

The Relationship between Non-Verbal Communication and Marital Adjustment among Iranian Couples

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In the present study an attempt is made to find out the relationship between non-verbal communication and marital adjustment among 120 married couples from Kerman City of Iran referred to government and private counseling and social support centers. Test of Non-verbal Cue Knowledge (TONCK) by Rosip & Hall (2004) and Revised Dyadic Adjustment Scale (RDAS) by Busby, Christensen, Crane and Larson (1995) were employed to measure non-verbal communication levels and marital adjustment, respectively. Two-way ANOVA was employed to find out the difference in marital adjustment scores with different levels of non-verbal communication along with gender, age, educational level and marital years. Results revealed that as the non-verbal communication levels increased, marital adjustment of the couples increased linearly and significantly. Couples with higher educational levels had higher marital adjustment scores than Couples with lower educational levels and couples with above 11 years marriage had higher marital adjustment scores than Couples with 6-10 years marriage and below 5 years marriage. Lastly gender did not have a significant influence over marital adjustment of the Couples.

Keywords: Non-verbal communication, marital adjustment, Couple

Communication plays a central role in marriage and family. For example, communication affects attention and perception, memory for

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messages, and inferences that communicators draw from behaviors, and psychosocial outcomes of family members (Fitzpatrick & Ritchie, 1994). Consistent with survey findings, communication is the most frequently cited problem in marriage such as: divorce, parenting problems, stress related health issues and domestic violence (Gottman, 1999; Kelly, Finchman, Beach, 2003). Communication takes place basically in two ways; verbal and non-verbal. Verbal communication is made through words, either spoken or written. Non-verbal communication is the process of sending and receiving wordless messages by means of facial expressions, touch, distance, gaze, gestures, postures, and tones of voice. Non-verbal cues include all expressive signs, signals and cues (audio, visual, tactile, etc) which are used to send and receive messages apart from manual sign language and speech (Givens, 2005). Psychological studies have estimated that more than 65 percent of the information exchanged during a face-to-face interaction is expressed through non-verbal means (Gyue-Vuilleme 2004).

Gender and Non-verbal Communication

Men and women are different in process of communicating in variables such as word choice, conversational style, content of speech, purpose of conversation, purpose of questions, use of silence, listening and speaking style, changing the subject, interrupt and encouragement to continue (Goldschmidt &Weller 2000; Hannah& Murachver,1999; Heaton & Blake,1999).

Males and females demonstrate different non-verbal communication patterns. Females interact at closer distances than males (Evans & Howard, 1973) and allow closer approaches from others than men allow (Patterson & Edinger, 1987) females to touch more than males (Hall &Veccia, 1990). In a study, Tannen (1990) found females sit closer to one another and engage in more eye contact. Males, on the other hand, sit at angles to one another, often parallel, and do not look directly into each other's faces when communicating. Females anchor their gaze on one

another's face occasionally glancing away, while males anchor their gaze elsewhere in the room and occasionally glance at each other. These communication differences can lead to frustration when communicating with the opposite sex. For example, females who tend to engage in eye contact and prefer to face one another when communicating, may interpret a male's non-verbal communication behavior of lesser eye contact and a parallel position as signs of disinterest.

Communication and Marital Adjustment

According to Dimkpa (2010) marital adjustment, it refers to the ability of individuals to become satisfied, happy and achieve success in a number of specific tasks in marriage. Research has shown that marital adjustment possess an abundance of certain aspects, such as: friendship (Flowers, 1998; Cooper, 1980); similar interpersonal values (Flowers, 1998); maturation synchronicity (Flowers, 1998); a balance between involvement in and disengagement from the marriage (Eckstein & Axford, 1999; Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985; Gottman, 1998); self-consciousness (Flowers, 1998); sexual fulfillment (Flowers, 1998; Christopher & Sprecher, 2000); spousal familial influence (Holman & Larson, 1994; Whyte, 1990); and mental/physical health (Reynolds, Remer, & Johnson, 1995). One of the most important areas of marital adjustment is communication (Clayton, 1986, Denga, 1982 & Obasa, 1990). Nonverbal communication increased interpersonal sensitivity and it was associated with many important aspects of personal and social functioning (Hall, Andrzejewski & Yopchick 2009, Gabriel, Beach, & Bodenmann, 2010).

