# Positive Facial Expressions in Marriage: Genuine and Non-genuine Smiles as Predictors of

Marital Satisfaction

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#### Abstract

Marital emotional functioning is an important predictor of marital adjustment (e.g., marital satisfaction), which in turn has important consequences for the well-being and health of both spouses and their children. The present study examined a potentially important aspect of positive marital emotional functioning via displays of positive facial expressions (i.e., genuine and nongenuine smiles) during marital interactions and their associations with marital satisfaction. Marital satisfaction was expected to be positively associated with the display of genuine smiles, but not the display of nongenuine smiles. In a sample of 66 married spouses, participants' facial expressions were videotaped during pleasant and conflict conversations and coded for smiles (either genuine or non-genuine) based on the Facial Action Coding System on a second-by-second coding basis. Marital satisfaction was measured using the Marital Adjustment Test. Results showed that there was no association between the frequency of both genuine (inconsistent with hypothesis) and nongenuine (consistent with hypothesis) smiles during both conversations and marital satisfaction. Follow-up exploratory analyses showed a positive association between the frequency of genuine (but not nongenuine) smiles and positive emotional experiences (i.e., amusement) during both conversations. Limitations, implications, and future directions are discussed.

Keywords: marriage, positive emotion, genuine and non-genuine smiles

# Positive Facial Expressions in Marriage: Genuine and Non-genuine Smiles as Predictors of Marital Satisfaction

Among the many social contexts individuals are part of throughout their lives, one of the most common and prominent is marriage; 96% of US adults over the age of 65 have been married at least once (U.S. Census Bureau, 2009). However, between 50% and 67% of first marriages end in divorce, with even higher rates for subsequent marriages (Gottman, 1998). To examine the psychological substrates of dissatisfied marriages, a growing body of research in the last four decades has studied emotional functioning within marriages (Bloch, Haase, & Levenson, 2014; Gross, 2013; Levenson & Gottman, 1983; Levenson & Gottman, 1988). This body of research shows that marital emotional functioning is an important predictor of a host of marital outcomes, which in turn hold serious implications for mental (e.g., psychopathology) and physical health (e.g., physical illness and mortality from disease) of both spouses as well as their children (e.g., anxiety, academic performance) (Gottman & Levenson, 1992; Gottman, 1998; Kiecolt-Glaser & Newton, 2001; Whisman, 2007). The present study seeks to examine a potentially important aspect of marital emotional functioning: the expression of positive emotions via genuine and nongenuine smiles during marital interaction, and its association with marital satisfaction.

#### **Emotions in Marriages**

A complex socio-emotional landscape with high ecological validity, marriages offer ample opportunities to study emotion (Levenson et al., 2013). Negative emotions (e.g., anger, contempt, sadness, jealousy), often occurring in negative emotional contexts (e.g., a disagreement), have been the focus in empirically observing and distinguishing satisfied from dissatisfied couples. In particular, nonverbal measures of negative emotion (e.g., behavioral measures, physiological measures) have shown high longitudinal power in predicting a myriad of marital outcomes, including marital satisfaction (Levenson & Gottman, 1985; Markman, 1979, 1981). Negative emotional behaviors (e.g., showing contempt) can result in maladaptive communication patterns (e.g., repeatedly justifying own behavior) that are counterproductive to effective problem-solving, ultimately decreasing marital satisfaction (Bloch et al., 2014; Gottman, 1994; Giles-Sims, 1994; Bradbury & Fincham, 1990). Similarly, physiological arousal (i.e., increased activity of the sympathetic nervous system) has long-standing evolutionary linkage to negative emotional states, and can disrupt cognitive functioning (e.g., higher-order cognitive functioning) and thus contribute to decreased marital satisfaction (Bloch et al., 2014; Gottman, 1988). Taken together, the collection of studies so far has established a rich understanding of the overarching role of negative emotion in marital processes and outcomes.

