Therapists' Postures: Response to Spinal Alignment

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Because effective communication appears paramount in psychotherapy sessions, it seems valuable for therapists to understand the role nonverbal behavior may play in communication in this setting. This study examines how a therapist's spinal alignment, defined as the organization of the three primary body weights (the skull, thorax, and pelvis) around a vertical plumbline, affects clients' perceptions of themselves. As measured by the Counselor Rating Form (Barak & LaCrosse, 1975), in this study client ratings of a therapist's trustworthiness, attractiveness, and expertise did not differ significantly between when the therapist was sitting in spinal alignment and when sitting with a ten degree slouch. In addition, no significant differences in attributed therapist energy level based on this construct were demonstrated. Possible explanations for this finding and future directions in research in this area are explored.

Introduction & Review of the Literature

As much as eighty-five percent of communication is nonverbal (Young, 1998). In addition, most psychotherapy relies on client self-expression and effective therapist-client communication. Because many therapeutic techniques depend on communication between the therapist and client for successful treatment, and because so much of communication is nonverbal, understanding how nonverbal communication functions in this realm appears critical for maximum treatment effectiveness. For this reason, this study explored whether therapists' spinal alignment affected evaluations of therapists' trustworthiness, expertness, and attractiveness. Spinal alignment is defined as the organization of the three primary body weights (the skull, thorax, and pelvis) around a vertical plumbline (Olsen, 1998). "Perhaps by expanding [one's] conception of communication to include body language, by examining form as well as content, a therapist will be able to enhance and amplify [his/her] relationship with...patients" (Mohacsy, 1995, p. 31).

Consistent with the growing popularity of both body and movement therapies and the literature supporting their effectiveness, physical movements and positions appear to impact individuals' emotional experiences (Rossberg-Gempton & Poole, 1993). Open and closed postures, for instance, have been found to impact the emotional states of the people assuming them (Pool, 1997). Crossed arms and legs, and leaning back are generally considered closed postures, while open postures are the opposite. In one study, three different open postures significantly decreased positive feelings (happiness, agreeableness, interest, and surprise), while three different closed postures significantly increased negative feelings (fear, anger, sadness, and disgust), with the latter finding having over twice the effect size as the former (Rossberg-Gempton & Poole, 1993). The open and closed postures were defined by the positioning of subjects' arms, legs, and heads, as well as the angle of the leans of their torsos, but not by spinal alignment. The authors reported that a likely reason no increase in positive feelings or decrease in negative feelings was found was because the beginning emotional states of most participants was positive, leaving less room for growth in positive emotions or opportunity for decreasing negative emotions.

Another similar study showed that open postures were associated with increased positive emotions, whereas closed postures elicited negative emotions (Rossberg-Gempton et al., 1992). Because of the effect posture may have on emotion, and because studies show that high distress levels in therapists may prevent the growth of clients, or even lead to negative changes in them, a therapist's posture may indirectly affect therapeutic outcome (Begin and Garfield, 1994). According to Begin and Garfield (1994), the well-being and adjustment of the therapist plays a role in optimal therapeutic results. These effects of posture relate to "postures as felt," a term which refers to the experience of a posture (James, 1890). "Postures as seen," in contrast, relates to the observation of postures (James, 1890). These terms are useful because postures appear to affect both the one assuming the posture, and those observing him or her.

Nonverbal communication is an example of the utilization of "Postures as seen." Much is already known about how people express themselves without words and embody their emotions. From facial expressions to subtle postural shifts, people use physical cues to guide social interaction, both consciously and unconsciously. Research shows, for instance, that postural congruence, or the amount of similarity between the postures assumed by two individuals, appears to affect how much the individuals like each other (Maxwell & Cook, 1997). More similar postures between the individuals leads to or reflects increased liking between them (Maxwell & Cook, 1997). Research on "Postures as seen," also shows that particular body language is more socially acceptable to people in certain contexts than others (Harrigan et al., 1991). People judged individuals seen rubbing their hands together as more socially acceptable when told that the people were patients or job applicants, roles in which anxiety might be expected. In contrast, nose rubbing was considered more socially acceptable with friends than strangers. The controls in this study, who did not move, were viewed as more "calm and dominant, but less expressive, warm, and interested" (Harrigan et al., 1991, p. 585). Harrigan et al. (1991) also found that people seen touching their arms were considered "anxious, submissive, cold, and bored, but also as expressive" (p. 604). These findings indicate that people respond to nonverbal expression, and that contexts may play a role in their responses.

