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The Genetic Counseling Video Project (GCVP): Models of Practice

D. Roter[1], **L. Ellington**[2], **L. Hamby Erby**[1], **S. Larson**[1], and **Dudley W**[2]

[1] Johns Hopkins Bloomberg School of Public Health, USA

[2] College of Nursing University of Utah, USA

Abstract

Genetic counseling is conceptualized as having both “teaching” and “counseling” functions; however, little is known about how these functions are articulated in routine practice. This study addresses the question by documenting, on videotape, the practices of a national sample of prenatal and cancer genetic counselors (GCs) providing routine pretest counseling to simulated clients (SCs).

177 GCs recruited at two annual conferences of the National Society of Genetic Counselors (NSGC) were randomly assigned to counsel one of six female SCs of varying ethnicity, with or without a spouse, in their specialty. 152 videotapes were coded with the Roter Interaction Analysis System (RIAS) and both GCs and SCs completed evaluative questionnaires.

Two teaching and two counseling patterns of practice emerged from cluster analysis. The teaching patterns included: (1) Clinical teaching (31%) characterized by low psychosocial, emotional and facilitative talk, high levels of clinical exchange, and high verbal dominance; and (2) Psycho-educational teaching (27%) characterized by high levels of both clinical and psychosocial exchange, low levels of emotional and facilitative talk, and higher verbal dominance. The counseling patterns included: (1) Supportive counseling (33%) characterized by low psychosocial and clinical exchange, high levels of emotional and facilitative talk, and low verbal dominance; and (2) Psychosocial counseling (9%) with high emotional and facilitative talk, low clinical and high psychosocial exchange, and the lowest verbal dominance. SCs ratings of satisfaction with communication, the counselor’s affective demeanor, and the counselor’s use of nonverbal skills were highest for the counseling model sessions.

Both the teaching and counseling models seem to be represented in routine practice and predict variation in client satisfaction.

Keywords

genetic counseling models; client-counselor communication; genetic counseling outcomes; simulated patient

INTRODUCTION

The client-counselor relationship in genetic counseling has been conceptualized in terms of both “teaching” and “counseling” models of care with each implying a distinct and alternative way of addressing the genetic counseling task [Kessler, 1999a; Kessler, 1999b].

Correspondence to: Debra Roter, DrPH, Johns Hopkins Bloomberg School of Public Health, 624 N. Broadway, Suite 750, Baltimore, Maryland 21205, (410) 955 6498 (phone), (410) 955 7241 (fax), droter@jhsph.edu.

The teaching model emphasizes the transmission of information in a meaningful manner, while the counseling model undertakes the task of helping clients find personal meaning in the information given and make psychological sense of its implication for future health and well being. Leaders in the field have generally viewed both the teaching and counseling functions as integral to professional practice [Fine et al., 1996; Petersen et al., 1999]. As noted by Biesecker and Peters [2001], an integrated synthesis of the two models has cast genetic counseling as "a dynamic psychoeducational process centered on genetic information….. The goal is to facilitate clients' ability to use genetic information in a personally meaningful way that minimizes psychological distress and increases personal control (page 194)." There has been some skepticism, however, regarding the ability or desire of genetic counselors to fully address the counseling functions referred to above. The sheer magnitude of the teaching task, limited time for relationship building and sometimes limited training and mentoring in psychotherapeutic counseling techniques, may discourage the address of clients' psychological and coping needs [Eunpu, 2005].

While only a handful of studies describing the genetic counseling process has been published prior to 2000 [Kessler, 1981; Walraich et al., 1986; Michie et al., 1997], an increasing number of studies has appeared in the past five years. The work of Pieterse and colleagues in the Netherlands [Pieterse et al., 2005a; Pieterse et al., 2005b], and Butow and colleagues [Lobb et al., 2004; Lobb et al., 2002; Lobb et al., 2003; Butow and Lobb, 2004] in Australia, are particularly relevant contributions. Work from our own group in interaction analysis of breast and ovarian cancer susceptibility genetic counseling sessions is also noteworthy [Ellington et al., 2005].