The claim of relationship between non-verbal communication and marital adjustment has been well grounded and documented .in fact one of the first early researchers on this topic was conducted by Kahn (1970) who studied "non-verbal communication and marital satisfaction ". He found that happy couples scored significantly higher in non-verbal decoding ability than did unhappy couples. In a similar study Noller (1980) found

that husbands and wives high in marital adjustment would have higher marital communication scale scores than couples who scored low in marital communication. Husbands were found to make more errors in decoding their wives non-verbal messages, while females demonstrated superior encoding skills. Husbands in the low marital adjustment group sent non-verbal messages compared to the husbands in the high marital adjustment group. In longitudinal study was found a positive relationship between communication behaviors (verbally and nonverbally) of the partner and long-term dyadic adjustment of the partner (Lazaridès & Bélanger, Sabourin, 2010). The results of research by Yalcin and Karahan (2007) showed that training of couple communication had a positive effect on marital adjustment levels by improving communication skills and may lead to long-term behavioral modifications in couples. Negative premarital communication was associated with lower marital adjustment after 5 years of marriage and negative premarital communication significance as predictors of divorce (Markman and et al, 2010).

The findings suggest that the husbands' communication skills play an important role in the level of marital adjustment. One of the most commonly methods in observation is detecting the accuracy in the decoding of non-verbal messages which is more important for marital adjustment than accuracy in the encoding of non-verbal messages (Gottman & Porterfield, 1981; Noller, 1992).

Another frequently made observation is based on sex differences which are present in non-verbal communication ability (Hall, 1984, 1998; Wagner, Buck, Winterbotham, 1993; but see Ickes, Stinson, Bissonette, & Garcia, 1990). For example, Noller (1992) and Noller and Gallois, (1986) found that wives are better than their husbands in encoding the positive effect in their messages regardless of how disturbing the relationship is. Furthermore, the non-verbal skills of husbands and wives would differently effect marital adjustment. Noller (1981, 1992) reported that husbands are responsible for any disturbance in marriages since it is linked to their faulty decoding and encoding correlated to marital maladjustment.

In a similar vein Gottman and Porterfield (1981) observed that the non-verbal decoding by husbands, rather than wives, mostly is correlated to marital adjustment.

Hooley and Hahlweg (1989) discovered negative non-verbal communication behaviors lead to the escalation of disagreement and the overall interactional dissatisfaction

Segrin and Abramson (1994) reported that gaze, proximity, smiling and facial expressiveness, close touch, gesticulations, longer speech duration, more frequent head nods, and relatively fast speech are signs of intimacy, engagement, affiliation, immediacy, a generally positive evaluation of the social interaction. They have specifically examined the behaviors which cause such an interpersonal rejection and determined that poor social skills exemplified by inadequate non-verbal communication skills play a major role in interpersonal rejection.

As far as the Iranian society is considered, the authors could not find any literature on marital adjustment and non-verbal communication. Since Iran is dominated by a single religion and more of closed groups, in the present study an attempt is made to find out the relationship between marital adjustment and extent of non-verbal communication. It is hypothesized that extent of non-verbal communication do influence the marital adjustment of the couples.

Method

Sample

The overall sample size comprised of 120 married couples (120 males and 120 females) from Kerman City of Iran referred to government and private counseling institutions and social support centers. Participants were recruited via counselor or therapist referrals and self referrals. Couples from therapist referrals were not necessarily in therapy or counseling for marital problems (e.g., a child could be in therapy for school problems).