Something as subtle as integrated body movements, judged by Posture-Gesture Mergers (PGMs), corresponds with more truthful and relaxed verbal communication (Winter, 1989). PGMs are defined as when a person's postures (involving the whole body) lead into gestures (involving only part of the body) or the reverse, showing a consistency between what the two kinds of body languages are saying. An example of a PGM could be a situation where both a person's overall posture and his/her gestures suggest the person is frustrated. Four experiments have demonstrated the effects of PGMs (Winter, 1989). In one of the four studies, trained observers found more PGMs when they analyzed videos of subjects in a situation when they were told to tell the truth than one in which they were instructed to lie (Winter, 1989). Further data on the effects of "posture as seen," is evident in another study in which particular body movements, thought to correspond with particular emotions, were videotaped. These videos were used to determine whether participants judged the people in the videos as having the emotions their postures were predicted to express (Meijer, 1989). The study found that participants did attribute the anticipated emotions to individuals in corresponding postures, and that combinations of movements caused specific attributions to be made about the movers. The movement of the torso was found to be particularly potent in expressing emotions. The author concluded that torso movement "may reflect the subject's overall readiness to interact and to deal with his or her surroundings," considerations relevant to a psychotherapy session (Meijer, 1989, p. 265).

Some studies on the effects of posture have already been done in a therapeutic context. The observed postures of therapists and couples in couple's therapy were shown to reflect the degree to which the group or each individual was ready to interact and committed to involvement in the therapy session (Roten et al., 1999). Particular therapist postures have been shown to lead to better therapeutic outcomes than other postures (Carhuff, 1983). In particular, leaning forward and maintaining an open posture, here defined as sitting with one's feet on the floor, four to seven inches apart, with one's arms resting on the arms of the chair, is more effective than leaning back or maintaining a closed posture, defined as crossing one's arms and legs. One study showed that although therapists' open postures did not increase client evaluation of therapists' attractiveness or trustworthiness, it did significantly increase their evaluations of therapists' expertness, communicating a sense of confidence and involvement with clients (Ridley & Asbury, 1988). Trustworthiness, attractiveness, and expertness were measured by the Counselor Rating Form (CRF) (Barak & LaCrosse, 1975). Therapists also gestured more when assuming open postures than closed. The authors state that this finding may suggest an increase in spontaneity and freedom associated with open postures.

If part of the reason "open" postures appear to increase the effectiveness of therapy is because they are related to clients' perceptions of therapists as more open (and possibly, then, more available or receptive), then other postures considered open may have the same effect. Though in microcounseling open and closed postures refer to the difference between crossed and uncrossed arms or legs, (Carhuff, 1983; Ridley & Asbury, 1988) other professions appear to define them in other ways. In dance and yoga, for instance, an open posture is one that reflects the proper alignment of one's spine so that the tips of its three curves would all just touch an imaginary vertical line drawn down the center of the body (Olsen, 1998, p. 51). It would also include the most efficient placement of the cranium on its axis, so it is balanced in relation to gravity (Olsen, 1998). Because particular open postures for therapists have already been found more effective in treating clients, postures considered "open" in other fields may yield the same effect and thereby increase the specificity of advice yielded to therapists about effective postures for them. No research, however, is currently available to determine whether a therapist's postural alignment affects therapeutic process and outcome.

Despite the lack of research on spinal alignment in relation to therapists' effectiveness, consideration of the research on spinal alignment in general reflects the rationale for the present study. Showing that postures do not just reflect internal states, but can produce them, Riskind & Gotay (1982) found that tasks designed to cause learned helplessness were more effective when performed by people in slouched spinal positions than erect spinal positions. Those sitting up straight continued working on tasks without giving up for longer than those sitting in slouched positions (Riskind & Gotay, 1982). In another study, clinical case studies were used by Lowell Ward (1981) to create postural-personality profiles reflecting the correlation he found between particular spinal alignments and particular personality types or profiles, including sexual abuse, over-defensiveness, parental conflict, and level of ego strength (Ward, 1981: as cited in Koren & Rosenwinkel, 1992). Another study furthered this research by correlating spinal alignment with personality types as defined by the Minnesota Multiphasic Personality Inventory (MMPI) (Koren & Rosenwinkel, 1992). This study found that the angle of the atlas (where the head connects to the spine) predicted subjects' levels of hypochondriasis, paranoia, and hysteria. Spinal length was correlated with the masculinity/femininity scale ($p < .001$). These findings were true in the analysis of both subjects' sitting and standing postures. It seems from these several studies that spinal alignments correspond to personal traits and characteristics, possibly communicating these to others.

