list as many words or ideas that describe friendship chemistry. What is friendship chemistry?"

### Romantic Chemistry

Participants were again presented with our definition of interpersonal chemistry and asked if they had experienced it in a romantic context. If they indicated "yes," they were presented with the following prompt, "Please use the space below to list as many words or ideas that describe romantic chemistry. What is romantic chemistry?"

### Demographic Characteristics

Participants provided information regarding their sex, age, region of residence within the U.S., ethnicity, and sexual orientation.

## Data Analyses

Using a qualitative analysis software program, Atlas.ti, two trained researchers independently coded the data using the constant comparative method (Glaser & Strauss, 1967; Strauss & Corbin, 1990). The responses for friendship and romantic chemistry were analyzed in separate files. The coding method involved reading through participants' textual responses and labeling the data for emergent themes. A word or phrase was only coded once; however, a participant's entire response could contain more than one code if additional themes were present. When a theme was identified, a concise and descriptive code was applied to the piece of data; the resulting codes were stored in an electronic codebook. As themes continued to emerge, they were compared to the codebook to examine whether they could be collapsed into one of these existing categories or should stand on their own with the creation of a new code. After reading through the data several times and independently deciding on the most accurate codes for each piece of data, the researchers met to review their findings.

In the meeting, the codes assigned to each piece of data were examined one-by-one. Inter-rater agreement was determined by examining the extent to which the researchers matched on the codes assigned to each piece of data (Tinsley & Weiss, 2000). If different labels had been applied to the data but the underlying meaning of an assigned code was the same, agreement was reached. In such cases, the researchers adjusted the wording of a code to most accurately capture its essence. Using this method, inter-rater agreement was determined to be 90% for friendship chemistry and 93% for romantic chemistry. When the researchers had differentially coded a piece of data, they discussed their rationale and decided which code most accurately captured the theme. At the conclusion of the meeting, the researchers had reached consensus for all assigned codes. Two codebooks were produced— one for friendship chemistry and the other for romantic chemistry.

The principle investigator used these codebooks to read through the files and independently code the data. The responses for men and women were analyzed separately. This method resulted in the analysis of 4 separate files: Friendship chemistry for men, friendship chemistry for women, romantic chemistry for men, and romantic chemistry for women. At the conclusion of these analyses, confirmability was assessed (Tobin & Begley, 2004). Confirmability refers to the premise that data interpretations should be logically derived from the participants' responses; it provides an evaluation of objectivity or neutrality. Twenty random segments from each qualitative data file were provided to a trained qualitative researcher who was unfamiliar with the study. The researcher read the participants' responses and evaluated the assigned codes. She determined that the assigned codes accurately reflected the participants' responses. These final codes for each chemistry type are listed below in order from most to least common. The salient qualities of friendship chemistry are reported first, followed by those identified for romantic chemistry. The core themes for each chemistry type are summarized in [Tables 1 and 2](#).

## Results

### Friendship Chemistry

#### Reciprocal Candor (36% Men; 32% Women)

The most frequently mentioned quality of friendship chemistry was reciprocal candor, which referred to open and meaningful communication. Three subcategories emerged within this group including (in order of most to least common): Ease of interaction, sharing a deep connection, and predictability. As some male participants

described, “Conversation just flows naturally” and “There are no awkward silences”; “Chemistry is when there is a spark or understanding that makes the relationship easy”; and “Chemistry in friends goes beyond just being an acquaintance. It’s like you are connected. Everything makes sense. Everything fits.” Some of the women participants described it as, “Being able to finish each other’s sentences or understand what each other is feeling and thinking simply based on their behavior”; “There is immense happiness when talking to the person, one feels free to express emotions and ideas and when the other person listens and understands, it makes one feel loved which makes one like that person more”; and “There is a sense of naturality and feeling so comfortable around them that you can talk to them about anything without any hesitation, and all this occurs even though you might not have known this person for a long time.”

