

Attitudes toward Physical Contact in a Therapeutic Setting: Role of Gender and Expertise

Priyanka D. Joshi, Maureen Almeida and Prabha D. Shete
University of Southern California, USA St. Xavier's College, Mumbai University of Pune, Pune

Counselor initiated touch in therapy is a much debated topic. Yet there is a growing consensus about the positive effects of therapeutic touch while acknowledging that when used inconsiderately touch can harm clients. 61 counselors and therapists completed a questionnaire about attitudes toward touch in therapy and the frequency of touch use. Most counselors believed that non-erotic and ethical touch had positive effects on clients. There was a significant main effect of therapist gender on attitudes towards touch, $F(1, 57) = 9.05, p < .003$, and frequency of touch use, $F(1, 57) = 6.4, p < .05$. Female therapists had more positive attitudes toward touch and were more likely to use touch in therapy as compared to male counselors. The paper calls for an open discussion among therapeutic community about the benefits and possible negative effects of touch in a therapeutic relationship.

Keywords: Physical contact, Therapeutic touch, Non erotic touch

Touch has been considered a potent rapport builder and communication medium but has received only modest research attention. Touch can serve to direct a client's attention, console them, greet them, or may be a spontaneous and genuine aspect of the therapeutic relationship. Touch or ethical physical contact between therapist and client can vary from handshake to an embrace. It is accepted that ethical touch is non erotic and is based on clinical judgment. Therapists differ in the extent to which they use touch in their clinical practice and physical contact here is seen as adjunct to communication or a means to enhance therapeutic interaction, rather than a method of therapy.

In the early stages of therapy, touch can be an effective means of establishing rapport with the client (Hunter & Struve, 1997; Zur, 2007). Placing a hand on the shoulder of a troubled or stressed patient can communicate comfort, safety, and help convey empathy and establish trust. Handshakes and embraces

may communicate a sense of teamwork. When clients are children they may be very comfortable with being touched and touch may symbolize a parent figure. Aquino and Lee (2000) suggest that teaching children the use of touch can facilitate the expression of positive emotion. For older adults, when other senses are not as functional, touch might be a good way of communicating a therapists concern and affection and may reduce the sense of isolation often experienced in old age (Huss, 1977). Touch also seems to communicate acceptance of the client and tends to enhance their self esteem (Horton et al., 1995; Phalan, 2009). Physical contact in therapy can also help direct clients attention and can serve to highlight the importance of some statements. Touch is often used for greeting, departure, and for congratulating and is seen as one of the gifts that a therapist may be willing to offer to the client- it is not necessary but can be beneficial (Smolar, 2002).

Bodily contact is essential for normal growth (Montagu, 1978; Turp, 2000) and the absence of human touch in early growth is associated with abnormal social behavior, aggressive tendencies, emotional disorder, and attachment problems (Field et al., 1992; 1996). Some therapists believe that therapeutic touch can rectify the harm caused by paucity of physical contact in early relationships (Rothschild, 2000). Hunter & Struve (1997) suggest that touch may also serve to heal past emotional experiences by engaging in reparenting exercises. For clients who have been abused as children, both physically and sexually, touch has negative connotations. Reparenting through facilitating transference can help to communicate that touch is not always unsafe and harmful and they may then be better able to accept their own bodies and the touch of others (Howard, 1995; Schdesinger & Applebaum, 2000).

In a non therapeutic relationship when touch is employed while communicating, it seems to enhance rapport and trust and enhances self disclosure (Phalan, 2009). Other studies have found that touch increases compliance (Joule, 2007). In previous research, therapists who touched clients were seen as being more trustworthy, having greater expertise and being more likeable and friendly (Zur, 2007). Touch used by the therapist while communicating with client has also been associated with greater willingness for self exploration (Pattison, 1973; Phalan, 2009). The use of physical contact in therapy has been associated with positive therapeutic outcomes in some research (Suiter & Goodyear, 1985; Zur, 2007), although has not been consistently replicated (Cowen, Weisberg, & Letycyewski, 1983).