**Positive emotions**. In sharp contrast, positive emotions have rarely been the variable of interest for empirical studies of marriage, notwithstanding the important role of positive emotions play in social functioning, as outlined in one of the most prominent theories of positive emotions, the broaden-and-build theory (Fredrickson, 2001; Gable, Gonzaga, & Strachman, 2006),. The broaden and build theory of positive emotions uncovers crucial advantages and functions exclusive to positive emotions, including (1) the broadening of thought-action repertoire (via broadened scope of visual and/or cognitive attention; Fredrickson & Branigan, 2005; Johnson, Waugh, & Fredrickson, 2010), followed by (2) the building of physical, cognitive, psychological (e.g., psychological resilience; Tugade & Fredrickson, 2004), and social resources (Fredrickson 2001, 2004). Evolutionary perspective of the broaden-and-build hypotheses states that over time, repeated positive emotional experiences driven by positive emotions (e.g., discovery for new knowledge, skills, alliances) help to accumulate various resources, including cognitive and social resources, critical to survival and well-being outcomes (Fredrickson, 2001, 2004). An important

byproduct of the broaden-and-build function of positive emotions is the "undoing" effect, which refers to the observed ability of positive emotions to effectively "undo", or regulate, harmful physiological and psychological effects of negative emotional experiences. For instance, in regulating cardiovascular effects of experiencing sadness, participants in positive emotion (i.e., amusement and contentment) manipulation conditions showed the fastest cardiovascular recovery compared to participants in both the control and negative emotion conditions (Fredrickson & Levenson, 1998). Such empirical findings are consistent with the broaden-and-build theory of positive emotions, and strongly suggest that positive emotions serve adaptive functions significantly different from and complementary to (rather than supplementary to) negative emotions. It is worthwhile, therefore, to examine positive emotions in the intimate and interpersonal context of marriage.

**Positive emotional expressions.** Positive emotions can manifest in subjective experience (i.e., verbal self-report) (Russell, 2003), autonomic physiology (Fredrickson & Levenson, 1998), and facial expressions (Shiota et al., 2014). Here, we focus on the latter. Facial expressions, a form of non-verbal, behavioral expression in interpersonal communication have several advantages when studying married couples in a laboratory setting. First, nonverbal behaviors have shown to be a better discriminator of distressed and non-distressed couples compared to verbal behavior alone, because it is more difficult to feign nonverbal behaviors as opposed to verbal behaviors (Gottman, 1998). Second, non-verbal behaviors are significantly less influenced by demand characteristics (Vincent, Friedman, Nugent, & Messerly, 1979). Third, non-verbal affect coding (i.e., coding of facial expressions, voice-tone cues, and selected body position and movement cues) shows high cross-situational consistency (e.g., between different tasks) (Gottman, 1980). Specifically, emotional facial expressions have a high signal value for

conspecifics, making them particularly reliable indicators of emotional functioning within marriages (Levenson, Haase, Bloch, Holley, & Seider, 2013).

**Smiles**. Smiles are a universal representation of positive emotions according to evolutionary-functionalist accounts of emotions (Tracy, 2014). Consistent with this, almost all positive emotions–amusement, contentment, joy, love, and pride–share smiles as an expressive display element (Campos, Shiota, Keltner, Gonzaga, & Goetz, 2013). Moreover, smiles are particularly applicable to interpersonal experimentation because they are one of the most common feedback expressions (i.e., emotional expressions that serve as communicative feedback in interpersonal settings) (Jensen, 2015).

Importantly, smiles can be categorized as either genuine (i.e., Duchenne) or non-genuine (i.e., Non-Duchenne). Genuine smiles are associated with (i.e., co-occur with) positive emotional experiences whereas non-genuine smiles are not (Davidson, Ekman, Saron, Senulis, & Friesen, 1990; Ekman, Davidson, & Friesen, 1990; Papa & Bonanno, 2008; Soussignan, 2002). Genuine and non-genuine smiles also serve different social functions (Ekman, Hager, & Friesen, 1981; Frank, Ekman, & Friesen, 1993). While genuine smiles spontaneously evoke positive emotions in others, non-genuine smiles are produced more as norms of social behavior or to communicate appeasement while masking other feelings (e.g., uneasiness, embarrassment) (Bonanno et al., 2002; Bugental, 1986; Ekman, 1985; Ekman & Friesen, 1982; Ekman, Friesen, & O'Sullivan, 1988; Fernandez-Dols & Ruiz-Belda, 1995; Fridlund, 1991; Hecht & LaFrance, 1998; Keltner, 1995; Prkachin & Silverman, 2002). Not surprisingly, only genuine smiles have shown positive associations with well-being and health (Harker & Keltner, 2001).

**Positive emotions in interpersonal contexts.** The majority of empirical studies of positive emotions have studied them in *intrapersonal* contexts (i.e., subjective experience, behavioral,

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cognitive, and physiological response of single individuals), notwithstanding that up to 98% of emotional regulatory episodes takes place within social contexts (Gross, Richards, & John, 2006). The limited number of studies that have observed positive emotions in intimate *interpersonal* contexts, include, for example, observations of gratitude expressions and positive associations with romantic relationship (i.e., dating) quality, (Algoe, Fredrickson, & Gable, 2013). Another study observed the upregulation of positive emotions during positive event disclosures (i.e., capitalization) in dating couples, and found positive associations with relationship well-being (Gable et al., 2006).