The muscle relaxation allowed by spinal alignment, explained below in the discussion of how spinal alignment functions physically, may also play a role in therapy. Spinal alignment is used in practices such as meditation and in the treatment of lower back pain caused by improper postures (Olsen, 1998). Poor postural alignment can be generally defined as "when the head is held forward in relation to the trunk or when the shoulders appear slouched forward;" (Raine & Twomey, 1997, p. 1215). Posture in which one's head juts forward is "linked to musculoskeleton dysfunction and pain including craniofacial pain, headache, and shoulder pain" (Raine & Twomey, 1997, p. 1215). Alignment of one's spine allows the force of gravity to travel down the body without placing stress on particular areas of the back or neck. The bones may rest on each other, requiring minimal muscular work. Thus, the nervous and endocrine systems may interpret, respond, and direct unhindered, while the organs can function with minimum restriction and compression (Olsen, 1998). Efficient postures, then, allow release, as opposed to the holding of postural tension. Muscle relaxation, as allowed by efficient body postures, has been found to relate to increased mental performance: attention, memory, and thinking (Legostaev, 1996). These aspects of mental functioning appear important for a therapist to utilize during a treatment session with a client. In addition, posture and muscular relaxation training have been shown to significantly increase visual acuity, visual field, and hearing acuity (Konno, 1997). These heightened sensory levels may also play a role in a therapist's effectiveness. In addition, muscle relaxation has been shown to decrease or alleviate anxiety and guilt feelings (Laird, 1984; Rasid & Parish, 1998). Decreasing these negative emotions may prove beneficial to therapy, as suggested by the already-mentioned research showing that therapists' emotional states impact therapeutic outcome.

Consideration of postural alignment has already been taken into account in one therapeutic technique. Systems-Centered Psychotherapy (SCT), a technique growing in popularity among therapists in the last ten years, requires therapists and clients both to sit "centered," which is defined as sitting up straight, over one's sitz bones (the part of the pelvis one can feel on the chair or floor when sitting up straight) with one's feet planted on the ground (Agazarian, 1997). SCT theory holds that in addition to decreasing anxiety and tension, an erect, but relaxed, posture provides clients more energy to put toward therapeutic exploration (Agazarian, 1997). In support of this theory, one medical study found that participants going from erect to slouched postures uniformly decreased in their principal resonance frequency (Kitazaki, 1998). Results suggest that spinal alignment affects the vibrational level of the body. If principal resonance translates into working energy, which the author does not specify, this finding may indicate alignment could provide the therapist more energy available for attending to clients. In addition, body alignment is considered helpful in effective group therapy for alleviating postural pains and preventing immediate transferences that people invite through their usual postures (Agazarian, 1997). For example, someone maintaining an especially authoritative posture may elicit either obedience or rebellion from others. Supportive of this stance, Berne claimed he could tell when a client assumed a role by watching his/her body: "there is a characteristic posture, gesture, mannerism, tic, or symptom which signifies [a client] is living in his script or has gone into his script" (Berne, 1971, p. 315).

Summary

Nonverbal communication affects the experience of the person moving or assuming particular postures ("postures as felt"), allows him/her to express him/herself, and has an effect on those observing this person ("postures as seen"). Research on spinal alignment showing, for instance, its connection to physical health and personality, suggests it may be an important part of body posture. That spinal alignment is considered an open posture in several fields of study suggests spinal alignment may function as an open posture in therapy, therefore increasing the effectiveness of therapy as other open postures have been found to do. Research on social learning theory shows that clients' evaluations of therapists' trustworthiness, attractiveness, and expertness all correspond with treatment outcome (Lacrosse, 1980). Better therapeutic outcomes are found when a client rates his/her therapist as more trustworthy, attractive, and expert than when he/she gives lower ratings (Lacrosse, 1980). Therefore, if clients' ratings of therapists change depending on the therapists' spinal alignments, this may suggest different therapeutic outcome between clients with therapists in spinal alignment and clients with therapists who are not. Hence, determining whether spinal alignment effects clients' evaluations of therapists on the above criteria appears an appropriate first step in discovering whether postural alignment might effect the therapeutic process. This determination, however, would focus on only one possible way that spinal alignment could affect therapeutic outcome out of the many discussed.