### **Mutual Enjoyment (15% Men; 20% Women)**

In this category, participants described greatly enjoying each other’s company and sharing a sense of humor. As one man described, “We come up with ideas that only we can come up with.” Others explained that chemistry involved “having a lot of jokes” and “laughing easily together.” Some women described it as “Feeling more energy being with or after being with the person”; “A spark, attraction to their personality and style, eye contact, feeling comfortable, they feel familiar, you don’t want to end the conversation”; and “Laughing at things that are said, which are not funny most of the time (but to you they are).”

### **Similarities (17% Men; 14% Women)**

Similarities referred to being matched in terms of hobbies, beliefs, goals, and demographic traits. One man stated, “Having many things in common, sharing the same goals, the same worries, and agreeing 99% of the time.” Another indicated, “Chemistry exists because each person sees part of themselves in the other.” One woman stated that she and the person with whom she experienced friendship chemistry “had a lot of things in common such as similar life experiences, similar taste in music, movies and activities- like going to the beach and hanging out at the mall, loving to paint and even similar tastes in colors and clothes.” Another woman described, “A lot of our morals and values were the same and therefore we have a similar way of going about certain situations in our lives.”

### **Personableness (10% Men; 9% Women)**

For this category, participants described characteristics about themselves or their friend, which they believed made chemistry possible. In general, the responses for this category contained lists of qualities or short phrases. Here we list the most common traits but do not include direct quotes. Men and women mentioned parallel characteristics and so we have not separated the list by gender. The traits included: Honest, trustworthy, supportive, kind, thoughtful, agreeable, comforting, interesting, warm, accepting, empathetic, compassionate, open-minded, genuine, patient, and outgoing.

### **Attraction (7% Men; 5% Women)**

Participants stated that even within friendships, there is some element of attraction when chemistry is present. They described biological reactions such as feeling aroused in the other’s presence as well as feelings of passion. One man indicated, “There is some sort of attraction between friends, they just don’t want to admit it because two male friends may be straight but have some sort of physical attraction to each other.” Another stated, “My friend and I are not romantic but I believe if we were to be, it would be very compatible.” As certain women described, “Some flirting exists but you know it’s not going anywhere”; “You feel attraction to each other,

sometimes this chemistry is sexual and other times it is a chemistry that orbits around the other person, pulling them closer to you”; and “Attraction to the other person’s attitude and attraction to their outer beauty.”

### **Instant Connection (3% Men; 4% Women)**

In the study instructions, participants were asked if they had ever experienced a friendship connection that was evident upon first meeting. Many focused their responses on this element when describing chemistry. As one man indicated, chemistry involves “the feeling of being instantly simpatico.” Another stated, “Friendship chemistry is having a kind of connection or understanding of the other person that is immediately, if not always consciously understood.” One woman succinctly described chemistry as “instant rapport.”

### **Love (0% Men; 4% Women)**

Love is a theme for friendship chemistry that emerged only among women. Most women simply included the word “love” in their descriptions of friendship chemistry whereas others elaborated on the specific type of love. One woman stated, “We love [each other] like sisters” and another described a “feeling of unbelievable love for someone.”

### **Indescribable (2% Men; 0% Women)**

This theme was only evident in the men’s responses for friendship chemistry. They stated that the experience was difficult or impossible to describe. As one man indicated, “Chemistry is hard to explain, you don’t really have to be similar to the person or have the same hobbies, you just have to click.” Another indicated, “There is some connection between us that is special and indescribable.”

## **Romantic Chemistry**

### **Reciprocal Candor (34% Men; 33% Women)**

Similar to friendship chemistry, several subcategories emerged within reciprocal candor including ease of interaction, sharing a deep connection, and having predictable interactions. Some men described romantic chemistry as, “Talking for hours and not getting distracted”; “A person you believe is the other half of your soul”; and “Absorbing, riveting, inescapable, powerful, intoxicating, as if the world suddenly became background to this one person.” Some women stated that with romantic chemistry, “The person is easy to talk to no matter what the conversation is about”; “You feel safe and secure, you are able to be yourself, you want to be real with that person”; and “It is not only chemistry that you can find within a friend, but also a connection that you make intimately, not physically, a connection in a way deeper and romantic way.”

