Articles

Change in Physical Attraction in Early Romantic Relationships

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Abstract

The goal of our research was to study the changes in physical attraction during the early stages of romantic relationships. The longitudinal study explored the personality characteristics of a partner and relationship events affecting physical attraction of early (within the first year) romantic relationships. Participants completed an eight-week longitudinal rating of their attraction toward their romantic partner. Factor analysis revealed behavioral, cognitive, emotional, and physiological dimensions. The behavioral and emotional dimensions play the largest role in attraction among both genders, with cognitive dimension also affecting attraction in women. Personality characteristics of one's partner are significant predictors of physical attraction for both men and women. However, events occurring in the relationship seem to be only reliable predictors for a women's attraction.

Keywords: physical attraction, romantic relationships, dimensions of attraction, longitudinal study

The goal of our research was to study the changes in physical attraction during the early stages of romantic relationships. Attraction involves the tendency to think, feel and behave in certain ways in regard to a partner.

Interpersonal Attraction

Attraction is traditionally defined as an empowering emotion and a positive attitude of one person to another (Berscheid & Hatfield, 1969; Newcomb, 1961), displayed by the desire to approach and be closer to another person (Newcomb, 1961). We define interpersonal attraction as any force of varying intensity that draws an individual to another person, including the tendency to move closer to him/her cognitively, emotionally, and behaviorally; this leads people to think, feel, and act positively toward someone else.

The term attraction has been used in literature to relate and intertwine other concepts, such as romantic, passionate and compassionate love. Interpersonal attraction and passionate love are overlapping constructs; passionate love is considered a type of interpersonal attraction (Berscheid & Hatfield, 1969). Interpersonal attraction is a term often vaguely used as an umbrella word for other diverse ideas of love.

Passionate love was defined as a state of intense longing for union with another, this longing can be manifested in cognitions, emotions, and behaviors (Hatfield & Walster, 1978). Three dimensions (cognitions, emotions, and

behaviors) described this force of attraction. Cognitive factors determine how people perceive, interpret and encode emotional experiences and states (Hatfield & Sprecher, 1986). The experience of the emotional dimension is shaped by both mind and body interactions. In the mind, people's semiconscious holds assumptions about what they should feel while the body is experiencing a physiological arousal, which then both combine to create the experience of an emotion. Behavioral components describe the desire for union and interactions with one's partner, such as maintaining physical closeness (Hatfield & Sprecher, 1986). We can expect similar dimensions to make up interpersonal attraction.

Interpersonal attraction, according to Tedeschi, Schlenker, and Bonoma (1973), possesses positive cognitive, affective, and dispositional properties. The cognitive component involves an individual's expectancy of liking or disliking another, the affective component includes the variety and intensity of accompanying emotions, and the dispositional component of attraction refers to the readiness to act in certain ways in respect to the other person (Tedeschi, 1974).

Montoya and Horton (2004) found that one's cognitive evaluation of another played a large role in determining one's attraction to the other individual. In particular, as the quality of evaluation of a person increased so did one's attraction to that person. This was especially true in men but not so for women. This study influenced us to include a cognitive dimension as a component of interpersonal physical attraction.

Simpson, Collins, Tran, and Haydon (2007) confirmed that the frequency and intensity of daily emotions experienced with a romantic partner serves two primary functions. First, emotions act as communicator of one's contentment in the current relationship, and secondly emotions can be used as a measurement of how close an individual currently feels to their partner. This second function of emotions is what has prompted us to include an emotional dimension as a component of interpersonal physical attraction.

All these studies served as a basis for the development of our multidimensional model of physical attraction which included cognitive, emotional, and behavioral dimensions described below.

Measures of Attraction

Researchers of attraction typically measure only the strength of attraction toward another person; by using an evaluative scale where one indicates the degree to which he/she has positive or negative feelings towards another (Huston, 1974, p. 7). As with interpersonal attraction, researchers typically measure physical attraction by using a single-item rating of a person's overall physical appearance or the body parts (Li et al., 2013; Swami & Furnham, 2008).