Possible negative effects of touch in therapy

One of the most common reasons for opposing the use of touch in therapy is that it reinforces power dynamics in a therapeutic setting, especially when the touch is non-

reciprocal (Bonitz, 2008; Zur, 2007). Due to the nature of the therapeutic relationship, the therapist tends to have a higher status and more power. Touch may reinforce these power hierarchies making the client feel incapable and less empowered. The client may feel a sense of dependence and would thus reduce his or her sense of personal responsibility which is vital for the success of therapy (Howard, 1995; McLaughlin, 1995). In general it is accepted that when touch is reciprocal, it is associated with enhancing empathy, but when it is non-reciprocal, touch is seen as showing dominance (Alyn, 1988; Karbelnig, 2000).

Touch may be easily misconstrued by some clients. Clients who have been physically or sexually abused may view the use of touch with suspicion (Ball, 2002; Gertheil & Gabbard, 1993). Touch could be used in such cases only after initial rapport has been established. When touch is not in line with the emotional connection between the therapists and client, it can lead to discomfort. Touch may be seen as intruding the clients' space when used inappropriately (Fawn, 2004). In some cases touch could result in a tendency for aggressive behavior especially when the client suffers from severe pathology. Also there are gender differences in effects of touch which complicates the use of touch with clients. In general physical contact seems to have more beneficial effects for women than men and women tend to use touch more frequently than men (Hall & Veccia, 1990; Steir & Hall, 1984).

Another criticism of the use of touch in therapy is that it could lead to sexual behavior between client and therapist. The slippery slope assumption is that touch might result in boundary violations and sexual behavior (Karbelnig, 2000; Shimberg, 1986). While sexual exploitation of clients is equivalent to incest and produces severe psychological damage to clients, the use of non erotic touch in therapy is not associated with sexual

behavior with clients and research does not support the assumption that physical contact invariably results in unethical behavior (Bonitz, 2008; Zur, 2007).

Research has not consistently supported the positive effects of touch. Cowen et al (1983) found that physical contact between a clinician and child does not predict how well the child responds to treatment; they reasoned that touch may have minimal personal meaning for children, who are touched more frequently than adults. Stockwell and Dye (1980) studied the effect of counselor touch on clients' evaluation of counseling and level of self exploration. On controlling for other non verbal cues such as eye contact and facial gestures touch per se had no significant effect on client evaluations. Bacorn and Dixon (1984) compared the effects of touching on the hand, shoulder, leg or upper back of depressed and vocationally undecided clients with a control group during an initial interview. They found no significant difference with respect to participants' judgment about counselors or request for second interview. Thus, there are no clear answers about the benefits of touch in therapy and there is some data suggesting that touch can be misinterpreted and needs to be used with expertise and caution.

The purpose of the current study is to understand beliefs among therapists in India about the use of touch in therapy. We do not focus on body therapy techniques such as massage techniques but defined touch as an important aspect of interpersonal communication in a therapeutic relationship that meets ethical boundaries and is not erotic (Wilson & Mason, 1986; Zur, 2007). Just as gestures and movement are non verbal means of communication and frequently used in therapy, we see touch as another aspect of non verbal means of communication that may play a role in communication with clients. Psychologists were also identified based on sex and years of experience. We examine beliefs about positive and negative effects of

touch, counselor and clients comfort with touch, and beliefs about opposite sex touch.

Method

Participants:

61 counselors and psychotherapists participated in the survey. 23 (37%) were male and 38 (63%) were female. 29 (47%) had an experience less than 5 years and 32 (53%) had an experience of more than 6 years. Most psychotherapists and counselors had a master's degree in clinical or counseling psychology. The mean age of counselors was 35.83 years. The mean years of experience for the below 5 years experienced group was 3.32 and for the experienced group was 12.28 years.