Measures

Test of non-verbal cue knowledge (TONCK). The test of Non-verbal Cue Knowledge, a paper and pencil test measuring explicit knowledge of non-verbal cue meaning and use, was developed by Rosip and Hall in 2004 at University of Boston. It consists of 81 items. It measures non-verbal cue knowledge. The respondents will be asked to indicate their responds on the two points given against each statement i.e., "true" and "false". Scoring was done by summing correct answers so that higher values indicate more knowledge of non-verbal cues and Scores may range between 0 and 81. Validity of the tool was established by Rosip & Hall (2004) using Cronbach's alpha technique and it was .89. On the current sample Cronbach's alpha was .69 and test-retest reliability was .70 over a 10 weeks period. Convergent validity was evaluated on the relationship between TONCK and The Diagnostic Analysis of Nonverbal Accuracy-2 Adult Facial Expression Test (DANA2-AF) and The Diagnostic Analysis of Nonverbal Accuracy-2 Child Facial Expression Test (DANA2-CF). Baniasadi and Mortazavi (2009) administered two measures to college students (Shahid Bahonar University of Kerman) and reported a correlation of .33 ($r=.33, p>.05, n=300$) between DANA2-AF with TONCK and a correlation of .30 ($r=.30, p>.05, n=300$) between DANA2-CF with TONCK. Moreover, for discriminative validity, scores on the TONCK were not found related to Raven's Progressive Matrices (IQ) ($r=.6, p <.05, n=150$).

Revised dyadic adjustment scale (RDAS). Busby, Christensen, Crane and Larson (1995) created the Revised Dyadic Adjustment Scale (RDAS) which is a 14-item instrument based on Spanier's (1976) original 32-item, Dyadic Adjustment Scale. The Revised Dyadic Adjustment Scale includes the consensus, satisfaction and cohesion subscales and Scores ranging from 0 and 69. In assessing the internal consistency it was found that the RDAS had a Cronbach Alpha of .90, a Guttman Split-Half of .94 and a

Spearman-Brown Split-Half of .95. This measure is used to see if a relationship exists between level of relationship satisfaction and perpetration of physical dating violence.

The confirmatory factor analyses provided evidence for the construct validity of the Revised DAS (RDAS) with the distressed, nondistressed, and total samples of this study, as well as with the sample from Spanier and Thompson's (1982) study. The correlation coefficient between the RDAS and the Marital Adjustment Test (MAT) was .68. In addition, the correlation coefficient between the DAS and the RDAS was .97.

The RDAS was as successful as the DAS at discriminating between distressed and nondistressed samples. RDAS and the DAS were equal in their ability to classify cases as either distressed or nondistressed. Both scales were correctly classified into 81 % of the cases. Internal consistency ($\alpha=.71$) obtained on the current sample was .71 and test-retest reliability was .74 over a 10 weeks period, which is sufficiently high indicating the questionnaire has well-established reliability. Convergent validity was evaluated on the relationship between RDAS and Kansas Marital Satisfaction Scale (KMSS) was found .85

Procedure

Every couple who indicated a willingness to participate was asked to complete socio-demographic data sheet (age, educational level, and marital years) and then they were administered TONCK and RDAS. In the first session, they were asked to fill in demographic data sheet and answer TONCK. In the second session, they were asked to answer RDAS. Both TONCK and RDAS were administered in Persian language. Later, the answer sheets were verified and answer sheets with incomplete entries and multiple responses for the same question were eliminated

Statistical Analysis

Two-way ANOVA was employed to test the significance of difference in the mean marital adjustment scores of subjects with three levels of non-

verbal communication, age, educational level and number of marital years, where marital adjustment scores were taken as dependent variable, and levels of non-verbal communication, gender, age, educational level and marital years as independent variables. The statistical analyses were performed through SPSS for Windows, Version 14 (Evaluation version).