Each of these studies has concluded that counseling sessions are largely didactic in nature with relatively little emphasis on psychosocial and emotional topics. A limitation, however, of all the previous literature in this area is the very small number of genetic counseling providers studied, with even smaller numbers of genetic counselors represented. For instance, our previous study described the interactions of 3 genetic counselors [Ellington et al., 2005], the Australian study included 7 providers, only 2 of which were genetic counselors (the others are clinical geneticists and an oncologist) [Lobb et al., 2004; Butow and Lobb, 2004], and the Dutch study described 14 providers (including nurses, clinical geneticists, and clinical genetics residents), none of whom were genetic counselors [Pieterse et al., 2005a].

The small number of counselors participating in any one study is not surprising. No more than a few counselors are likely to practice at any given institution, and the logistical and administrative challenges of coordinating an observational study across multiple institutions are daunting and expensive. A case in point is illustrated by the impressive recruitment efforts, but modest result, evident in the Lobb et al study: drawing from 10 familial cancer clinics, in four Australian States, the investigators were able to enroll a total of 7 genetic counseling providers. As a result of such limitations, a good deal is known about the interactions of a few genetic counselors, but little is known about how counselors in general address the routine informational and emotional needs of their clients. Indeed, counseling practice may still be considered a virtual "black box", the interior of which is only beginning to be explored [Biesecker and Peters, 2001].

The current study was designed to provide a detailed description of routine genetic counseling communication processes in a large, nationally representative sample of genetic counselors, using simulated clients to standardize case characteristics. Since much of the literature describing the teaching and counseling models of genetic counseling has been conceptual and theoretical in nature, this study also attempts to systematically identify the communication characteristics associated with each model of practice. Finally, the impact of

practice models on likely client outcomes was investigated through simulated client ratings of satisfaction, affective impression, and effective use of nonverbal behaviors.

MATERIALS AND METHODS

Participants

Genetic Counselors—The 177 participating genetic counselors were attendees at two national NSGC meetings (2003 and 2004) with expertise in either prenatal (n = 96) or cancer genetic counseling (n = 81). The primary recruitment strategy made use of the NSGC general and interest group listservs prior to the meeting to familiarize members with the GC Video Project, raise interest in the study goals, invite discussion, and ultimately encourage participation. Approximately one-quarter of participants scheduled a study counseling session prior to the meeting while others were recruited directly at the meetings. A display table for the project was set up among product vendors, and flyers were distributed in meeting rooms and displayed around the conference hall directing counselors to the project table.

Counselors were told that participation in the project included videotape recording of a routine counseling session with a simulated client and the completion of a variety of questionnaires. Depending on the counselor's area of expertise, the task would be prenatal testing or breast and ovarian cancer susceptibility testing. As an incentive for participation, counselors were offered $75.00 and a t-shirt with the GC Video Project logo.

Simulated clients—Six female simulated clients, and three male simulated spouses, of African American, Hispanic, and Caucasian ethnicity, were cross-trained to portray a total of four different cases: (1) a woman seeking pre-amniocentesis counseling based on an indication of advanced maternal age (without a spouse present); (2) the same case with a spouse present; (3) a woman with a family history of breast and ovarian cancer seeking information about BRCA1/2 genetic testing (without a spouse present); (4) the same case with a spouse present.

The simulated clients were graduate students and friends of graduate students at the Johns Hopkins Bloomberg School of Public Health. By design, none had prior graduate level training in genetics, and they were told only that we were interested in studying the process of genetic counseling. All were English-speaking. Hispanic simulated clients spoke accented English in their daily lives. Spouses were matched to female clients by ethnicity.

Four separate two hour group training sessions were held prior to starting the study. During each training session, scripts were reviewed and simulated clients were given the opportunity to role-play the scenarios in front of the training group with four different genetic counselors. Simulated clients were trained to provide an opening statement about their reason for seeking genetic counseling and to ask two specific questions during the course of the visit. Other than that, they were instructed to follow the lead of the genetic counselor, providing information or asking questions only when prompted. A subsequent manuscript will be devoted to the training of the simulated clients and data reflecting the validity and reliability of their performances [Hamby Erby, 2005, unpublished dissertation].

Simulation scenario—In all cases, the scenario included a female client with a high school education and working class background, with no special prior exposure to or knowledge of genetics and with a deep faith in God but no specific religious affiliation. Her spouse is a 40 year old high school graduate without a similarly strong faith in God. He is supportive of his wife but is not particularly worried about genetic risks. The scenarios included some deliberately vague family history elements that would normally prompt a

genetic counselor to seek clarification of details and relationships. The scenario presented did not vary by ethnicity nor whether the client was counseled alone or with an accompanying spouse.