McCroskey and McCain (1974) developed a three-dimensional scale of attraction which included physical, social, and task attraction. People were deemed as likable when they looked good, were friendly, and were useful. The subscale of physical attraction was a five-item measure and it was still only one-dimensional (Coulson, Barnett, Ferguson, & Gould, 2012; McCroskey & Richmond, 1996).

Interpersonal Physical and Sexual Attraction

Recently, interest in the role of physical attractiveness in interpersonal relationships has grown (see for review in Li et al., 2013; Swami & Furnham, 2008). Physical attraction of an individual to another is commonly based on the other person's looks, whether it is someone's body, eyes, hair, attire, or overall physical appearance. Outward appearance (or physical attractiveness) is likely the most powerful factor determining whether one person becomes

attracted to another (Hendrick, 2004, p. 29). Therefore, physical attraction should play an important role both in interpersonal attraction and in a romantic relationship.

The concept of physical attraction is closely intertwined with the concept of sexual attraction, but it is different. Sexual attraction reflects the desire to engage in sexual activities with one's partner and typically is accompanied by feelings of sexual arousal in the presence of one's partner. We consider sexual attraction to be a possible, but not necessary, component of physical attraction. Physical attraction is a broader concept and may cover a variety of attractions, based on a physical appearance and being aesthetic by nature, without necessarily being sexual. Sexual attraction, however, is a narrower concept that includes physical attraction and the sexual intimacy of romantic partners.

Dimensions of Physical Attraction

Previous research has aimed to explore the extent to which a person's thoughts (cognitions), feelings (emotions), and behaviors toward others are engaged in determining physical attraction (Erber & Erber, 2011, p. 33). Our theoretical multidimensional model of interpersonal physical attraction includes cognitive, emotional, and behavioral components. This model was developed for use in this study and applied to a longitudinal investigation of the early development of romantic relationships.

We believe that the *cognitive dimension* of attraction includes manifestations of how a person perceives, remembers, thinks and imagines another. Constructing the mental image of one's partner is an important aspect and premise of attraction. To be attracted to a partner, a person should see or imagine the partner in a positive light. We believe that cognitive aspects include subjective (and therefore often more favorable) perceptions, memories, thinking, imaginations, and language. Characteristics of one's partner that potentially meet our needs are cognitively appraised as desirable and can potentially create an attraction.

We think that the *emotional dimension* of attraction includes pleasurable feelings, physiological symptoms, and a positive demeanor associated with being near one's partner. Emotions make the image of a partner subjective through highlighting some features of physical appearance and neglecting others. Features of the partner that satisfy a given person's emotional and physical needs are the factors that attract them to that partner.

We propose that the *behavioral dimension* consists of an intention to move and be closer to one's partner. This dimension is defined by three characteristics: (1) how strong the attraction is, (2) how quickly it develops, and (3) how stable the attraction is over a period of time. The desire for proximity to the partner and the time spent in proximity with the partner are both also behavioral manifestations of attraction. Moving towards one's partner allows this person to meet his/her needs. Cognition, emotion, and behavior aspects are all tied together in the manifestation of interpersonal physical attraction.

In this study we expected that certain personality characteristics and events in a relationship would predict a change in physical attraction within the early stages of a romantic relationship. Pines (2001) found that personality and appearance matter significantly when people are falling in love. It was also found that some gender differences exist, men place more of an emphasis on the physical appearance of women when they are evaluating their attractiveness. While women put a higher priority on the personality characteristics of men when evaluating attractiveness. However, Swami et al. (2010) found that personality characteristics of women also substantially affect ratings of their physical attractiveness by men. Sprecher et al. (1994), in a cross-cultural study revealed that reciprocal liking and personality characteristics of one's partner emerged as the most important factors of interper-

sonal attraction. Back, Schmukle, and Egloff (2011) explored the importance of personality characteristics in interpersonal attraction during early interactions between partners.