Measures:

Attitudes toward touch in therapy -

Due to lack of previous measures of touch in therapy, the questionnaire on counselors attitudes towards touch was developed by us based on a thorough survey of available literature and was reviewed by experts in therapy. 30 item measure was developed that consisted of items measuring beliefs in positive effects of touch such as inducing comfort, establishing rapport, communicating acceptance, as well as therapists level of comfort about using touch in therapy. Some of the items dealt with beliefs about negative effects of touch such as touch can lead to erotic behavior, can sexually arouse a client, and can be misinterpreted. All items were scored on a five point likert scale with 1 indicating strong disagreement and 5 indicating strong agreement. Items that indicated a belief that touch was beneficial in therapy were positively scored and items that indicated a belief that touch was harmful when used in therapy were negatively scored. A total attitude score was derived by adding scores for all 30 items. The attitude toward touch scale gave an estimate of positive attitudes toward touch. Counselors who supported the use of touch, felt that they were comfortable using touch, and believed

that negative effects of touch did not occur frequently scored high on this scale. Scale α was .67.

Frequency of touch: Therapists indicated on a single item 5 point likert scale the frequency of touch used in their therapy sessions with 1 indicating almost never and 5 indicating almost always.

Procedure:

112 counselors and psychotherapists were identified from the telephone directory of Mumbai district and were given a phone invitation to participate in the survey. Those who agreed to participate were then sent the questionnaire with a self addressed stamped envelope. A phone reminder was sent again if the questionnaire was not returned within 15 days.

Results

Counselor's total score on the attitude scale as well as their responses to individual item was studied. The average score on attitude towards touch was 92.18 ($SD= 18.83$) for male less experienced counselors, 111.21 ($SD=15.19$) for female less experienced

counselors, 99.02 ($SD=16.8$) for male experienced counselors, and 107.98 ($SD = 19.18$) for female experienced counselors (See Figure 1). The two way ANOVA indicated that there was a significant effect of sex of therapist, $F(1, 57) = 9.05, p = .003$. The main effect of level of experience (less than 5 years and more than 5 years) was not significant, $F(1, 57) = .15, p= .70$, and the interaction effect of sex of the therapist and level of experience was not significant, $F(1, 57) = 1.17, p = .28$.

Descriptive data analyses were computed to understand the general trends in attitudes toward physical contact. For each of the items, percentages were calculated by combining frequencies for 'agree and somewhat agree' and 'disagree' and somewhat disagree.' We did not calculate mean scores for items as they might not adequately explain variability in data and we felt that percentages were better able to communicate the findings. Keeping in mind that many researchers do not see likert scales as a continuous measure, using descriptive instead of inferential statistics may be a good means of analyzing data.

Table 1: Percentage of counselors showing agreement with following statements about touch in therapy based on sex and level of experience

Items from attitude scale	Male less	Male	Female less	Female
			experienced	
I am comfortable using touch with clients	25%	64%	78%	85%
I have adequate professional training in using touch	8%	45%	39%	35%
Indian clients are comfortable being touched	17%	27%	28%	45%
Counselors should restrict their touch to same sex clients*	25%	27%	28%	25%
Non erotic physical contact may benefit the client	50%	73%	72%	100%
Non erotic physical contact may harm the client*	33%	8%	5%	4.5%
I hold the view that touch leads to dependence of the client on counselor*	58%	45%	17%	33%
I believe that physical contact with clients is likely to lead to sexual touch*	45%	18%	0%	0%
Physical contact may arouse sexual desire in the client for the counselor*	42%	64%	11%	25%

*items negatively scored in the attitude towards touch in therapy scale

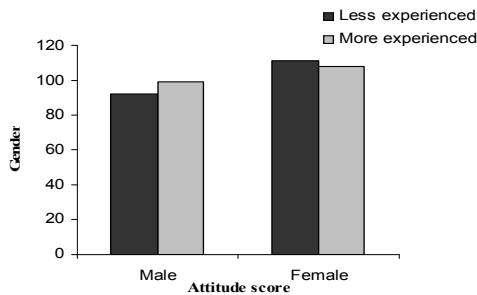


Figure 1: Mean score on attitude toward touch in therapy scale based on sex and level of experience of therapist