Results

Table 1
Mean Marital Adjustment Scores of the Respondents with Different Levels of Non-Verbal Communication for Gender, Age, Educational Level and Marital Years

Variables		Mean Marital adjustment scores of subjects with different levels of non-verbal communication						Overall	
		Levels of non-verbal communication							
		Low		Medium		High			
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Overall		26.47	8.54	31.47	10.79	41.35	13.16	34.88	12.87
Gender	Male	23.80	6.72	30.88	12.38	42.34	12.16	34.48	13.48
	Female	30.29	9.62	32.00	9.24	40.36	14.15	35.28	12.28
Age (in years)	Below 25	31.16	3.67	33.26	10.69	46.33	13.39	37.92	12.75
	26-30	26.69	5.81	32.52	9.94	45.16	9.51	36.46	11.71
	31-35	24.27	12.28	32.12	11.42	36.59	14.38	32.62	13.45
	36-40	16.00	10	29.74	11.40	41.00	14.79	33.72	13.95
	40+	0	0	26.13	10.84	35.64	12.58	31.63	12.53
Edu level	Diploma	25.52	11.67	29.69	9.61	40.86	11.15	29.92	12.33
	Graduation	28.00	6.02	32.35	11.29	42.22	14.23	34.80	13.19
Marital years	below 5	26.46	6.146	30.93	11.96	42.77	10.60	34.00	12.38
	6-10	20.00	5.94	31.89	12.16	39.50	13.50	34.18	13.56
	11+	28.00	10.13	32.35	9.73	43.08	14.82	36.11	12.95

Table 2
Results of Two-Way ANOVA for Mean Marital Adjustment Scores of the Respondents with Different Levels of Non-Verbal Communication for Gender, Age, Educational Level and Marital Years

Source	Hypo.SS	Erro.SS	Hypo.MS	Erro.MS	Hypo. df	Erro. df	F	P
Non-communication levels (A)	7821.86	31809.63	6812.58	3910.93	2	237	29.13	.001
Gender (B)	158.81	31332.07	158.81	133.89	1	234	1.18	.277
Interaction (A x B)	458.74	31332.07	229.37	133.89	2	234	1.71	.183
Age (C)	114.75	4232.68	28.68	18.48	4	229	.188	.114
Interaction (A x C)	31.93	4232.68	7.98	18.48	4	229	.785	.574
Education Level (C)	8080.56	31550.93	1616.11	134.83	1	234	11.98	.001
Interaction (A x C)	256.38	31550.93	128.19	134.83	2	234	.951	.388
Education Level (C)	1233.73	31149.06	616.86	135.43	3	230	4.55	.014
Interaction (A x C)	423.07	31149.06	105.76	135.43	4	230	.781	.816

Table 1 presents mean marital adjustment scores of couples with different levels of non-verbal communication, gender, age, education level and marital years. Table 2 shows results of two-way ANOVA for mean marital adjustment scores of couples with different levels of non-verbal communication, gender, age, education level and marital years.

Non-communication levels, Gender and Marital adjustment scores

A significant difference was observed in the mean marital adjustment scores of subjects with different levels of non-verbal communication ($F_{2,237}=29.13$; $P<.001$). The mean marital adjustment scores for subjects with low, medium and high levels of non-verbal communication were of 29.47, 31.47 and 41.35 respectively. Further, Scheffe's post hoc test revealed that subjects with low levels of non-verbal communication had lesser marital adjustment scores, and subjects with medium and high level of non-verbal communication had higher scores on marital adjustment. Gender-wise comparison revealed a non-significant difference ($F_{1,234}=1.18$; $P<.277$) in mean marital adjustment scores revealing that male and female subjects had significantly equal marital adjustment scores. The interaction between non-communication levels and grades also was found to be non-significant ($F_{2,234}=1.71$; $P<.183$).

Non-communication levels, age groups and marital adjustment scores

Subjects with different age groups were found to have statistically equal scores ($F_{4,229}=.188$; $P<.114$) of marital adjustment and the interaction effect between non-communication levels and age group was found to be non-significant ($F_{4,229}=.785$; $P<.574$) indicating that pattern of marital adjustment scores was same for subjects with different age groups irrespective of the non-communication level they have.

Non-communication levels, Educational levels and marital adjustment scores

Subjects with different levels of education were found to differ significantly on marital adjustment ($F_{1,234}=11.98$; $P<.001$) where subjects

with higher levels of education had higher marital adjustment scores (mean 34.80) than subjects with lower education levels (mean 29.92). However, the interaction effect between non-verbal communication levels and education levels was found to be non-significant ($F_{2,234}=.951$; $P<.388$).