Such studies hold implications for early romantic relationships (e.g., dating); however, they may not directly translate to conclusions about marriage. Existing studies of marriage have rarely focused on positive emotions. For example, in a study that observed positive affect (e.g., coded from facial expressions, voice-tone cues, and selected body position and movement cues) in married couples, positive affect was included as an additional, comparison variable to negative affect measures, rather than the main variable of interest (Gottman, 1980). Thus, although positive emotions may be powerful predictors of relationship quality, few studies have focused on positive emotional processes within the interpersonal paradigm of marriage (Fredrickson, 2001; Reis & Gable, 2003).

#### **The Present Study**

In the present study, we sought to examine the association between positive emotions and marital satisfaction using observations of genuine and nongenuine smiles during two different marital interactions (i.e., a pleasant and a conflict discussion) in a sample of married couples. Our primary research question was: Does the frequency of genuine smiles predict marital satisfaction? Drawing from prior research (e.g., Fredrickson, 2001), our hypotheses were: (1) higher frequency

of genuine smiles, regardless of interaction context, would be associated with higher marital satisfaction, and (2) the frequency of nongenuine smiles, regardless of interaction context, would not predict marital satisfaction.

The theoretical reasoning behind our hypotheses was that (1) genuine (but not nongenuine) smiles would index positive emotions (Papa & Bonanno, 2008); (2) positive emotions would hinder spouses' tendencies to resort to maladaptive communication patterns (cf. Bloch et al., 2014), increase cognitive resources (e.g., flexibility in higher-order cognitive functioning, working memory capacity; Congard, Dauvier, Antoine, & Gilles, 2011; Yang, Yang, & Isen, 2013), and buffer against the myriad of negative aftereffects of negative emotions during marital interaction; and (3) these positive effects would be, overall, related to higher levels of marital satisfaction.

#### Method

#### **Participants**

Married, heterosexual spouses with at least one child between 5 and 18 years of age from highly socioeconomically diverse backgrounds from the Chicago area were invited to participate in a 3-hour laboratory based assessment of couples' emotional functioning (45 min), individual emotional functioning (45 min), questionnaire-based assessments of SES, adjustment, and covariates (45 min), and (optional) DNA assessment for genotyping (5 min) at the Life-Span Development Laboratory at Northwestern University in Evanston. Participants were compensated with \$16.60 per spouse for each hour of data collection for the 3-hour study (\$100 total). Table 1 represents sociodemographic characteristics (i.e., age and income) of the participants.

**Recruitment.** To minimize systematic biases, we recruited the sample in a 3-stage process following established procedures by Levenson, Carstensen, and Gottman (1993). First,

we identified socioeconomic characteristics of the population in the Chicago area using city data by zip code. Second, prospective participants were recruited through print and online advertisements and underwent initial screening. Specifically, we did not invite participants for the study if (a) they are allergic to the adhesive used to attach the physiological sensors and (b) have been diagnosed with diabetes or any other medical condition that would prevent them from sitting comfortably in a chair for two hours. Finally, from this participant pool, we recruited couples that met the representativeness criteria established in stage 1 (based on the provision of their zip code).

#### Procedure

Couples' positive emotional functioning was evaluated using a procedure used successfully in prior research studies of emotional processes in marital couples: (a) couples sat facing each other in comfortable chairs, (b) assisted by a trainer experimenter, couples identified a pleasant and a conflict topic for each conversation, (c) the experimenter left the room and couples engaged in two 10-minute unrehearsed, videotaped conversations about the two topics (in counterbalanced order) after a silent 2-minute baseline period (Gross, 2013, Levenson et al., 2013), and (d) couples completed emotion checklists to report on their emotional experiences. After the laboratory tasks, each spouse completed a longer questionnaire battery separately.

#### Measures

Genuine and non-genuine smiles. In order to obtain frequencies of genuine and nongenuine smiles, the first three minutes of the two videotaped conversations were used to code both the husband and wife (independently) from video recordings of the faces of the spouses. We focused on the first three minutes based on previous research which had shown that the first three minutes, when couples begin their conversations, accurately predicted longitudinal marital outcomes including divorce (Carrère & Gottman, 1999).