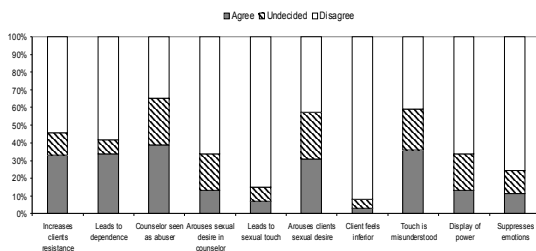


Figure 2: Counselors beliefs about the positive effects of touch in therapy

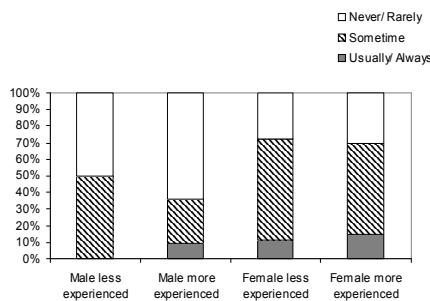


Figure 3: Counselors beliefs about the possible negative effects of touch in therapy

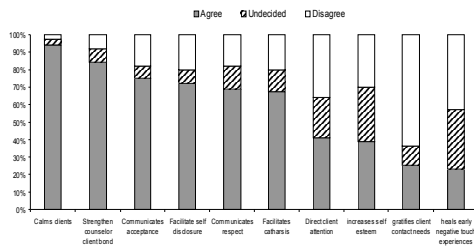


Figure 4: Frequency of physical contact with clients based on sex and level of experience of therapist.

When asked to state their agreement or disagreement with the statement “I am comfortable using non erotic touch with my clients”, 67% of the counselors agreed whereas 23% disagreed. The differences with respect to sex and experience are demonstrated in figure 2. Table 1 shows counselors agreement on various issues about touch as reflected by their responses to items on the attitude scale. As supported by scores on the attitude scale, even responses to individual items indicates that women counselors view touch as being more beneficial to client than male counselors and they are likely to see touch as less harmful and prone to misinterpretation than male counselors.

Only 31% of counselors felt that Indian clients were comfortable being touched. It was consistently seen across the statements about the benefits of touch that female counselors were more likely to agree with the statements as compared to male counselors. They tended to emphasize touch more than men. Less experienced male counselors were least likely to believe in any of the positive effects of touch. Figure 3 shows Indian counselors beliefs about the possible benefits of touch. Figure 4 shows Indian counselors agreement and disagreement with items about negative effect is touch.

A single item measure was used to get an estimate of frequency of touch in therapy. There was no significant correlation between the attitude score and the reported frequency with which counselors touched their clients, $r = .06$. 11% of the counselors never touched their clients, 28% rarely touched clients, 51% sometimes touched their clients whereas 10% usually touched clients. A two way ANOVA indicated that there was a significant main effect of sex of counselor on frequency of touch score, $F(1, 57) = 6.4, p < .05$. There was no significant interaction effect of sex of counselor and level of experience on the frequency with which they used touch in

therapy. There was no main effect of level of experience. Figure 4 shows the difference in use of touch based on experience and sex of counselor.

In general, male inexperienced counselors were more likely than the other three groups to agree with statements about the possibility of negative effects of touch (Table-1). On the other hand female less experienced counselors were least likely to agree with the statements about negative effects of initiating physical contact with clients. Female counselors were also more likely to use touch in therapy as compared to male counselors and this finding was concordant with the finding that female counselors were more supportive of the use of touch in therapy as compared to male counselors.

Discussion

There were gender differences in the attitudes of Indian counselors toward touch as well as frequency with which they used touch in therapy sessions. Female counselors were more likely to view touch as beneficial and less likely to believe in the negative effects of touch. Counselors level of experience did not have a significant effect on attitude toward touch or the frequency of touch. The small sample in each cell of the ANOVA could have accounted for no significant interaction effect of sex and experience. Descriptive statistics indicated that male counselors with less than 5 years experience were most likely to hold the view that touch was not beneficial to clients and could harm them.