### **Attraction (24% Men; 26% Women)**

Compared to friendship chemistry, the attraction theme was much more prevalent in the romantic chemistry responses. Participants described the theme in terms of biological reactions, passion, mutual desire, sexual attraction, and infatuation. Some of the men noted, “Romantic chemistry has all that friendship chemistry has. The only difference is that there is a high physical attraction, so much as to want to perform a sexual act”; “It’s animal attraction, ease of witty banter and flirting, and just plain wanting each other”; and “Lust heat sex.” Some women described, “Your heart skips when you look at them and when they touch your hand or arm you get goose bumps”; “It’s lust, obsession, being attracted to the person, passion, need, want, love, connection, insatiability for them, spark, flirting, desire”; and “Being automatically drawn to one another.”

**Mutual Enjoyment (16% Men; 12% Women)**

Similar to friendship chemistry, participants described mutual enjoyment in terms of greatly enjoying the other's company and having a shared sense of humor. Some men described it as, "This person is the only one who can cheer you up"; "We hit it off and never looked back. We had a lot to talk about and made each other feel great about ourselves;" and "Having lots of inside humor." Women described romantic chemistry as "Undeniable, exciting, all-consuming"; "You never get bored of being with that person or talking to them"; and "We make each other laugh without trying."

**Love (9% Men; 9% Women)**

Most responses in this category simply included the word "love." Some participants broadened their description to include words such as adoration, bliss, being in love, love at first sight, and having a loving connection. Men indicated that romantic chemistry involves "A mutual understanding to make their love to each other stronger" and "Someone you want to spend the rest of your life with. The person you're able to start a family with." Some women described, "Accepting them for who they are and loving them for all that they are, good and bad, being able to be yourself and not feel judged, not judging the other person"; "All those feelings that are involved with being in love"; and "It's the best feeling in the world to be yourself and be completely loved for who you are and you have nothing to hide."

**Personableness (9% Men; 8% Women)**

As with friendship chemistry, responses in this category referred to characteristics about the participant or their romantic partner, which the participant believed made romantic chemistry possible. In general, the responses contained lists of traits and included: attractive, interesting, confidence, thoughtful, unique, understanding, friendly, fun, honest, charming, and sexy. As some men participants indicated, "She thought that I was funny and cute, I thought she was cute and easy to talk to" and "Romantic chemistry feels like floating. It makes me feel confident, powerful, assertive, naturally dominant, it feels like I have everything I need and want." One woman stated, "Chemistry makes me feel confident and sexy." In recalling her specific experience of chemistry, another woman described the partner using the following words: "Nice eyes, smells good, tall, strong arms."

**Similarities (3% Men; 7% Women)**

As with friendship chemistry, similarities referred to shared hobbies, beliefs, and goals. Although demographic traits were mentioned, they were not listed as frequently as with friendship chemistry. Some men described, "We have similar beliefs, values, morals, likes, dislikes, and interests" and "We had many deep things in common, common goals, and outlooks on life." Some women stated, "Similarity to that person's interests, intelligence, and physical appearance" and "We had a lot in common but also a lot of differences. I guess I can say that intrigued us. We complemented each other's characteristics very well. Where I lacked, he didn't and vice versa."

**Instant Connection (3% Men; 3% Women)**

The same percentage of men and women described romantic chemistry in terms of instant rapport. One man described it as "When two people meet and instantly connect; there is a sense that you've known the person forever even if you just met." Some women described it as "The time we first met, our first moment was incredible"; "Kind of love at first sight? We became best friends and lovers almost instantly"; and "Romantic

chemistry is when you meet someone and you just get this instant spark between you and the other person. It's hard to describe because you have to feel it. Your personalities just click right away."