Smiles were coded using the Facial Action Coding System (FACS; Ekman & Friesen, 1977) on a second-by-second basis by two trained coders with a high inter-rater reliability (Cohen's Kappa = .93-1). A genuine smile was defined as the contraction of both (1) orbicularis oculi muscle (i.e., action unit [AU] 6) around the eyes (i.e., cheek raiser) and (2) zygomatic major muscle (i.e., AU 12) at the corners of the lips (i.e., lip corner raise). In contrast, a non-genuine smile was defined as contraction of only the latter. No other action units (e.g., AU9 [nose wrinkling], AU15 [frowning], or AU4 [brow furrowing]), were attempted for detection nor coded. This criteria for genuine smile coding was consistent with other studies that coded for genuine smiles (Haase et al., 2015; Papa & Bonanno, 2008; Ruch, 1995; Soussignan, 2002). However, taking into account that smiles were coded during a conversation between spouses (rather than smiles in response to an emotional stimulus [e.g., emotion-evoking film clip] in an individual setting), we included two covariate codes: (1) talking and (2) laughing. These codes were only coded if they co-occurred with either genuine or nongenuine smiles. Smiles were not coded for intensity.

For each participant, the frequencies (as defined per second) of genuine and nongenuine smiles, respectively were added to derive a score that represented the total number of seconds in which the participant displayed genuine smiles and nongenuine smiles, respectively, within the total segment consisting of 180 seconds.

**Positive emotional experiences.** Participants reported on negative and positive emotional experiences after each conversation (e.g., "Please indicate how strongly you felt each emotion during the conversation you just had" [0= not at all to 8= strongest ever felt]), (i.e., 13 items). We

focused on the experience of amusement, based on prior research examining associations between genuine and non-genuine smiles and positive emotional experiences (Martin, 2007).

**Marital satisfaction.** Spouses separately completed the Locke-Wallace Marital Adjustment Test (MAT; Locke & Wallace, 1959). The MAT includes a total of 15 items (Cronbach's Alpha = 0.8) pertaining to marital satisfaction (e.g., "To what extent do you and your mate agree or disagree on demonstration of affection" [0 = Always disagree, 5 = Always agree]). (See Appendix for a full copy of the MAT survey). A total, averaged, and unweighted score for each participant was derived.

**Covariates.** General information on self, spouse, and children (e.g., age, gender, education, ethnicity, income, employment status, occupation, relationship status, and marital status) were collected in an extensive questionnaire battery at the end of the study.

#### Results

#### **Data Analyses**

In order to test our hypotheses, correlational analyses (p < .05) were completed between both genuine smiles and nongenuine smiles, and marital satisfaction. In the first set of analyses, genuine and nongenuine smiles were analyzed separately for each conversation. In the second set of analyses, genuine and nongenuine smiles from both conversations were summed up, resulting in a total score for genuine smiles and a total score for nongenuine smiles. In third set of analyses, same correlational analyses were conducted, controlling for talking and laughing via regression analysis. Lastly, follow-up exploratory analyses were conducted to examine the association between smiles and emotional experiences during the conversations.

#### **Preliminary Analyses**

Preliminary analyses were conducted to examine the means and standard deviations of

(1) the frequencies of all behavior codes (i.e., genuine smiles, nongenuine smiles, laughing, talking, and no code), and (2) marital satisfaction. Table 1 represents the descriptive statistics for these variables.

#### **Smiles and Marital Satisfaction**

Within conversations. Results indicated no significant correlations between (1) genuine smiles and marital satisfaction (positive conversation, r = -.026, p = .844, conflict conversation, r = .041, p = .756) and (2) nongenuine smiles and marital satisfaction (positive conversation, r = -.009, p = .943, conflict conversation, r = -.027, p = .834).

Across conversations. Correlational results indicated a significant positive correlation between genuine smiles total and nongenuine smiles total, r = .630, p < .001. Results indicated no significant correlations between (1) genuine smiles total and marital satisfaction (r = .003, p = .98), and (2) nongenuine smiles and marital satisfaction (r = .022, p = .866).

**Controlling for talking and laughing.** Results indicated no significant correlations between genuine smiles, nongenuine smiles and marital satisfaction controlling for talking (genuine smiles: B = -.003, SE(B) = .005,  $\beta = -.089$ , p = .591, nongenuine smiles: B = -.006, SE(B) = .006,  $\beta = -.266$ , p = .280). Similarly, results showed no significant correlations controlling for laughing (genuine smiles: B = .011, SE(B) = .010,  $\beta = .200$ , p = .264, nongenuine smiles: B = .007, SE(B) = .007,  $\beta = .124$ , p = .363).