Non-communication levels, marital years and marital adjustment scores

When the number of years marriage is considered, a significant difference ($F_{2,230}=4.55$; $P<.014$) was observed between subjects with different marital years where subjects with above 11 years marriage had higher marital adjustment scores (mean 36.11) than subjects with 6-10 years marriage (mean 34.18) and below 5 years marriage (mean 34.00). Even, the interaction effect between non-communication levels and marital years was found ($F_{4,230}=.781$; $P<.816$) to be non-significant.

Discussion

Main Findings of the Present Study are,

- As the non-verbal communication levels increased, marital adjustment of the couples increased linearly.
- Subjects with higher educational levels had higher marital adjustment scores than subjects with lower educational levels.
- Subjects with above 11 years marriage had higher marital adjustment scores than subjects with 6-10 years marriage and below 5 years marriage.
- Gender did not have significant influence over marital adjustment of the subjects.

The present study is an agreement with the studies done about the important role of communication on increasing marital adjustment (Lazaridès & Bélanger, Sabourin, 2010 ., Yalcin and Karahan 2007 & Markman and et al, 2010). Hall, Andrzejewski and Yopchick 2009 and Gabriel, Beach, and Bodenmann, 2010 indicated that nonverbal communication increased interpersonal sensitivity and it was associated with many important aspects of personal and social functioning.

Also the findings of the present study are in agreement with the studies conducted in West. Relationship between non-communication skills and marital adjustment is not simple and straightforward, but rather is quite complex, varying as a function of several moderating factors. Non-communication skills and marital adjustment were positively associated among non-distressed couples, but negatively associated among distressed couples (Burleson & Denton, 1997). The results indicate a relationship between marital adjustment and the accuracy of non-verbal communication (Kahn, 1970). The relationship between marital satisfaction and non-verbal decoding ability has been well researched and documented. One of the first early researchers on this topic was Kahn (1970) who studied "non-verbal communication and marital satisfaction". He found that happy couples scored significantly higher in non-verbal decoding ability than did unhappy couples. In similar study, Noller (1980) found that husbands and wives high in marital adjustment would have higher marital communication scale scores than couples who scored low in marital communication. Husbands were found to make more errors in decoding their wives non-verbal messages while females demonstrated superior encoding skills. Husbands in the low marital adjustment group sent less non-verbal messages than husbands in the high marital adjustment group. These findings suggest that the husbands' communication skills play an important role in the level of marital adjustment. The study by Koerner & Fitzpatrick (2002) revealed husbands were better than wives at decoding positive affect. John (2002) found non-verbal decoding ability and the level of marital adjustment are significantly related, even after controlling for feelings of depression and accuracy at decoding spouses' non-verbal messages increases overtime irrespective of marital adjustment.

A study by Steven (2001) indicated that higher educated couples have an easier time collaborating with each other as opposed to compromising their wants. These collaboration skills of higher educated couples will need further investigation. Further, Heaton (2002) concluded that

homogeneity in the areas like age, level of education, race, and religion, is associated with increased levels of marital satisfaction.

Knowledge of non-verbal communication can give the couples appropriate knowledge and skills to understand their emotions, needs, desires, expectations in a better way, and it induces them to increase the marital adjustment. Every grin, lip-compression, smile, gaze, arm-cross, hand on hips, head shake, head tilt, ear rub, body orientation, itching and tone of voice convey some secret messages that they symbolize the information exchanging between the couple. Beside, sometimes in real situations couple can't use words to express their emotions, needs, desires, expectations; especially their feeling or sometimes it is difficult for couple to say and to speak directly about them. In fact, they prefer to use non-verbal communication to transfer their feeling, desires and expectations instead of verbal language. Hence, increasing the ability of couple in decoding and encoding their body language through the knowledge of non-verbal definitely was important in building intimacy, establishing rapport, constructing trust, augmenting satisfaction and increasing adjustment.