### Indescribable (2% Men; 2% Women)

Unlike friendship chemistry, this theme was evident in the romantic chemistry responses of both men and women. Participants indicated that romantic chemistry is inexplicable, enigmatic, and magical. Some responses paralleled those offered by men for friendship chemistry. As one man stated, "The only way I can describe it is that it is something indescribable." One woman noted, "It's this feeling I can't fully describe, it's just so great and natural."

Table 1

*Interpersonal Chemistry Themes and Definitions Ordered From Most to Least Common*

Theme	Definition
Reciprocal Candor	Open and meaningful communication
Mutual Enjoyment	Enjoyment in each other's company including shared humor
Attraction	Biologically driven, passionate attraction
Similarities	Shared hobbies, beliefs, goals, and demographic traits
Personableness	Positive intrapersonal attributes
Love	A deep and/or unconditional regard for another person
Instant Connection	Rapport that is immediately evident
Indescribable	The inability to describe chemistry

Table 2

*Core Themes Underlying Friendship and Romantic Chemistry for Each Sex*

Friendship Chemistry (%Men; %Women)	Romantic Chemistry (%Men; %Women)
Reciprocal Candor (36; 32)	Reciprocal Candor (34; 33)
Mutual Enjoyment (15; 20)	Attraction (24; 26)
Similarities (17; 14)	Mutual Enjoyment (16; 12)
Personableness (10; 9)	Love (9; 9)
Attraction (7; 5)	Personableness (9; 8)
Instant Connection (3; 4)	Similarities (3; 7)
Love (4 women only)	Instant Connection (3; 3)
Indescribable (2 men only)	Indescribable (2; 2)

## Discussion

The goal of the present study was to identify the underlying components of interpersonal chemistry using an inductive approach. It was important to elucidate this construct because first impressions impact subsequent encounters and people who struggle with relationship formation experience adverse effects in terms of health and well-being (Harris & Garris, 2008; Kern et al., 2014; Knobloch & Miller, 2008). Exploring the construct of interpersonal chemistry from the participants' perspectives can expand clinical interventions and approaches focused on improving individuals' well-being through personal relationships. Specifically, increasing personal insight into the meaning one ascribes to the formation of new relationships is an essential step toward creating

new, more beneficial relational experiences (Anderson, 1997). This study also offers an important addition to the interpersonal chemistry research by comparing friendship and romantic chemistry as separate constructs that may vary between men and women. We found the same core qualities across chemistry types but with varying frequencies and modest variations across genders.

Eight core components of friendship and romantic chemistry emerged from our analyses. The themes with comparable frequency across chemistry types included (in order from most to least common): Reciprocal candor, mutual enjoyment, personableness, instant connection, and indescribable. The importance assigned by both men and women to reciprocal candor for friendship and romantic chemistry is noteworthy. In the U.S., men tend to be less communicative and less emotionally vulnerable than women due to cultural norms that promote competition and control for men (Bank & Hansford, 2000; Marshall, 2010). In our study however, men described open and meaningful conversation as the primary component of initial connections. This finding counters gender stereotypes and may suggest that young men espouse more expressive traits than those of previous generations. We must note however, participants did not report on the gender of the person with whom they had experienced chemistry, and some men may have been referencing women when thinking of friendship chemistry. Cross-sex interactions often facilitate more unrestricted dialogue than same-sex exchanges (Dindia, 2002; Reis, 1998).

The salience of mutual enjoyment and personableness across chemistry types underscores the value of amiability in solidifying close bonds. Mutual enjoyment referred to liking each other's company whereas personableness referred to espousing positive intrapersonal traits. People with agreeable personalities experience instant friendship connections more often than those low on this trait (Campbell et al., 2015). They also have better friendships and romantic relationships overall (Watson, Beer, & McDade-Montez, 2014). The outcomes associated with shared laughter, which was a core feature of mutual enjoyment, are understudied. The available research reveals that humor promotes intimacy and relationship satisfaction (Kurtz & Algoe, 2015). To a lesser extent, participants documented indescribable factors as contributing to their initial spark with others. Prior work suggests that some degree of mystery can benefit close relations and contribute to both satisfaction and relationship longevity (Derlega, Winstead, & Greene, 2008; Finkenauer, Kubacka, Engels, & Kerkhof, 2009).