#### **Follow-up Analyses**

Follow-up, exploratory analyses were conducted to examine our assumption that genuine (but not nongenuine) smiles would be associated with positive emotional experiences. Correlational analyses revealed that, for conflict conversations, greater frequency of genuine smiles was associated with greater amusement experience (r=.357, p=.005), but the frequency of nongenuine smiles was not (r= -.055, p= .676). For positive conversations, both greater genuine smiles (r= .285, p= .029) and nongenuine smiles (r= .356, p= .006) were associated with greater amusement experience.

#### Discussion

We examined whether smiles displayed by married couples during the first three minutes of positive and conflict conversations were significant predictors of marital satisfaction. Results revealed that there was no association between the frequency of both genuine (inconsistent with hypothesis) and nongenuine (consistent with hypothesis) smiles and marital satisfaction. These results held controlling for a potential covariate (i.e., talking). Follow-up analyses revealed a positive association between genuine smiles and the emotional experience of amusement during both positive and conflict conversations.

#### **Limitations and Future Research**

The present study had several limitations that have implications for future research. First and foremost, our sample size was small; to detect a medium-sized effect with statistical power of .80 and an alpha level of .05, we would have needed 50 couples. Hence, the effects, even if existent, may have been too small to detect with the current sample size of 33 couples. Second, although there is adequate evidence from previous research that the first three minutes of a conversation holds strong predictive power for a variety of marital outcomes (Carrère & Gottman, 1999), coding different segments of the conversations (e.g., the last three minutes) or the complete conversation may produce different results. This is a compelling consideration, because previous work shows that nongenuine smiles are often displayed to mask feelings of uneasiness and embarrassment ((Ekman & Friesen, 1998)), which may be more prevalent at the beginning of a conversation in a laboratory setting than towards the end of the ten minutes. Likewise, genuine smiles may increasingly appear towards the end of the conversation as the couple adjusts and becomes less aware of the laboratory setting. Third, our coding approach may need to be expanded to include (a) action units other than AU6 and AU12 that disqualify genuine smiles and (b) coding of smile intensity and duration in addition to frequency coding in accordance with prior research (e.g., Haase et al., 2015). Moreover, instead of smiles, for example, laughter may be a more robust, yet still a nonverbal expression to measure and draw conclusions about the effect of positive emotions in future studies. In fact, a recently published study found that it was possible to accurately distinguish authentic positive emotional experiences from inauthentic ones by analyzing various acoustic characteristics of genuine and nongenuine laughter (Lavan, Scott, & McGettigan, 2015). Fourth, our statistical analyses did not examine or account for potential interdependence between spouses; this is clearly an important direction for future analyses (Kenny, Kashy, & Cook, 2006). Lastly, the present study only considered two conversations, both with clear primes for the types of conversation we intended to evoke. However, we did not code any segments from the neutral conversation, which did not have a clear prime, and thus, may be the most realistic representation of the most common, everyday conversations spouses have.

#### **Implications for Future Research**

Given these limitations, we must exert caution in formulating implications for future research on positive emotions and marriage. First, compelling evidence suggests that smile displays are important indicators of positive emotions, and our follow up analyses–though exploratory–support that view. Specifically, we found that genuine smiles, especially when displayed in the context of a conflict conversation, were linked to greater amusement experience, consistent with prior research (Ekman et al., 1990; Ekman & Friesen, 1998; Frank et al., 1993). Thus, genuine smiles may be useful indexes of positive emotional experiences, especially in research settings when self-reports of emotional experiences are difficult to obtain, biased, or may themselves bias other processes. Second, functional accounts of emotion posit that emotions are coordinated action tendencies between cognitive, behavioral, physiological, and experiential systems, triggered by specific environmental challenges (Papa & Bonanno, 2008). Compared to negative emotions, positive emotions, as posited by the broaden-and-build theory, may have less immediate effects, and unfold their effects through a more gradual and cumulative process. Thus, it is possible that the link between smiles and distal outcomes such as marital satisfaction may be relatively weaker and require consideration of contextual and other emotional factors. At present, little is known about how these positive emotional expressions fit into the larger body of positive emotion research (e.g., the broaden-and-build theory) (e.g., Gervais & Wilson, 2005; Keltner & Bonanno, 1997).