For this study, we selected typical personality characteristics and relationship events that were deemed important by 290 participants from previous research. These characteristics and events were those most frequently mentioned by the participants when they were asked to describe stories of their romantic relationship with a partner (Karandashev, Benton, Edwards, & Wolters, 2012).

Method

Participants

There were 70 total participants in the study, however due to breakups of their relationships we eliminated this partially completed data of 24 participants, leaving us with 46 participants for analysis. We considered this sample size acceptable for our study. Since participants each rated their feelings eight times the number of cases and measurements was sufficient for factor and regression analyses (46 x 8 = 368 cases). Of the final 46 participants, 29 of them were females and 17 of the participants were males. Ages of participants ranged from 18 to 35 years old, with a mean of 22.9. Ethnicities included Caucasian (49%), Asian (22%), Hispanic (15%), African American (6.6%), and Middle Eastern (2.5%). Participants included residents from various states of the United States including (but not limited to) Michigan, Texas, Massachusetts and Illinois.

Measures

Based on our theoretical model of three factors described above, we created a multidimensional scale of interpersonal physical attraction. This scale consisted of 30 questions comprised of the three subscales: cognitive, emotional, and behavioral. Each item was rated by a participant on a scale from 1 (disagree) to 5 (strongly agree). We computed a total score of physical attraction for each participant every week as a mean of the 30 items, as well as scores for each of the subscales. There were also questions about demographic information, personality characteristics of their partner, and any special events and changes that had occurred over the previous week. Participants chose which personality characteristics they noticed in their partner and described which relationship events occurred during the previous week. In scoring, we evaluated how frequently each of the chosen personality characteristics or relationship events associated with a participant's change in overall attraction. By the end of every week, participants also rated "How physically attracted are you to your dating partner?" on the scale from 1 (Not at all) to 5 (Very strongly). This allowed us to track the dynamics of physical attraction and its changes from week to week.

Procedure

Participants who were in their initial stages of a romantic relationship (under 1 year of dating) were recruited for this study by email from various universities across the country. They participated in an online eight-week longitudinal study. In each week during the eight-week period, participants rated their feelings about their partner's physical attraction as well as their total feeling of current attraction on a scale from 1 (disagree) to 5 (strongly agree). They also chose from a list of 69 personality characteristics, highlighting which particular ones they had noticed in their partner over the previous week. This list of characteristics was selected based on those psychological and physical characteristics of a partner which were most often mentioned by 290 participants in our earlier study (Karandashev et al., 2012). This list of characteristics included items such as being open-minded, protective,

athletic, beautiful/handsome, confident, considerate, dependable, generous, a good listener, honest, polite, respectful, smart, smiley, trustworthy, controlling, talkative, romantic, humorous, kind, fun, etc.

Finally, we asked participants to describe any particular, significant events that may have occurred over the past week (e.g., a fight, romantic date night, significant discussion, sex, etc.). Participants mentioned changes in communication quality and/or intensity, changes in frequency and/or intensity of hugging, kissing, and sexual intercourse, changes in degree of conflicts, and finally changes in the presence of date nights spent together.

Results

After participants completed the study we ran analysis of the results using SPSS statistical software. We performed factor analysis, reliability analysis, and validity analysis of the scale. Then we qualitatively and quantitatively analyzed the personality characteristics and individual events which affected the change in attraction of the participants toward their partners. We performed linear regression analyses to show the importance of partner personality characteristics and relationship events affecting interpersonal physical attraction over an 8-week period.

Factor Analysis

Since 46 participants rated their feelings and completed the survey eight times over eight-week period, we ran Principal Component Analysis (with Varimax rotation) for 46 x 8 = 368 cases. Four factors were extracted, accounting for 61% of variance and these four factors were identified as behavioral, emotional, physiological and cognitive (see Table 1).