Furthermore, Finding showed that couples above 11 years marriage had higher marital adjustment than couples with 6-10 years of marriage and below 5 years of marriage. After several years living together, the couples will be more familiar with their desires and demands and their expectations are mostly clarified, their understandings are promoted, their intimacy, and bonds are enhanced and their relationship will be strengthened. The marriage couples have learnt to support each other in stressful events during a long period of time and they can adjust themselves to ward off stress, while maintaining a satisfactory marriage. They have agreed about social intercourse especially with their parents while respecting their differences because they accept each other with love and affection unanimously. In generally, the assessment and evaluation of realistic beliefs, attitudes about the marriage and remembering the goals of the marriage throughout the marital life would yield stability in marriage.

The result of present study is parallel with the studies which have been done earlier. Patel and Patel (2009) as the duration of marriage increases, the marital adjustment tends towards the best proportionally. Therefore, both the education and duration of marriage are positively correlated to the marital adjustment. Orbuch et al. (1996) found marital adjustment decline in the early years of marriage and increase in the later years. Miller (2000) concluded that there is a significant in decrease marital satisfaction in the early stages of the marriage. Steven(2001) reported where longer a couple is married the more attached they seem to be with each other, which in turn leads to higher marital adjustment.

This study attempts to investigate the relationship between of non-verbal communication with marital adjustment. Result showed that there was a positive relationship between of non-verbal communication with marital adjustment.

Every nonverbal message such as facial expression, touching, eye contact, posture, tone of voice, distance and gesture convey some secret messages that they symbolize the information exchanging between the couple. Moreover, attaining of the non-verbal communication skills benefited couples to understand each other of their hidden non-verbal communication messages. For example, when husband blinks and does, head tilts, eyebrow raising, he produces negative impression on his wife and with modification and change his non-verbal communication produces the most positive effect. Besides, Attaining of the non-verbal communication skills benefits to couples to reduce their conflict during the process of non-verbal communication while sending and receiving messages, to find the best possible solutions for probable misunderstanding and misinterpreting, and to develop the best mutual understanding and finally to have a better life style and quality of life.

To conclude, one can definitely say that non-verbal communication does affect marital adjustment positively. It is recommended that the Family counselors should focus on improving non-verbal communication skills among disturbed couples, which will have positive impact on marital

adjustment and design appropriate techniques to improve non-verbal communication to have a better life style and quality of life among couples.

References

- Baniasadi, H., & Mortazavi, H. (2009). *Standardization of the test of non-verbal cue knowledge*. Department of Psychology. Shahid Bahonar University of Kerman.
- Bellah, R., Madsen, R., Sullium, W., Swidler, A., & Tipton, S. (1985). *Habits of the heart*. Los Angeles: University of California Press.
- Busby, D. M., Christensen, C., Crane, D. R. & Larson, J. H. (1995). A revision of the dyadic adjustment scale for use with distressed and nondistressed couples: Construct hierarchy and multidimensional scales. *Journal of Marital and Family Therapy*, 21, 3, 289-308.
- Burleson, B. R., & Denton, W. H. (1997). The relationship between communication skill and marital satisfaction: Some moderating effects. *Journal of Marriage and the Family*, 59, 884-902.
- Clayton, R. (1978). *The Family, Marriage and Social change*. Toronto: Heath and Co.
- Cooper, J. (1980). *Aristotle's ethics*. Berkeley: University of California Press.
- Christopher, S., & Sprecher, S. (2000). Sexuality in marriage, dating, and other relationships: a decade review. *Journal of Marriage and the Family*, 62, 999-1018.
- Daigen, V., & Holmes, J. G. (2000). Don't interrupt: A good role for marriage. *Personal Relationships*, 7, 185-201.
- Denga, D. I. (1982). Childlessness and Marital Adjustment in Northern Nigeria. *Journal of Marriage and Family*, 44, 799-802.
- Dimkpa, D. I. (2010). Marital adjustment roles of couples practicing child adoption. *European Journal of Social Sciences*, 13, 2, 194-200.
- Evans, G. W., & Howard, R. B. (1973). Personal space. *Psychological Bulletin*, 80, 334-344.