#### Conclusion

For over four decades, psychologists have attempted to understand one of the most prevalent yet increasingly unsuccessful phenomena in our society: marriage. While the majority of previous research has focused on the role of negative emotions in marital adjustment, functionalist perspectives as well as the broaden-and-build theory of positive emotions suggest that all emotions, positive and negative, are adaptive in particular situations. Though our present study did not find significant associations between the display of genuine smiles and marital satisfaction, our findings and implications have guided us one step closer to a better understanding of positive emotions in the broader domain of marital emotional climate research. References

- Algoe, S. B., Fredrickson, B. L., & Gable, S. L. (2013). The social functions of the emotion of gratitude via expression. *Emotion*, 13(4), 605–609. https://doi.org/10.1037/a0032701
- Bloch, L., Haase, C. M., & Levenson, R. W. (2014). Emotion regulation predicts marital satisfaction: More than a wives' tale. *Emotion*, 14(1), 130–144. https://doi.org/10.1037/a0034272
- Bradbury, T. N., & Fincham, F. D. (1990). Attributions in marriage: Review and critique. *Psychological Bulletin*, *107*(1), 3–33. https://doi.org/10.1037/0033-2909.107.1.3
- Campos, B., Shiota, M. N., Keltner, D., Gonzaga, G. C., & Goetz, J. L. (2013). What is shared, what is different? Core relational themes and expressive displays of eight positive emotions. *Cognition & Emotion*, 27(1), 37–52. https://doi.org/10.1080/02699931.2012.683852
- Carrère, S., & Gottman, J. M. (1999). Predicting Divorce among Newlyweds from the First Three Minutes of a Marital Conflict Discussion. *Family Process*, 38(3), 293–301. https://doi.org/10.1111/j.1545-5300.1999.00293.x
- Congard, A., Dauvier, B., Antoine, P., & Gilles, P.-Y. (2011). Integrating personality, daily life events and emotion: Role of anxiety and positive affect in emotion regulation dynamics. *Journal of Research in Personality*, *45*(4), 372–384. https://doi.org/10.1016/j.jrp.2011.04.004

Davidson, R. J., Ekman, P., Saron, C. D., Senulis, J. A., & Friesen, W. V. (1990). Approachwithdrawal and cerebral asymmetry: Emotional expression and brain physiology: I. *Journal of Personality and Social Psychology*, 58(2), 330–341. https://doi.org/10.1037/0022-3514.58.2.330

- Ekman, P., Davidson, R. J., & Friesen, W. V. (1990). The Duchenne smile: Emotional expression and brain physiology: II. *Journal of Personality and Social Psychology*, 58(2), 342–353. https://doi.org/10.1037/0022-3514.58.2.342
- Ekman, P., & Friesen, W. V. (1998). Felt, false, and miserable smiles. *Journal of Nonverbal Behavior*, 6(4), 238–252. https://doi.org/10.1007/BF00987191
- Ekman, P., Hager, J. C., & Friesen, W. V. (1981). The Symmetry of Emotional and Deliberate Facial Actions. *Psychophysiology*, *18*(2), 101–106. https://doi.org/10.1111/j.1469-8986.1981.tb02919.x
- Frank, M. G., Ekman, P., & Friesen, W. V. (1993). Behavioral markers and recognizability of the smile of enjoyment. *Journal of Personality and Social Psychology*, 64(1), 83–93. https://doi.org/10.1037/0022-3514.64.1.83
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broadenand-build theory of positive emotions. *American Psychologist*, 56(3), 218–226. https://doi.org/10.1037/0003-066X.56.3.218
- Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition & Emotion*, 19(3), 313–332. https://doi.org/10.1080/02699930441000238
- Fredrickson, B. L., & Levenson, R. W. (1998). Positive Emotions Speed Recovery from the Cardiovascular Sequelae of Negative Emotions. *Cognition & Emotion*, 12(2), 191–220. https://doi.org/10.1080/026999398379718
- Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology*, 91(5), 904–917. https://doi.org/10.1037/0022-3514.91.5.904