Table 1

Factor Structure of Physical Attraction Scale: Factor Loading of Items on 4 Dimensions

Item	Behavioral	Emotional	Physiological	Cognitive
I want to kiss this person often (B5)	**.79**	.23	.19	.13
I want to hug this person often (B4)	**.75**	.21	.16	.06
I want to be engaged in active interaction with this person (B9)	**.67**	.27	.14	.33
I want to meet with this person often (B7)	**.70**	.29	.05	.19
I want to do favors for this person (B10)	**.54**	.42	.04	.31
I want to touch this person often (B8)	**.71**	.34	.17	.18
I want to cuddle with this person often (B6)	**.72**	.16	.14	.10
I want to lean towards this person during interaction (B2)	**.60**	.20	.24	.29
I want to move closer to this person (B3)	**.56**	.29	.20	.24
I want to maintain eye contact with this person (B1)	**.64**	.29	.08	.27
I adore the physical appearance of this person (E9)	.27	**.78**	.15	.13
This person's physical appearance instantly engages my positive emotions (E7)	.29	**.72**	.25	.16
This person's physical appearance causes me to feel pleasurable relaxation (E2)	.36	**.66**	.24	.13
The appearance of this person excites my positive emotions (E1)	.36	**.68**	.18	.17
I have strong emotions that are induced by this person's physical appearance (E5)	.27	**.71**	.25	.14
This person's physical appearance makes me feel energetic (E8)	.15	**.62**	.42	.25
The emotions induced by this person's physical appearance causes me to blush (E4)	.12	.15	**.80**	.21
This person's physical appearance makes my body tremble (E6)	.03	.17	**.83**	.07
The emotions induced by this person's physical appearance causes butterflies in my stomach (E3)	.15	.28	**.67**	.22
This person's physical appearance makes my heart beat faster (E10)	.22	.37	**.63**	.20
I think about this person's voice when I recall our meetings (C7)	.11	.11	.14	**.82**

Item	Behavioral	Emotional	Physiological	Cognitive
My mind recalls conversations with this person when I am away from them (C10)	.38	.13	.07	**.57**
Hearing the sound of this person's voice is important to me (C2)	.40	.17	.10	**.56**
I often watch the facial expressions of this person (C5)	**.49**	.32	-.05	**.41**
I think about this person's skin when I recall our meetings (C9)	.12	.36	.18	**.65**

Note. Bold factor loadings indicate the highest loading of items on factors.

Reliability and Validity of Scale

Table 2 presents (1) Cronbach Alpha as evidence of the scale's reliability and (2) correlations between scores of current attraction and each subscale as evidence of its' validity. All four scales show acceptable and good (α = .78-.90) or excellent (α > .90) reliability (DeVellis, 2003; Kline, 2000). Correlations of the subscales with the measure of current attraction show good construct validity for behavioral, emotional, and cognitive subscales (significant correlations with overall ratings of physical attraction). Physiological subscale does not correlate with participant's ratings of current attraction.

Table 2

Reliability and Validity Analysis

Subscale	Cronbach Alpha	Correlation with current attraction
Behavioral	.92	.65
Emotional	.91	.58
Physiological	.84	.29
Cognitive	.78	.46

Contribution of Dimensions to Attraction

Multiple regression analysis was used to explore how the four dimensions of physical attraction contribute to overall interpersonal attraction. This regression analysis was run separately for men and women to better understand gender differences in physical attraction.

As we can see from Table 3, for men and women, the four dimensions presents a valid model of physical attraction; Cohen's f^2 shows large effect size both for men and women (Cohen, 1988; Nandy, 2012). The behavioral dimension is the most representative for both genders, having the highest and most significant r's and β's. Emotional dimension played the second most important role in predicting current attraction in women and men. The cognitive dimension contributed to women's attraction, however, not to men's attraction. The physiological dimension showed significant but a lesser contribution to physical attraction. Overall, the contributions of emotional and cognitive dimensions are more substantial in a women's attraction compared to a men's attraction; otherwise the regression models are quite similar.