- Eckstein, & Axford, D. (1999). Loving and being loved: Commitment implications. *Family Journal*, 7, 185-187.
- Flowers, B. (1998). Psychology and the good marriage. *American Behavioral Scientist*, 41, 516-542.
- Fitzpatrick, M. A., & Ritchie, L. D. (1994). Communication schemata within the family: Multiple perspectives on family interaction. *Human Communication Research*, 20, 275-301.
- Gabriel, B., Beach, S. R., & Bodenmann, G. (2010). Depression, marital satisfaction and communication in couples: investigating gender differences. *Behavior Therapy*, 41, (3), 306-316.
- Goldschmidt, O., & Weller, L. (2000). 'Talking emotions': Gender differences in a variety of conversational contexts. *Symbolic Interaction*, 23, 117-135.
- Gottman, J. (1998). Psychology and the study of marital processes. *Annual Review of Psychology*, 49, 169-197.
- Gottman, J. M. (1999). *The marriage clinic: A scientifically based marital therapy*. New York: Norton.
- Gottman, J. M., & Porterfield, A. L. (1981). Communicative competence in the non-verbal behavior of married couples. *Journal of Marriage and the Family*, 43, 817-824.
- Givens, David B. (1976). *An Ethological Approach to the Study of Human Non-verbal Communication*. Ph.D. dissertation in Anthropology, University of Washington.
- Gyue-Vuilleme, A. (2004). Non-verbal communication interface for collaborative virtual environments. [Http://ligwww.epfl.ch](http://ligwww.epfl.ch).
- Hall, J. A. (1984). *Non-verbal sex differences: Communication accuracy and expressive style*. Baltimore, MD: The Johns Hopkins University Press.
- Hall, J. A., & Veccia, E. M. (1990). More "touching" observations: New insights on men, women, and interpersonal touch. *Journal of Personality and Social Psychology*, 59, 1155-1162.
- Hall, J. A. (1998). How big are non-verbal sex differences? The case of smiling and sensitivity to non-verbal cues. In D. J. Canary & K. Dindia (Eds.), *Sex differences and similarities in communication: Critical*

- essays and empirical investigations of sex and gender in interaction* (pp. 155–178). Mahweh, NJ: Erlbaum.
- Hall, J. A., Andrzejewski, S. A., & Yopchick, J. E. (2010). psychosocial correlates of interpersonal sensitivity: A meta-analysis. *Journal of Nonverbal Behavior*, 33, (3), 149-180
- Hannah, A., & Murachver, T. (1999). Gender and conversational style as predictors of conversational behavior. *Journal of Language and Social Psychology*, 18, 153-157.
- Heaton, T. B., & Blake, A. M. (1999). Gender differences in determinants of marital disruption. *Journal of Family Issues*, 20, 25-46.
- Heaton, T. B. (2002). Factors contributing to increasing marital stability in the United States. *Journal of Family Issues*, 23, 392-409.
- Holman, T., & Larson, J. (1994). The development and predictive validity of a new Premarital assessment instrument: The PREPARATION for marriage questionnaire. *Family Relations*, 43, 46-52.
- Hooley, J. M., & Hahlweg, K. (1989). Marital satisfaction and marital communication in German and English couples. *Behavioral Assessment*, 11, 119
- Ickes, W., Stinson, L. Bissonnette, V., & Garcia, S. (1990). Naturalistic social cognition: Emphatic accuracy in mixed-sex dyads. *Journal of Personality and Social Psychology*, 59, 730–742.
- John, Smith. (2002). Non-verbal decoding skills and marital satisfaction. http://keelcourses.net/498_sample_c.pdf .
- Kahn, M. (1970). Non-verbal communication and marital satisfaction. *Family Process*, 9, 449-456.
- Kelly, A., Finchman, F., & Beach, S. (2003). *Communication skills in couples*. New York : Lea.
- Koerner, A. F., & Fitzpatrick, M. A. (2002). Non-verbal communication and marital adjustment and satisfaction: the role of decoding relationship relevant and relationship irrelevant affect. *Communication monographs*. 69, 1, 33-51.