By focusing on how a therapist's spinal alignment might elicit different ratings from observers, the study utilized "postures as seen." Also related to "postures as seen," observers were asked to rate therapist energy level in addition to the traditionally measured constructs of trustworthiness, attractiveness, and expertness. The differences in ratings of perceived therapist energy level when in and out of postural alignment will provide a first step in determining whether a therapist's energy level may be higher in spinal alignment than in other postures. The hypothesis of this study was that people will rate a therapist in a simulated videotape as more trustworthy, attractive, expert and energetic when the therapist is in postural alignment than when not in postural alignment.

Method

Participants

Participants consisted of educational psychology and introductory psychology students at a large midwestern university who volunteered to participate in the study and who could receive partial course credit for doing so. One-hundred participants made up the sample, 48 watching a video of a counselor in spinal alignment (V1) and 52 watching a video of a counselor with her spine 10 degrees hunched (V2). The sample was 35% male and 65% female. Ninety-one percent of the sample reported "white" or "Caucasian" as their racial/ethnic identification, while 9% identified with other groups, including Asian American (3%), Hispanic (2%), African American (1%), mixed heritage (1%), Jewish (1%), and German-American (1%).

Though the sample does not appear diverse in racial/ethnic identification, it appears diverse in participant interests. Thirty different majors of study were reported by participants. The largest groups were education majors, with 22% reporting a major in Elementary Education and 17% reporting Education. Nine percent of the sample reported a major in Psychology, 5% reported having an undecided major, and the remaining 47% of the sample reported majors in the following subjects: Chemistry, Spanish, Art, Exercise Science, Communications Studies, Business, Speech Pathology, Accounting, Cinema, Speech and Hearing, Nursing, Pre-medicine, Pharmacology, Engineering, Biology, Journalism, Pre-law, Political Science, Marketing and Management, Electrical Engineering, Finance, Biomedical Engineering, Computer Science, Religion, Biochemistry, Athletic Training, and History. Thirty-three percent of participants answered "yes" to the question: "Have you been in therapy before or sought advice about a personal issue from a mentor or spiritual advisor?," while 65% said "no," and 2% did not answer. It seems previous therapy might inform participants in their ratings, but little is known about how this variable might relate to ratings. Age and year in school of participants are presented in Tables 1 and 2, respectively.

TABLE 1
Participant Ages

	Age					
	18	19	20	21	22	23-35
% sample	21%	33%	20%	11%	5%	10%

TABLE 2
Year in College

	Year					
	1	2	3	4	5	post bach.
% sample	26%	38%	21%	10%	1%	4%

Procedures

Participants were asked by the researcher to fill out an informed consent document and then were randomly divided into two groups, each of which watched one five-minute video depicting a counselor talking to a client. Participants were told before watching the video that they would see a portion of a therapy session and afterwards be asked to rate the therapist on a number of things. Each video showed the same counselor saying the same dialogue in as close to the same manner (voice intonation, etc.) as possible, with the only difference between the videos being the counselor's spinal alignment. In Video 1 (V1) the counselor was in spinal alignment. In Video 2 (V2) the counselor was hunched over ten degrees out of spinal alignment. After viewing one of the two videos, each participant filled out the Counselor Rating Form (Barak & LaCrosse, 1975) and a number of questions to gather descriptive information about the subjects and to elicit one more rating not included on the CRF: energy level. From the Counselor Rating Form, scores for trustworthiness, expertness, attractiveness, and over-all for each counselor were computed and then compared.