Table 3

Regression Analysis of Dimensions on Current Attraction separated by Gender

Dimension	Men[a]				Women[b]			
	r	β	M	SD	r	β	M	SD
Behavioral	.59***	.42***	4.34	0.55	.67***	.39***	4.46	0.70
Emotional	.52***	.29**	4.07	0.59	.63***	.36***	3.89	0.98
Physiological	-.04	-.17*	2.98	0.87	.44***	-.16*	3.13	3.03
Cognitive	.21*	-.04	3.96	0.77	.59***	.17*	4.10	0.85

[a]n = 133 measurements. R = .63, R^2 = .40, f^2 = 0.66. [b]n = 224 measurements. R = .72, R^2 = .51, f^2 = 1.04

*$p < .05$. **$p < .01$. ***$p < .001$.

Personality Characteristics of a Partner as Predictors of Physical Attraction

Multiple regression analysis was used to test how personality characteristics of one's partner and the events which occurred in their relationship (over the previous week) influenced overall interpersonal attraction. This regression analysis was run separately for males and females to help better clarify how gender differences play a role in attraction.

According to Table 4, which shows a regression analysis, personality characteristics overall are significant predictors of physical attraction for females and when males and females are combined.

Table 4

Regression Analysis of Personality Characteristics on Current Attraction

Personality Characteristic	β		
	Men[a]	Women[b]	Men and Women[c]
Athletic	-.25*		
Beauty			.19**
Attentive		.20*	.16*
Dependable			.15*
Flirtatious		.21*	.19**
Emotionally Open			-.16*
Controlling	-.28*		
Lying		-.14*	
Trustworthy	.35*		

[a]R^2 = .60, p = .079, F = 1.4, f^2 = 1.50. [b]R^2 = .41, $p < .01$, F = 1.7, f^2 = 0.69. [c]R^2 = .35, $p < .001$, F = 2.3, f^2 = 0.54.

*$p < .05$. **$p < .01$. ***$p < .001$.

Cohen's f^2 shows large effect size both for men and women (Cohen, 1988; Nandy, 2012). Out of the 69 characteristics, for males and females together, beauty, attentiveness, dependability, flirtatiousness, and lack of being emotionally open were all significant predictors of current attraction. However, some gender differences did occur. For females, attentiveness and flirtatiousness of their male partners both positively correlated with their physical attraction. While if partner's exhibited lying, this negatively correlated to the women's physical attraction to their male partner. In males, a trustworthy demeanor displayed by their female partner increased their physical attraction;

while a controlling nature in their female partner predicted a lesser physical attraction, again for men the R^2 did not reach the level of statistical significance. We also found it interesting that for men, athleticism in their female partners actually predicted a lesser physical attraction.

Events in the Relationship as Predictors of Physical Attraction

Table 5 shows which events in the relationship over the previous week had increased or decreased physical attraction between partners. This correlation analysis was run separately for men and women to help better clarify how gender differences play a role in attraction.

Table 5

Correlation Between Events in the Relationship that Occurred Over the Previous Week and the Change in Physical Attraction by the End of the Week

Event in the Relationship	Men		Women	
	r	*n*[a]	*r*	*n*[a]
Communication Intensity	.27	28	.55**	72
Communication Quality	.07	25	.47**	94
Frequency of Kissing	.20	50	.22*	109
Sexual Experience	.19	54	.19*	108
Conflict Degree	.15	42	-.26**	112
Presence of Date Night	.28	44	.21*	114

[a]Number of cases when the event is mentioned.

*$p < .05$. **$p < .01$. ***$p < .001$.

There were no major events which predicted an increase in men's physical attraction (no significant correlations present). The major events which increased physical attraction in women were an increase in both communication intensity and quality, a higher frequency of kissing, an overall positive sexual experience, and the presence of a date night. A higher degree in conflict decreased a women's attraction. It is interesting to note, that women more frequently mentioned relationship events than men, this means they are more sensitive to these events and therefore their attraction is more dependent on these factors.