- Lazaridès, A., Bélanger, C., & Sabourin, S. (2010). *Communication behaviors as predictors of long-term dyadic adjustment: personality as a moderator. World Academy of Science, Engineering and Technology*, 66, 228-235.
- Markman, H. J., Rhoades, G. K., Stanley, SM., Erica P. Ragan, E. P., & Whitton, S. W. (2010). The premarital communication roots of marital distress and divorce: The first five years of marriage. *Journal of Family Psychology*, 24, (3), 289-298.
- Miller, R. D. (2000). Misconceptions about the U-shape curve of marital satisfaction over the life course. *Family Science Review*, 13, 60-73.
- Noller, P. (1980). Misunderstandings in marital communication: A study of couples' non-verbal communication. *Journal of personality and social psychology*, 39, 1135-1148.
- Noller, P. (1981). Gender and marital adjustment level differences in decoding messages from spouses and strangers. *Journal of Personality and Social Psychology*, 41, 272-278.
- Noller, P., & Gallois, C. (1986). Sending emotional messages in marriage: Non-verbal behavior, sex and communication clarity. *British Journal of Social Psychology*, 25, 287-297.
- Noller, P. (1992). Non-verbal communication in marriage. In R. S. Feldman (Ed.), *Applications of non-verbal behavioral theories* (pp. 31-59). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Obasa, J. (1990). *Work commitment, marriage role expectations and marital adjustment of married men and women in Kwara State*. Unpublished Ph. D Thesis, University of Ilorin, Nigeria.
- Orbuch, T. L., House, J. S., Mero, R. P., & Webster, P. S. (1996). Marital quality over the life course. *Social Psychology Quarterly*, 59, 162-171.
- Patel, A., & Patel, H. J. (2009). A study of opinion of female regarding marital adjustment in beginning stage of marriage. *International Research Journal* 2, 7, 88-90.
- Patterson, M. L., & Edinger, J. A. (1987). A functional analysis of space in social interaction. In A. W. Siegman & S. Feldstein (Eds.), *Non-verbal behavior and communication* (pp. 523-561). Hillsdale, NJ: Erlbaum.

- Reynolds, W., Remer, R., & Johnson, M. (1995). Marital satisfaction in later life: An examination of equity, equality, and reward theories. *International Journal of Ageing and Human Development*, 40, 155-173.
- Rosip J. C., & Hall J. A. (2004). Knowledge of non-verbal cue, gender and non-verbal decoding accuracy. *Journal of non-verbal behavior*, 28, 267-286.
- Segrin, C., & Abramson, L. Y. (1994). Negative reaction to behaviors: A communication theories analysis. *Journal of Abnormal Psychology*, 103, 655-668.
- Spanier, G. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 38, 1, 15-28.
- Spanier, G. B., & Thompson, L. (1982). A confirmatory analysis of the dyadic adjustment scale. *Journal of Marriage and the Family*, 44, 3, 731-738.
- Steven W. Strackbein (2001). *Spousal assessment of marital satisfaction on multiphase Internal aspects of the marital relationship*. Master of Science dissertation, University of Wisconsin Stout.
- Tannen, D. T. (1990). *You just don't understand: Women and men in conversation*. New York: Random House, Inc.
- Wagner, H. L., Buck, R., & Winterbotham, M. (1993). Communication of specific emotions: Gender differences in sending accuracy and communication measures. *Journal of Non-verbal Behavior*, 17, 29-53.
- Whyte, M. K. (1990). *Dating, mating, and marriage*. New York: Aldine de Gruyter.
- Yalcin, B. M., & Karahan, T. F. (2007). Effects of a couple communication program on marital adjustment. *Journal of the American Board of Family Medicine*, 20, (1), 36-44

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