Female counselors were more likely to support the use of touch in therapy and also employed touch more frequently than male counselors. A number of factors can explain this gender difference in approach to physical contact in therapy with male counselors viewing touch as less beneficial than female counselors. Indian women are socialized to view opposite gender touch with suspicion. Physical contact is likely to be eroticized and

misinterpreted especially when initiated by men. Research also shows that the homophobic norms of the day have reduced same sex contact in case of men however have not affected contact between women (Anderson & Leibowitz, 1978; Hall & Veccia, 1990). Males seem to use less physical contact in day to day communication as compared to women. Females tend to use more physical contact with friends and hugging is more frequent among women and have more positive attitudes toward same sex touching (Larsen & LeRoux, 1984; Ngyuen, Heslin, & Ngyuen, 1975). Males tend to demonstrate same sex touch avoidance whereas females showed opposite sex touch avoidance (Larsen & LeRoux), thus indicating that both male and female clients might be more accepting of touch initiated by female counselors. Men are also more likely to misinterpret touch as having sexual intent (Derluga et al., 1989) and thus counselors may be more careful about initiating touch with male clients. Some research suggests that touch seems to have a more positive effect on female clients as compared to male client irrespective of the gender of the person employing the touch. Men tend to see touch as threatening and women find touch reassuring (Larsen & LeRoux; Whitcher & Fisher, 1979). Previous research supports the finding of current research that female therapists tend to use touch more than male therapists (Cowen et al., 1983; Holroyd & Brodsky, 1977; Pope, Speigel, & Jabachnik, 1986).

Femininity is associated with caring and empathy, touch is a natural part of emotional expression in case of women. However, men tend to disregard and conceal emotions especially in the presence of other men as it may threaten their masculinity. Thus male clients may be uncomfortable being touched by other men. The power play becomes more evident in male to male contact as the one being touched is in the vulnerable situation and

the client may be too threatened if put in such a position. Nevertheless men may be less likely to be defensive and threatened when the touch is initiated by a woman who occupies a socially subordinate position as compared to men. Also touch from older men may be seen as less threatening and thus older male counselors may have more positive attitudes toward touch than younger counselors.

Majority of the counselors believed that non erotic physical contact is beneficial for clients. The most commonly considered benefits of touch were that it helps to calm the client, strengthens the therapeutic bond, communicated acceptance and respect, facilitates self disclosure, and catharsis of emotions. Most counselors disagreed about other possible benefits of touch such as its ability to heal early experiences of incorrect touch and as a means to gratify unsatisfied contact needs and may reflect that most psychologists were not psychoanalytically oriented. A minority of therapists believed that touch could harm clients. About one third of the counselors felt that touch could increase clients resistance, lead to dependence, arouse sexual desire in the client, can be misunderstood as having sexual intent, and can result in the counselor being viewed as an abuser. Most therapists did not agree with the slippery slope hypothesis that ethical physical contact with clients can result in unethical boundary violations and sexual behavior with clients.

Despite the fact that most counselors believed that touch benefits clients very few incorporated it in their therapy. It may be relevant to note that most counselors felt that Indian clients were uncomfortable being touched and were cautious about clients reactions to opposite gender touch, which in turn may influence their decision to use physical contact. Seating arrangement in most counseling centers may make the possibility of physical contact with clients difficult. In most counseling centers counselor and client are

separated by a table which might require the counselor to get up and sit next to the client in order to touch him. Thus touching is inconvenient and if tried from their own seat may be awkward.

Most counselors believe that touch is beneficial in therapy which is in line with current research indicating that professional touch can benefit clients. Female counselors were more agreeable to positive effects of touch and used touch more frequently. Yet there was no clear relationship between attitudes and frequency of touch use. Most counselors did not believe that Indian clients were comfortable with touch. The study calls for an open discussion about therapists experiences employing physical contact with their clients and its effects on Indian clients. A greater consensus is also required about gender based touch and comfort levels among Indian clients with respect to touch. As culture progresses attitudes change and previously existing touch taboos may not be in vogue today.