- Gervais, M., & Wilson, D. S. (2005). The Evolution and Functions of Laughter and Humor: A Synthetic Approach. *Quarterly Review of Biology*, *80*(4), 395–430.
- Giles-Sims, J. (1994). [Review of Review of What Predicts Divorce?: The Relationship between Marital Processes and Marital Out-Comes, by J. M. Gottman]. Journal of Marriage and Family, 56(3), 783–784. https://doi.org/10.2307/352894
- Gottman, J. M. (1980). Consistency of nonverbal affect and affect reciprocity in marital interaction. *Journal of Consulting and Clinical Psychology*, 48(6), 711–717. https://doi.org/10.1037/0022-006X.48.6.711
- Gottman, J. M. (1998). Psychology and the study of marital processes. *Annual Review of Psychology*, *49*(1), 169–197. https://doi.org/10.1146/annurev.psych.49.1.169
- Gottman, J. M., & Levenson, R. W. (1992). Marital processes predictive of later dissolution:
  Behavior, physiology, and health. *Journal of Personality and Social Psychology*, 63(2),
  221–233. https://doi.org/10.1037/0022-3514.63.2.221
- Gross, J. J. (2013). *Handbook of Emotion Regulation, Second Edition* (2nd ed.). New York: Guilford Publications.
- Gross, J. J., Richards, J. M., & John, O. P. (2006). Emotion Regulation in Everyday Life. In D.
  K. Snyder, J. Simpson, J. N. Hughes, D. K. Snyder (Ed), J. Simpson (Ed), & J. N. Hughes
  (Ed) (Eds.), *Emotion regulation in couples and families: Pathways to dysfunction and health*. (pp. 13–35). Washington, DC, US: American Psychological Association.
  Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=pzh&AN=2006-05154-001&site=ehost-live

- Haase, C. M., Beermann, U., Saslow, L. R., Shiota, M. N., Saturn, S. R., Lwi, S. J., ... Levenson,
  R. W. (2015). Short alleles, bigger smiles? The effect of 5-HTTLPR on positive
  emotional expressions. *Emotion*, *15*(4), 438–448. https://doi.org/10.1037/emo0000074
- Harker, L., & Keltner, D. (2001). Expressions of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of Personality and Social Psychology*, 80(1), 112–124. https://doi.org/10.1037/0022-3514.80.1.112
- Jensen, M. (2015). Smile as Feedback Expressions in Interpersonal Interaction. *International Journal of Psychological Studies*, 7(4), 95. https://doi.org/10.5539/ijps.v7n4p95
- Johnson, K. J., Waugh, C. E., & Fredrickson, B. L. (2010). Smile to see the forest: Facially expressed positive emotions broaden cognition. *Cognition & Emotion*, 24(2), 299–321. https://doi.org/10.1080/02699930903384667
- Keltner, D., & Bonanno, G. A. (1997). A study of laughter and dissociation: Distinct correlates of laughter and smiling during bereavement. *Journal of Personality and Social Psychology*, 73(4), 687–702. https://doi.org/10.1037/0022-3514.73.4.687
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin*, *127*(4), 472–503. https://doi.org/10.1037/0033-2909.127.4.472
- Lavan, N., Scott, S. K., & McGettigan, C. (2015). Laugh Like You Mean It: Authenticity Modulates Acoustic, Physiological and Perceptual Properties of Laughter. *Journal of Nonverbal Behavior*, 40(2), 133–149. https://doi.org/10.1007/s10919-015-0222-8
- Levenson, R. W., & Gottman, J. M. (1983). Marital interaction: Physiological linkage and affective exchange. *Journal of Personality and Social Psychology*, 45(3), 587–597. https://doi.org/10.1037/0022-3514.45.3.587

- Levenson, R. W., & Gottman, J. M. (1985). Physiological and affective predictors of change in relationship satisfaction. *Journal of Personality and Social Psychology*, 49(1), 85–94. https://doi.org/10.1037/0022-3514.49.1.85
- Locke, H. J., & Wallace, K. M. (1959). Short Marital-Adjustment and Prediction Tests: Their Reliability and Validity. *Marriage and Family Living*, 21(3), 251–255. https://doi.org/10.2307/348022
- Markman, H. J. (1979). Application of a behavioral model of marriage in predicting relationship satisfaction of couples planning marriage. *Journal of Consulting and Clinical Psychology*, 47(4), 743–749. https://doi.org/10.1037/0022-006X.47.4.743
- Markman, H. J. (1981). Prediction of marital distress: A 5-year follow-up. *Journal of Consulting and Clinical Psychology*, *49*(5), 760–762. https://doi.org/10.1037/0022-006X.49.5.760
- Papa, A., & Bonanno, G. A. (2008). Smiling in the face of adversity: The interpersonal and intrapersonal functions of smiling. *Emotion*, 8(1), 1–12. https://doi.org/10.1037/1528-3542.8.1.1
- Reis, H. T., & Gable, S. L. (2003). Toward a positive psychology of relationships. In C. L. M.
  Keyes, J. Haidt, C. L. M. Keyes (Ed), & J. Haidt (Ed) (Eds.), *Flourishing: Positive psychology and the life well-lived*. (pp. 129–159). Washington, DC, US: American Psychological Association. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=pzh&AN=2003-04013-006&site=ehost-live