Discussion

The Role of Dimensions in Physical Attraction

One's attraction to their romantic partner is represented mostly by the behaviors displayed, the emotions felt, and in minor proportion represented by the cognitive perceptions that are built, and even less by the physiological fluctuations that occur. The correlations of current attraction with behavioral, emotional experience, physiological, and cognitive subscales show high validity of the behavioral and emotional experience dimensions, moderate validity of the cognitive dimensions, and low validity of the physiological dimension. This means that behavioral and emotional aspects of attraction are the most representative manifestation of physical attraction, or possibly our cognitive and physiological constructs were not well operationalized. Cognitive aspects are less representative manifestations of physical attraction. The low validity of physiological dimension can be explained by the fact that physiological symptoms might often go undetected by the conscious mind of participants, especially after habituation to these changes has occurred, and therefore were not reported as being related to physical attraction. Also

physiological factors may be a valid dimension if measuring the physical attraction in a specific situation. For example, a participant's cheeks may have felt flushed during a heated argument but this physiological symptom did not last a full week. It may have been hard for participants, a week later, to categorize their differing physiological responses for the entire week.

When considering gender differences amongst the four dimensions, the cognitive dimension played a more substantial role in the structure of a women's attraction to her partner than in a man's attraction to his partner. This means that perhaps women rely more on their cognitive appraisal about their partner than do men. Men seemed to be more behaviorally and emotionally involved with their female partners.

Personality of Partner and Relationship Events Affecting Physical Attraction

Personality characteristics of one's partner are significant predictors of physical attraction. For men and women, beauty, attentiveness, dependability, and flirtatiousness of one's partner were all good predictors of physical attraction to that partner. This makes sense from a traditional, evolutionary explanation; that what is beautiful is good. Being attentive and dependable to one's partner shows a readiness for commitment and predicts a future of security and an ability to provide support; again a common idea from an evolutionary standpoint. Flirtatiousness naturally makes sense as a predictor of attraction because a display of flirting behaviors conveys the interest of one's partner; and this interest sparks a reciprocal interest and attraction. Gender differences did occur; in that for women, a lying male partner predicted a lesser physical attraction, probably because lying would indicate the opposite of many of the predictor characteristics (being not dependable and untrustworthy). As mentioned before, women rely highly on cognition so a lie from a male partner would be a warning of possible untrustworthiness and therefore could negatively affect their physical attraction as well. For men, a controlling nature in their partners predicted a lesser physical attraction, probably because of the dominant nature that many societies value in men; feeling as though they are being controlled, puts a man in a submissive position. It was most surprising to us that athleticism of their female partner also predicted a lesser physical attraction; we believe this may be due to societal gender roles that a woman should be feminine and weak. Being athletic shows a tough exterior and strength, this could be viewed as a competition to their male partner.

The results showed that relationship events affect physical attraction in women far more than in men. We believe that women are more sensitive to the various occurring events in the relationship; this is reflected both in the number of times events were reported by women as well as in the higher correlation between the presence of these events and the change in attraction. Communication intensity and quality, more frequent kissing, positive sexual experience, and the presence of a date night increased a female's physical attraction to her partner. While a higher degree in conflict decreased a females' attraction to her partner. For men, events happening in the relationship showed little effect on physical attraction toward their partner. Overall, events occurring within a relationship seem to effect physical attraction to their partner, more in women than in men.

Strengths and Limitations of the Study

1. The study presents a combination of cross-sectional and longitudinal design. It has a relatively small sample of participants, 46. However, since it employs a longitudinal design, it allows for deeper understanding of the dynamics of physical attraction.

2. Factor and regression analyses may look weak with 46 participants but actually, since 46 participants rated their feelings and completed the survey eight times over an eight-week period, we ran Principal Component Analysis (with Varimax rotation) for 46 x 8 = 368 cases. This number of cases and measurements is sufficient for factor and regression analyses.

3. The sample size of men was smaller than the sample of women. This can explain why some statistical criteria in regression and correlation analyses did not reach significance for men. Further studies with larger samples of men may verify the gender differences.

Conclusion

Analysis revealed that while the behavioral and emotional aspects are important for both genders, the cognitive dimension plays a much more important role in a women's attraction than in a men's attraction. As for factors affecting physical attraction, personality characteristics and relationship events play a much more important role in women's than in men's attraction.

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