Materials

The counselor in the videos was a Ph.D. psychologist with thirty years of therapy experience. The dialogue between her and her client was memorized. This dialogue represented a portion of a typical individual therapy session. The therapist and client were sitting, facing each other, four feet apart. Three Ph.D. psychologists, one male and two female, working at a University Counseling Center, ages 39 to 44 with 10 to 15 years of post-doctoral clinical experience and no affiliation with the present study, were asked to evaluate whether or not the videos appear to have succeeded in representing and isolating the construct of spinal alignment. Each psychologist independently reported that the material and portrayal of it appeared neutral (so that content did not distract from the construct being measured) and typical (of a therapy session), that the videos appear the same except for therapist spinal alignment, and that he/she could distinguish between the therapist's spinal posture in V1 and V2. Each psychologist also reported that the therapist in V2 appeared hunched compared to in V1. All also reported that they thought they would rate the two therapists differently on CRF constructs based on this posture. The inter-rater reliability was 100%. These responses provide validity evidence for the videos. A VCR was used to show the videos to participants.

Measures

Counselor trustworthiness, expertness, and attractiveness were measured by the Counselor Rating Form (Barak & LaCrosse, 1975). This instrument consists of thirty-six bipolar scales on which the participants' responses vary from one to seven points. Twelve scales correspond to each construct, so the counselor's score on each may range from 12 to 84, while his/her overall score would range from 36 to 252. One item, for example, presents a scale between the adjectives vague and clear. Participants are asked to mark some level between those adjectives which represents their impressions of the therapist. This mark later corresponds to a score one through seven. The instrument has been shown reliable and valid, consistently distinguishing between and within counselors (LaCrosse & Barak, 1976; Barak & Dell, 1977). Epperson & Pecnik (1985) found internal consistency scores of the scale for ratings of different counselors to range from .77 to .93, with a median of .87. In a Spearman-Brown split-half reliability test, the CRF scored .87 for expertness, .85 for attractiveness, and .91 for trustworthiness (Ponterotto & Furlong, 1985).

The predictive validity of the CRF was supported by a study showing significant correlations (.37 to .56) between initial client ratings of therapists' trustworthiness, attractiveness, and expertness according to the CRF and the client's therapeutic outcome (goal attainment) (LaCrosse, 1980). These client's ratings after therapy (at the same time the therapeutic outcomes were measured) correlated more highly with therapeutic outcome than the initial ratings. These correlations of .47 to .62 provide concurrent validity evidence (LaCrosse, 1980). Further validity evidence is apparent in the finding of positive correlations (.23 to .67 with a median of .47) between clients' ratings of therapists on the CRF and clients' desire to self-refer to those therapists (Barak & Dell, 1977).

Factor analysis supports the construct validity of the CRF and its ability to distinguish between trustworthiness, attractiveness, and expertness (LaCrosse, 1977). Some argue, however, that because of the constructs' high correlations with each other, one over-arching "general satisfaction" factor (a unitary dimension, "charisma"") would be more appropriate (LaCrosse, 1977). Some studies find a one-factor CRF equally able to discriminate client's perceptions as the three-factor (Heppner & Claiborn, 1989). Mixed data and opinion exist in regard to this question, and it is suggested that the factors be considered both independently and together in future studies, advice which was followed in the present study, where all three scales and over-all scores were utilized (Heppner & Claiborn, 1989). The measure given also included a final, one-item, rating scale (analogous to the ones that make up the CRF) between energetic and not energetic, along which the viewed therapist was rated.

Data Analysis

It was hypothesized that subjects viewing V1 would give significantly higher trustworthiness, attractiveness, expertness, overall CRF, and energy level ratings to the counselor they view than subjects viewing V2. To test this hypothesis, five t-tests were used. One t-test compared the average energy level score given by those who watched V1 to the average energy level score given by those who watched V2, to see if they were significantly different. Then, just as for energy level, t-tests were conducted for each of the remaining constructs: trustworthiness, expertise, attractiveness, and overall CRF scores. All type one error rates were set at .05. If significant results were found, corrections would have been made to adjust for inflated type one error rate caused by multiple comparisons. The sample sizes were large enough to utilize asymptotic normality of the means.