Since it is often standard practice for a genetic counselor to have access to some family history information prior to the counseling session, the client's pedigree and brief medical history was abstracted for the counselor prior to the session. Common visual aids were made available for use in the sessions and counselors were told only to limit the time of their sessions as they would in their own practices.

Prenatal scenario—Primary features of the prenatal scenario included a client with advanced maternal age. The client is 38 years old and a mother of two. While both of her children are normal, she is very concerned about the current pregnancy; it has been 11 years since her youngest child was born. She feels she has been lucky so far (with her two children) but worries about family risks. This is especially salient to the client as a cousin has a child who everyone in the family believes is "not right". Another distant cousin had a child with cystic fibrosis.

Breast cancer susceptibility scenario—Primary features of the scenario included a female client with a family history of breast and ovarian cancer with maternal death at age 60 from ovarian cancer and a sister's early onset of breast cancer. The client is 38 years old. Her sister's recent breast cancer diagnosis has led to a fear of developing breast cancer herself; therefore, she has come for testing. She wants to support her sister who has cancer, but does not feel that she can talk with the rest of the family about her own worries about developing cancer.

Procedures

The study was approved by the Committee on Human Research of the Johns Hopkins Bloomberg School of Public Health, and all counselors gave full informed consent for their participation.

Upon agreeing to participate in the study, a two hour time slot was scheduled and the counselors were directed to the project suite at the allotted time. At the suite, counselors were consented and asked to complete baseline questionnaires prior to conduct of their interview. Counselors were randomly assigned to SCs by ethnicity and whether or not a male spouse would be present. Counselors were then escorted to one of six rooms prepared for video recording. Following the session, both the counselor and the simulated clients returned to the project suite to (independently) complete post-session questionnaires.

Pre and Post Visit Measures

Pre-Session Ratings—Prior to videotaping the session with the simulated client, the genetic counselor completed a background questionnaire detailing sociodemographic and practice characteristics (e.g. age, ethnicity, gender, years of genetic counseling experience (prenatal or cancer), and the geographic location of their practice.)

Post-Session Ratings by Counselors—Counselors completed the following measures after the videotape session:

1. Satisfaction with the session in regard to:(a) Interpersonal rapport (8 items; Cronbach's Alpha =.83); (b) meeting the informational needs of the client (3 items, Cronbach's Alpha =.74); and, (c) feeling that sufficient detail was received from the client (3 items; Cronbach's Alpha =.76).

2. Session realism. Counselors were asked to rate how realistic the simulated client(s) behaved during the session and the extent to which their counseling during the session was typical.

Post-Session Ratings by Simulated Clients and Simulated Client Spouse—The simulated client (and simulated spouse when appropriate) rated the session independently on the following:

1. Satisfaction with communication: A simulated client satisfaction questionnaire used in prior work was modified for use in the current study [Roter et al., 1995]. The 14 items, measured on a 6-point Likert scale, demonstrated good internal reliability (Cronbach's Alpha =.96) and reflected informational, interpersonal, and collaborative aspects of communication.
2. Affective impression rated by simulated client: 15 pairs of statements representing opposite examples of genetic counselor affective attributes (e.g., warm – cold; interested – bored; compassionate – distant), measured on a 10 centimeter line, demonstrated good internal reliability (Cronbach's Alpha =.95).
3. Nonverbal behavior: Judgment of genetic counselor nonverbal communication effectiveness was assessed on a 6-point Likert scale (not at all effective to very effective) for the following behaviors: eye contact; smiles; head nods; appropriateness of facial expressions to the communication; body lean; seating position; use of touch; responsiveness to nonverbal cues; responsiveness to verbal cues; and, effective use of pauses and silence (10 items; Cronbach's Alpha =.91). For this measure, SCs were asked to provide their opinions about the GCs' effectiveness on each item, but were not trained to prefer certain nonverbal behaviors over others.