The themes that differed across chemistry types included attraction, similarities, and love. As to be expected, attraction was much more salient for romantic chemistry. Initial romantic connections are typically characterized by a high degree of passion, magnetism, and infatuation (Aron et al., 2005). A noteworthy finding from this study is that slightly more women than men mentioned this quality for romantic chemistry. A large body of work demonstrates that men, more than women, seek physically attractive, youthful qualities in prospective mates whereas women, more than men value financial resources and maturity (e.g., Conroy-Beam, Buss, Pham, & Shackelford, 2015; Shackelford, Schmitt, & Buss, 2005). Our finding regarding women's priority on physical attraction may reflect the changing roles and power dynamics of women in society. As women make gains in the paid work force and benefit from policies such as paid maternity leave, the value placed on men's resources declines (Buss, Shackelford, Kirkpatrick, & Larsen, 2001; Urahn et al., 2014). In the U.S., women are therefore expected to value physical attributes in prospective mates more now compared to the past because they have the flexibility to do so. Research has demonstrated that at least for short-term mating or one-night stands, women's priority on physical attractiveness is comparable to men (Li & Kenrick, 2006).

Another noteworthy finding related to attraction is that both men and women described it as a component of friendship chemistry. Men often struggle with closeness in same-sex friendships because of homophobic cultural norms that discourage expressions of intimacy (Bank & Hansford, 2000; Reis, 1998). The term “bromance” has been coined to connote an intimate, nonsexual relationship between heterosexual men (Chen, 2012). This term was adopted because masculinity has traditionally been defined by characteristics such as independence, autonomy, aggression, dominance, lack of emotion, and violence; closeness between men challenges their socialized gender and sexual identities (Levant, 2011). Our results revealed that feelings of attraction underlie the platonic relations of some men. As previously noted, we did not assess the gender of our participants’ chemistry targets. Therefore, some men may have been reporting on their friendship connections with women. However, based on the participants who mentioned gender in their responses, it is clear that heterosexual men were referring to their experiences with other men. It is more culturally acceptable for women to express attraction toward other women (Rodríguez Rust, 2000), which makes this finding among our female participants less surprising, but nevertheless extends the current literature on women’s friendships.

Another theme that differed across chemistry types was similarities, which referred to shared hobbies, beliefs, goals, and demographic traits. This theme was more salient in the responses for friendship than romantic chemistry. Although similarities are important to the long-term success of romantic relationships (Gonzaga, Carter, & Buckwalter, 2010), they may be less relevant to initial meetings that are overshadowed by attraction and sexual desire. In friendships however, people tend to promptly assess their degree of similarity in order to determine compatibility (Aron, Melinat, Aron, Vallone, & Bator, 1997). Those who share features with each other are more likely to self-disclose than those who are dissimilar, which helps build intimacy (Montoya & Horton, 2013). Campbell et al. (2015) found friendship chemistry to be more common for European/white than non-white participants and suggested that ethnic minorities are more likely to have experienced discrimination, which may lead to being guarded in first interactions. We found that shared demographic traits were important for initial rapport, possibly because being matched on statuses such as race and gender contributes to feelings of comfort and mutual understanding.

A final theme that differed across chemistry types was love. The theme was more common to romantic than friendship chemistry, and for the latter, it was mentioned only among women. It is logical that love would be more prominent in descriptions of romantic chemistry because such relationships are characterized by a greater degree of intimacy and closeness than friendships (Fuhrman, Flannagan, & Matamoros, 2009). The idea that romantic chemistry is friendship chemistry with an added physical component was illustrated in quotes such as “Romantic chemistry has all that friendship chemistry has. The only difference is a high physical attraction, so much as to want to perform a sexual act.” It also makes sense for women to report love more frequently than men within their friendship connections because as noted, the friendships of women tend to be more emotionally intimate than those of men (Fehr, 1996; Marshall, 2010).