Results

Table 3 provides the sample sizes, means, and standard deviations of the two groups' CRF scores across variables. Though the counselor in spinal alignment received higher expertise scores than when slouched, she received lower attractiveness, trustworthiness, overall, and energy scores in aligned posture. The standard deviations of scores in this study are consistent with previous standard deviations found with CRF scores (Barak & Dell, 1977; LaCrosse, 1977; Epperson & Pecnik, 1985). This consistency was also true of expertise and trustworthiness mean scores. Attractiveness mean scores, however, appear lower in the present study. The average of mean attractiveness scores found in Barak & Dell (1977) and LaCrosse (1977), for instance, was 58.86, compared with 46.12 in the present study. This discrepancy could indicate that neither the aligned or 10 degrees slouched postures were considered as attractive as postures which therapists in other studies happened to assume. The difference could also be due to the unnatural nature of holding a particular posture which was true in this study and not the others.

TABLE 3
Sample Sizes, Means and Standard Deviations

	V1 Viewers			V2 Viewers		
Variable	*M*	*SD*	*n*	*M*	*SD*	*n*
expert	59.229	12.372	48	57.346	14.667	52
attractive	44.063	12.307	48	48.154	11.539	52
trustworthy	56.917	12.425	48	58.788	12.629	52
overall CRF	103.17	24.158	48	109.31	23.916	52
energy	2.1875	1.5527	48	2.3654	1.6092	52

None of the five t-tests revealed significant differences between the scores corresponding to V1 and V2. Because adjusting for inflated type one error from multiple t-tests would only make rejecting the null hypotheses more difficult, thereby leading to the same conclusions as were already found, adjustments were unnecessary. Tests for equal variances failed to reject the null that variances are equal, suggesting that assumption of the tests was met. Scores (generally falling in the center of the scale) were not sufficiently high to create a ceiling affect. The CRF data showed a Cronbach Alpha Coefficient of .90, in the central part of the range of CRF internal consistency alphas reported by other studies (Epperson & Pecnik, 1985).

The average rating of therapist energy level differed between videos by .178 with a 95% confidence interval ranging from -.806 to .4506 (p = .5756). Those watching the hunched therapist gave a slightly higher energy level rating on average, the opposite direction relationship than predicted, but not to a level that this difference would not be likely found by chance. For therapist expertise, average scores between videos differed by 1.883, with a 95% confidence interval ranging from -3.525 to 7.2911 (p = .4912). Expertise is the only construct on which the predicted direction of relationship between ratings and posture was shown (aligned posture being rated higher than not aligned), but, like the other results, not significantly so. Therapist trustworthiness ratings between videos varied by 1.872 with a 95% confidence interval ranging from -6.85 to 3.106 (p = .4573), while attractiveness ratings between videos differed by 4.091 with a 95% confidence interval ranging from -8.824 to .6409 (p = .0894). Both of these results were in the opposite direction as predicted, but again not at significant levels. Therapist attractiveness ratings were the closest to being significantly impacted by therapist alignment, and would have been found just significant at the .05 level if the t-test had been unidirectional (in the direction opposite that predicted). Overall CRF ratings of the counselor were again in the opposite direction than predicted, but not significantly so. The average of the total CRF scores from V1 to V2 differed by .178, with a 95% confidence interval ranging from -15.69 to 3.405 (p = .2048).

Discussion

No evidence to support the hypothesis that therapist spinal alignment would heighten perceptions of the therapist's expertise, trustworthiness, attractiveness, or energy level was found. Because higher CRF scale ratings are linked in the research to better therapeutic outcomes, if significant differences between ratings had been found, results would have suggested that therapist spinal alignment may play a role in therapeutic outcome. Even if, however, no relationship between client perceptions on CRF constructs and therapist's spinal alignment exist, which is not refuted by the outcome of the current study, the larger theory that a therapist's spinal alignment affects therapeutic outcome could still be true.

Clients might still, for instance, evaluate a therapist in spinal alignment higher on other constructs not tested by the present study, such as felt presence with the client or particular personality characteristics (discussed previously to be correlated with spinal posture), than a therapist who is slightly hunched over. These different perceptions could affect treatment outcome. Other ways spinal alignment as a "posture as seen" might affect the therapeutic process, as discussed in the introduction, are in decreasing immediate transference or in changing the types of emotions clients attribute to therapists. Or, spinal alignment in the "posture as felt" domain could affect treatment outcome by its effects on the therapist (increasing energy, visual acuity, attention, memory, thinking, hearing, and emotional state), as explained in the introduction but not tested by the current study. Despite its not disproving the hypothesis that spinal alignment plays a role in therapeutic outcome, the present study fails to provide support for the theory that it does so through "posture as seen," by not providing evidence that therapist spinal alignment affects client ratings of the therapist on CRF constructs and energy level. It remains the assertion of this researcher, however, that, in light of the way past research in this area fits together as described in the introduction, the effects of therapist spinal alignment on therapeutic outcome merits continued research.