Adaptation of the Roter Interaction Analysis System (RIAS) for genetic counseling sessions

The RIAS is applied to the smallest unit of expression or statement to which a meaningful code can be assigned, generally a complete thought, expressed by each speaker (client, spouse and counselor) throughout the counseling session. These units are assigned to mutually exclusive and exhaustive categories that reflect the content and form of the counseling dialogue. Form distinguishes statements that are primarily informative (information-giving), persuasive (counseling), interrogative (closed and open-ended questions), affective (social, positive, negative, and emotional), and process-oriented (facilitation, orientation and transitions). In addition to form, 4 primary content areas are specified in relation to information and questions: (1) medical condition, symptoms, and history; (2) testing and therapeutic intervention; (3) lifestyle, finances, self-care and preventive behaviors; and (4) psychosocial topics related to emotional reactions, coping, family issues and social relationships.

The primary adaptation of the system for the coding of genetic counseling sessions is the expansion of the four content areas, as described above, to further distinguish personalized information from information given in general or population terms. For instance, personalized information about risks might sound like: "Based on what you told me, there is a 20% chance that the genetic mutation would be found"; a more general reference would be: "Nobody has a risk of zero --most women have about a 1 in 9 risk for developing breast cancer." Table I displays the array of coding categories, with this adaptation included within the client education and counseling categories. Examples for each RIAS category are provided within Table I in order to demonstrate how the codes might be applied to genetic

counseling communication. These examples are not meant to demonstrate ideal communication, but rather to show the types of talk that might be coded in each way.

A useful framework for organizing RIAS-coded communication in the genetic counseling encounter is a four function model of medical interviewing [Roter, 2000]. Task-focused behaviors fall within two of the interview functions: "Data Gathering" to establish individual and family history and to elicit the client's perspective, and "Educating and Counseling" clients about their risks and susceptibility to illness, and risk reduction, prevention, or treatment recommendations. Affective behaviors generally reflect the third interview function of "Building a Relationship" through the development of rapport and responsiveness to the client's emotions. A fourth function, "Activating and Partnering", facilitates engagement in the dialogue by eliciting the client's expectations, preferences and opinions; checking for the client's understanding of what the counselor has said; using paraphrase and interpretation to check that the client is understood by the counselor; and use of back channel responses, such as "uh-huh", to signal interest in what the client is saying. Lowering verbal dominance (listening more and speaking less) may also be considered a strategy for enhancing client engagement, although it can be thought of as a more passive strategy than use of active facilitators [Hall et al., 1988].

In addition to the verbal categories of exchange, coders also rate each speaker on a 5-point scale reflecting positive (interest and friendliness) or negative (dominating or controlling) affect. These ratings capture voice tone channels that are largely independent of literal verbal content and reflect the emotional tone of the dialogue [Hall et al., 1981].

Coders apply the RIAS directly to the medical dialogue without transcription, using direct entry software that can be applied to digitized audio or video files or used with analogue audio or videotape recordings.

Coding Reliability

All coding of the tapes was done by two experienced RIAS coders. Inter-coder reliability was calculated on a random sample of 10% of the study videotapes (n= 20) drawn throughout the coding period to assess drift. Pearson correlation coefficients for each communication category by speaker (genetic counselor, simulated client, and simulated spouse) averaged = ≥.90. There was no difference in reliability according to scenario or the presence of a spouse.

Analytic Approach

As in previous RIAS studies, cluster analysis was performed to identify groups of sessions that are relatively homogenous in their use of underlying communication patterns [Bensing et al., 2003; Roter et al., 1997]. The individual codes were used to create summary composites of variables. Three composites of counselor talk (Psychosocial exchange--including psychosocial question asking and psychosocial information/counseling, Emotional categories, and Facilitation) and two client talk composites (Psychosocial exchange and Emotional categories) were included in the analysis.

Cluster analysis was applied to identify models of genetic counseling practice by applying the quick-cluster routine utilized by SPSS [SPSS, 2004 #2287]. One-way Analysis of Variance (ANOVA) was used for contrasts of continuous variables, and linear regression was used to assess the association between communication patterns and simulated client and counselor post-visit ratings, after controlling for counselor and scenario characteristics.

RESULTS

Representativeness of the Study Counselors

Table II shows that the counselors were broadly representative of NSGC membership. Participating counselors were predominantly North American Caucasians (82%) with small numbers reporting Asian (7%) or Eastern European (7%) backgrounds. Only one African American and one Hispanic counselor participated in the study. The great majority of counselors were female (93%). About half of the study participants were under 35 years of age (range 21 – 66 +) reflecting a range of professional exposure and experience. One-third (35%) of participants had greater than 10 years and 14% had fewer than 2 years of counseling experience. The counselors reported geographically diverse practice locations, representing all six NSGC regions of the United States and Canada.