References

- Alyn, J. N. (1988). The politics of touch in therapy. *Journal of Counseling and Development*, 66, 66-67.
- Anderson, P.A. & Leibowitz, K. (1978). The development and nature of the construct touch avoidance. *Environment Psychology and Nonverbal Behavior*, 6, 253-258.
- Aquino, A. & Lee, S. (2000). Use of nonerotic touch with children: Ethical and developmental considerations. *Journal of Psychotherapy in Independent Practice*, 1, 17-30.
- Ball, A. (2002). *Taboo or Not Taboo: Reflections on Physical touch in Psychoanalysis & Somatic Psychotherapy*. Australia: Psychoz Publications.
- Bonitz, V. (2008). Use of physical touch in the "talking cure": A journey to the outskirts of psychotherapy. *Psychotherapy: Theory, Research, Practice, Training*, 45, 391-404.
- Bacorn, C. & Dixon, D. (1984). The effects of touch on depressed and vocationally undecided

- clients. *Journal of Counseling Psychology*, 31, 488-496.
- Cowen, E. L., Weissberg, R. P., & Letycyewski, B. S. (1983). Physical contact in interactions between clergicians and young children. *Journal of Consulting and Clinical Psychology*, 51, 132-138.
- Derluga, V. J., Lewis, R. J., Harrison, S., Winstead, B. A., & Constanza, R. (1989). Gender differences in the initiation and attribution of tactile intimacy. *Journal of Nonverbal Behavior*, 13, 83-96.
- Fawn, M. (2004). Ethical considerations in the use of non erotic touch in psychotherapy with children. *Ethics and Behavior*, 14, 123-140.
- Field, T., Morrow, C., Valdeon, C., Larson, S., Kuhn, C., & Schanberg, S. (1992). Massage therapy reduces anxiety in child and adolescent psychiatric patients. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 125-130.
- Field, T., Seligman, S., Scafidi, F., & Schanberg, S. (1996). Alleviating posttraumatic stress in children following Hurricane Andrew. *Journal of Applied Developmental Psychology*, 17, 37-50.
- Gertheil, T. G., & Gabbard, G. O. (1993). The concept of boundaries in clinical practice: Theoretical and risk management dimensions. *American Journal of Psychiatry*, 150, 188-196.
- Hall, J. & Veccia, E. (1990). More 'touching' observations: New insights on men, women, and interpersonal touch. *Journal of Personality and Social Psychology*, 59, 1155-1162.
- Holroyd, J. C., & Brodsky, A. M. (1977). Psychologists attitudes regarding erotic and non erotic physical contact with patients. *American Psychologist*, 32, 839-844.
- Horton, J., Clance P.R., Sterk-Elifson C., Emschhoff J., (1995) Touch in psychotherapy: A survey of patients' experiences. *Psychotherapy*, 32, 443-457.
- Howard, E. (1995). The "erotic transference": some technical and countertransference difficulties. *American Journal of Psychotherapy*, 49, 505-513.
- Hunter, M. & Struve, J. (1997). *The ethical use of touch in Psychotherapy*. USA : Thompson Publishing.
- Huss, J. (1977). Touch with Care or a Caring Touch? *American Journal of Occupational Therapy*, 31, 12-18.
- Joule, R. V. (2007). Touch, compliance, and awareness of tactile contact. *Perceptual and Motor Skills*, 104, 236-249.
- Karbelnig, A. (2000). Physical contact between psychotherapist and patient: Ethical, legal, and psychoanalytical considerations. *The California Psychologist*, 33, 32-34.
- Larsen, K. L. & LeRoux, J. (1984). A study of same sex touching attitudes: Scale development and personality predictor. *Journal of Sex Research*, 20, 264-278.
- McLaughlin, J. T. (1995). Touching limits in the psychoanalytic dyad. *Psychoanalytic Quarterly*, 54, 443-465.
- Montagu, A. (1978). *Touching: the human significance of the skin*. New York: Harper and Row.
- Ngyuen, T., Heslin, R., & Ngyuen, M. (1975). The meanings of touch: Sex differences. *Journal of Communication*, 25, 92-103.
- Pattison, J. E. (1973). Effects of touch or self exploration and the therapeutic relationship. *Journal of Consulting and Clinical Psychology*, 51, 132-138.
- Phalan, J. E. (2009). Exploring the use of touch in the psychotherapeutic setting: A phenomenological review. *Psychotherapy: Theory, Research, Practice, Training*, 46, 97-111.
- Pope, K. S., Spiegel, P., & Jabachnik, B. (1986). Sexual Attraction to clients; the human therapist and the sometimes inhuman training system. *American Psychologist*, 41, 147-158.
- Rothschild, B. (2000). *The Body Remembers: The Psychophysiology of Trauma and Trauma Treatment*. New York; Norton.
- Schdesinger, H., & Appelbaum, A. (2000). When words are not enough. *Psychoanalytic inquiry*, 20, 124-143.
- Shimberg, B. (1986). Preventing sexual exploration of clients by counselors: A plan for proactive care. *Journal of Counseling and Development*, 65, 119-120.
- Smolar, A. I. (2002). Reflection on gifts in therapeutic setting. *American Journal of Psychotherapy*, 56, 27-45.