Limitations

A major limitation of the current study is the lack of diversity in age and race/ethnicity of the sample, making the findings impossible to generalize to the majority of the population. It seems probable that those of different ages and cultures would have different responses to therapists' spinal postures. Similarly, the study's use of college psychology students, with their perceptions and expectations of therapy almost certainly different than those of the client population at large, also prevents the findings from generalizing to the over-all client population. Another weakness in the study's design that limits its external validity is the use of simulation rather than actual therapy. An analogue study was used, despite its short-comings, to make the current study's use of resources appropriate for a preliminary investigation of this construct. In addition, nonverbal behavior cannot be reduced to a single construct such as spinal alignment without compromising ecological validity. Similarly, measuring two postures, aligned and ten degrees slouched, does not well represent the many, and constantly shifting, spinal alignments of therapists conducting therapy. It is difficult to measure this complex construct without introducing some artificiality that severely affects the conclusions we can draw from the findings. Furthermore, the CRF is only one means to evaluate client's perceptions of therapists, and is limited in its scope. It was chosen because of its outcomes' demonstrated link to therapeutic results, as discussed previously, but only reveals certain aspects of clients' evaluations of therapists, perhaps contributing to the null findings.

Another limitation of the present study is its failure to consider how a therapist's natural posture plays a role in how his/her spinal alignment affects therapy. The therapist in the videos used to collect data is accustomed to sitting in a slightly hunched posture. Though not affecting the validity of the videos in representing the postures desired according to definition, the fact that the aligned posture was not natural to the therapist could have increased the awkwardness of maintaining the aligned posture over the other posture. It may be true that a therapist who naturally sits in aligned posture may receive a boost in treatment efficacy because of the way that posture affects therapy, while a therapist with another natural spinal posture who attempts to sit in spinal alignment would not reap the same benefits because it is overridden by the opposite direction effect of the awkwardness of a posture to which one is not accustomed.

Future Directions

Because of the probability of different findings in different age groups and cultures, studies similar to the present one, but with a more diverse sample, would provide valuable exploration for future research. It is surprising that therapist spinal alignment was not shown to affect perceptions of the therapist in one direction or the other, given how different the shift in posture made the therapist look from one video to the other, agreed on by the psychologists who evaluated the video. It is the researcher's observation, though no supporting statistic could be found, that the majority of people today, particularly in the college-age population from which the current sample came, sit in varying degrees of a slouched posture, rarely sitting with spinal alignment. A slouched posture, then, might appear more natural or relaxed to many participants because of societal postural norms. Perhaps the therapist in V1 and V2 was rated at the same level, with alignment affecting both sets of ratings in the same direction, but for different reasons. Maybe those watching V2 responded well to the ease and relaxed look that may be socially linked to hunching, while those watching V1 responded well to spinal alignment for the predicted reasons. Participant age could also affect findings in that middle-aged and older people could be more attuned to posture, and notice it more readily, than people younger. In addition, spinal alignment could be expected to convey different meanings to those of different cultural background, genders, and other demographic variables. In-so-far as a hunched spine coveys humility, for instance, it conveys a quality differentially valued across cultures.

Future work in this area might first want to address some of the design weaknesses discussed in the *Limitations* n. From there, it may also be useful to study how a therapist's "usual" spinal posture plays into how different spinal postures affect their clients. Studies may also want to target one of the other possible mechanisms discussed, but not measured in this study, by which a therapist's spinal alignment might affect therapeutic outcome. To explore how increases in energy, attention, memory, and perception associated with spinal alignment might cause alignment to affect therapeutic outcome might necessitate the conductance of field studies in which therapeutic outcome is measured across many therapists whose natural spinal postures assumed when doing therapy are recorded. With its possibly differential effect on those of different ages and cultures, and the many mechanisms by which it could have its effect, the relationship, if one exists, between therapist spinal alignment and therapeutic outcome appears complex.

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