Ruch, W. (1995). Will the real relationship between facial expression and affective experience please stand up: The case of exhilaration. *Cognition and Emotion*, 9(1), 33–58. https://doi.org/10.1080/02699939508408964

- Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, *110*(1), 145–172. https://doi.org/10.1037/0033-295X.110.1.145
- Shiota, M. N., Neufeld, S. L., Danvers, A. F., Osborne, E. A., Sng, O., & Yee, C. I. (2014).
  Positive Emotion Differentiation: A Functional Approach: Positive Emotion
  Differentiation. *Social and Personality Psychology Compass*, 8(3), 104–117.
  https://doi.org/10.1111/spc3.12092
- Soussignan, R. (2002). Duchenne smile, emotional experience, and autonomic reactivity: A test of the facial feedback hypothesis. *Emotion*, *2*(1), 52–74. https://doi.org/10.1037/1528-3542.2.1.52
- Tracy, J. L. (2014). An Evolutionary Approach to Understanding Distinct Emotions. *Emotion Review*, *6*(4), 308–312. https://doi.org/10.1177/1754073914534478
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient Individuals Use Positive Emotions to Bounce Back From Negative Emotional Experiences. *Journal of Personality and Social Psychology*, 86(2), 320–333. https://doi.org/10.1037/0022-3514.86.2.320
- Vincent, J. P., Friedman, L. C., Nugent, J., & Messerly, L. (1979). Demand characteristics in observations of marital interaction. *Journal of Consulting and Clinical Psychology*, 47(3), 557–566. https://doi.org/10.1037/0022-006X.47.3.557
- Whisman, M. A. (2007). Marital distress and DSM-IV psychiatric disorders in a populationbased national survey. *Journal of Abnormal Psychology*, *116*(3), 638–643. https://doi.org/10.1037/0021-843X.116.3.638
- Yang, H., Yang, S., & Isen, A. M. (2013). Positive affect improves working memory: Implications for controlled cognitive processing. *Cognition & Emotion*, 27(3), 474–482. https://doi.org/10.1080/02699931.2012.713325

# POSITIVE FACIAL EXPRESSIONS IN MARRIAGE

# Tables

Table 1Means and Standard Deviations of Independent and Dependent Variables, andSociodemographic Characteristics

	Conflict	Positive	Total
n	66	66	66
Genuine Smiles Frequency (M [SD])	4.8 (9.12)	6.73 (12.19)	11.53 (17.1)
Nongenuine Smiles Frequency	35.26 (41.77)	37.88 (34.16)	73.14 (66.09)
Talking Frequency	14.27 (23.29)	19.94 (16.81)	31.21 (36.44)
Laughing Frequency	3.7 (5.90)	2.71 (4.1)	6.41 (9.07)
Marital Satisfaction (averaged)	-	-	0.05 (.57)
Age (in years)	-	-	42.77 (9.3)
Household Annual Income	-	-	4.09 (2)
1 = less than \$20,000			
2= \$20,001 - \$35,000			
3= \$35,001 - \$50,000			
4= \$50,001 - \$75,000			
5= \$75,001 - \$100,000			
6= \$100,001 - \$150,000			
7= greater than \$150,000			

# Appendix

MAT Scale								
	Always Agree		Occasionally Disagree	Frequently Disagree	Almost Always Disagree	Always Disagree		
Handling family finances	0	0	0	0	0	0		
Matters of recreation	0	0	0	0	0	0		
Demonstration of affection	0	0	0	0	0	0		
Friends	$\bigcirc$	0	0	0	0	0		
Sex relations	0	0	0	0	0	0		
Conventionality (right, good, or proper conduct)	0	0	0	0	0	0		
Philosophy of life	0	0	0	0	0	0		
Ways of dealing with in-laws	0	0	0	0	0	0		

1.	When disagreement	s arise.	they	vusuallv	result in

Husband giving in Wife giving in

Agreement by mutual give and take

## 2. Do you and your mate engage in outside interests together?

All of them Some of them Very few of them None of them

## 3. In leisure time do you generally prefer:

To be "on the go" To stay at home

## 4. Does your <u>partner</u> generally prefer:

To be "on the go" To stay at home

# 5. Do you ever wish you had not married?

Frequently Occasionally Rarely Never

# 6. If you had your life to live over, you do you think you would Marry the same person Marry a different person Not marry at all

7. Do you confide in your partner:

Almost never Rarely In most things In everything