- Stier, D. & Hall, J. (1984). Gender differences in touch: an empirical and theoretical review. *Journal of Personality and Social Psychology*, 47, 440–459.
- Stockwell, S. R., & Dye, A. (1980). Effects of counselor touch on counseling outcome. *Journal of Counseling Psychology*, 27, 443-446.
- Suiter, R. L., & Goodyear, R. K. (1985). Male and female counselor and client perceptions of four levels of counselor touch. *Journal of Counseling Psychology*, 32, 645-648.
- Turp, M. (2000). Touch enjoyment and health in adult life. *European Journal of Psychotherapy, Counseling and Health*, 3, 61-67
- Whitcher, S & Fisher, J (1979). Multidimensional reaction to therapeutic touch in a hospital setting. *Journal of Personality and Social Psychology*, 37, 87–96.
- Wilson, D. J., & Mason, R. (1986). The role of touch in Therapy: An adjunct to communication. *Journal of Counseling and Development*, 65, 497-500.
- Zur, O. (2007). Touch In Therapy and The Standard of Care in Psychotherapy and Counseling: Bringing Clarity to Illusive Relationships. *U.S. Association of Body Psychotherapy Journal*, 6, 61-93.

Received: August 20, 2009

Revision received: September 18, 2009

Accepted: November 10, 2009

Priyanka D. Joshi, # 602, 3 A Hill Drive, Amritvan, Goregaon, Mumbai-400 063, Email: priyankajoshi2006@gmail.com

Maureen Almeida, St. Xavier's College, Mumbai,

Prabha D. Shete, University of Pune, Pune

JIAAP Full text Back volumes (2005 to 2008)
are available at www.medind.nic.in

IndMED - A bibliographic database of Indian Biomedical Research

It is a matter of great pleasure that for appropriate publicity of Indian Biomedical Research, Indian MEDLARS Centre, under the National Informatics Centre, has designed and developed a database entitled IndMED meeting international standards. The database is accessible fulltext on Internet at the website [http:// medin.nic.in](http://medin.nic.in). Fulltext of 38 journals taken up for the IndMED. Authors are requested to include abstracts with their papers while sending their papers for publication in future.

For IndMED details please write to:

Bibliographic Informatics Division

National Informatics Centre

(Department of Information Technology)

A-Block, CGO Complex, Lodhi Road,

New Delhi-110 003, India.

Telephone: 91-11-24362359, Fax: 91-11-24362628

Email: medinfo@nic.in