In comparing our findings with previous research, we found that friendship chemistry was characterized by factors that promote friendships more broadly including communication skill, sense of humor, similarities, and personableness (Fehr, 1996; Sprecher & Regan, 2002). The qualities that underlie romantic chemistry similarly overlapped with those that contribute more generally to romantic relationships including expressiveness, openness, personableness, and sense of humor (Li et al., 2002). To our knowledge, the construct of interpersonal chemistry has been explored in only two prior empirical studies: One that focused on friendships and the other on sexual relationships. The study on friendships was quantitative and found chemistry to be

characterized by five factors: Reciprocal candor, mutual enjoyment, personableness, similarity, and physical attraction (Campbell et al., 2015). These characteristics mirror our own findings except that the relative weight of personableness and similarity is reversed. In their study on sexual chemistry, Peretti and Abplanalp (2004) identified its underlying components as: Physical attractiveness, similarity, spontaneous communication, reciprocity, warm personality, and longing. The participants in our study mentioned four of these six qualities in their descriptions of romantic chemistry. It is worth noting that Peretti and Abplanalp's (2004) sample included people who were in established dating relationships, whereas our study asked participants to reflect on an initial meeting.

## Limitations, Strengths, and Future Research

As with any study, some limitations must be noted. First, a majority of the participants in our sample were young. It is likely that compared to older people, younger individuals have greater opportunities for experiencing interpersonal chemistry. Older adults, who are often working full-time, involved in long-term relationships, and rearing children may be less likely than younger individuals to experience chemistry because they encounter fewer opportunities on a daily basis. Moreover, as individuals age, they might seek out friends who have children or who espouse similar family values, whereas younger individuals might prioritize shared life goals and dreams (Biesanz, West, & Millevoi, 2007). Age would therefore be a potentially fruitful focus for future work.

Another limitation relates to the retrospective design of our study. Participants were asked whether they had ever experienced chemistry with a friend/romantic partner and their responses may have been influenced by a resulting relationship, rather than a first interaction. Additionally, the order of presenting friendship and romantic chemistry prompts was not randomized, making it so that responses regarding romantic chemistry could have been influenced by responses to the friendship chemistry question. A final limitation is that participants were not asked whether their friend or romantic connection was with a person of the same or opposite sex. Future research might examine how interpersonal chemistry operates in same vs. mixed sex friendships as well as in homosexual versus heterosexual relationships. Eight percent of the participants in our sample reported a non-heterosexual orientation, which was sizeable but not large enough to consider group differences.

In terms of study strengths, our qualitative design highlighted the participants' voices, which is important because the topic has been relatively unexplored empirically. Another strength was that we assessed both friendship and romantic chemistry together, which enabled us to compare the constructs. Previous work has generally focused on either friendships or romantic relationships, so in this sense, we have extended the literature. A final strength relates to the diversity of our sample. Prior studies on relationship initiation and sexual chemistry consisted of predominantly college students and European/white Americans, whereas our sample included participants from the community as well as a sizeable number of ethnic minorities. Our study also included participants from across the U.S.

The next steps in this line of work will be to conduct real time studies of initial interactions and develop quantitative scales for each construct. Once measures have been developed and refined, researchers can more thoroughly examine intrapersonal distinctions with respect to friendship and romantic chemistry. For example, does interpersonal chemistry differ based on age, ethnicity, or sexual orientation? It will also be worth examining whether the developmental course of relationships that begin with chemistry differ from those that do

not. Are relationships with an initial spark more long-lasting or satisfying than those in which chemistry was not originally evident? Do relationships characterized by chemistry require less maintenance than those without it? And is the experience of chemistry reciprocal? Possibly, one person's report of chemistry does not parallel the other's experience, making it important to examine dyads in future work. We hope our study will inspire continued research on this topic.

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## Competing Interests

The authors have declared that no competing interests exist.

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