Counselors rated the "realism" of the simulated clients favorably, either as completely (24%) or moderately real (48%). Fewer than 2% of counselors thought the simulated clients were not at all real. In a similar vein, half the counselors agreed (34%) or strongly agreed (20%) that their performance in the study session was like their counseling in actual client sessions, while the remainder neither agreed nor disagreed (17%), disagreed (19%), or strongly disagreed (9%) that the sessions were like their usual sessions. More experienced counselors rated both the simulated clients, and their performance in the sessions, as more realistic than less experienced counselors.

Description of Genetic Counselor Communication

Due to a variety of technical difficulties, 25 videotapes needed special editing before they could be coded. As that process is still underway, these are not included in the current analysis. Of the 152 videotapes that have been analyzed, 89 address prenatal and 63 cancer genetic counseling. The prenatal sessions average 45 minutes (range = 25 to 83 minutes) while cancer sessions last on average five minutes longer, averaging 50 minutes (range = 23 to 92 minutes).

Table III (first column) displays an overall communication profile of genetic counseling sessions. As is evident from the table, clinical information (e.g., descriptions of the function of genes, the testing process, and genetic risks) comprises 47% of all counselor dialogue. Subcategory analysis shows that 31% of counselor dialogue is information presented in general population terms and 16% presented as personalized risk assessment and information. (The percentage of all information that is personalized is 35%.)

Discussion of psychosocial issues comprises 9% of all counselor dialogue. Subcategory analysis shows that the bulk of this discussion (6%) is psychological in nature, including discussion of emotional reactions, attitudes and preferences, and the impact on family and social relationships relevant to testing and decision making. Lifestyle issues (including self-care and preventive health habits, implication for work, insurance, and finances) make up a smaller percentage of the talk, representing 3% of dialogue.

Data gathering represents 10% of all counselor dialogue and similarly reflects a clinical emphasis. Most questions are in regard to family history and risks (7% clinical questions), while probing of psychosocial issues (2%) is less frequent. The magnitude of emphasis is reflected in the counselor's relative use of clinical versus psychosocial questions, with the latter making up on average 26% of all questions asked. Likewise, 32% of all questions asked by genetic counselors were open-ended questions, compared to 68% that were closed-ended.

Facilitation of client input into the dialogue comprises 11% of counselor talk. This is primarily reflected in counselors' use of paraphrase (5%) (reflecting back to the client what the counselor heard) and explicit checks on client understanding (3%). Counselors also use back-channels, such as "uh-huh", (2%) as cues of interest to encourage the client to continue to speak, and solicit the client's opinion (1%).

Counselor responsivity to client emotion is reflected by statements that fall within the emotional exchange composite (17%). By far, the largest single category reflects statements of partnership or alliance (11%) with less frequent expressions of reassurance (3%), concern (2%), and empathy (.5%).

Additional coded categories include orientations as to how the session will proceed (3%), social chit chat (1%), and positive responses (2%) including compliments and agreements.

Counselors verbally dominate the sessions, averaging 5 statements to each client statement. Sessions lasted, on average 47 minutes, ranging from 22 to 92 minutes.

Patterns of Counseling Practice

Two teaching and two counseling patterns of practice emerged from the cluster analysis. The patterns differ in terms of clinical or psychosocial emphasis (information and questions), address of client emotions, and use of facilitation skills, as well as in affective tone, verbal dominance, and session length (refer to Table III). While clinical information-giving is the most common category of talk across all four models, the terms "high" and "low" are used throughout the following descriptions to represent the relative level of each category as compared to the other models. Based on these differences the patterns can be described as follows:

Clinical Teaching—Representing 31% (n=47) of all the sessions, the clinical teaching pattern is characterized by high levels of clinical information, presented with less personalized information (30%), than in other patterns. Inspection of the question subcategories similarly reflects the clinical emphasis, with 15% of all questions being categorized as psychosocial. Also notable is the highest proportion of closed to open ended questions.

Facilitative and emotional talk are relatively low in this pattern. Counselors verbally dominate these sessions by more than a factor of 5, and were judged (by coders) to be more controlling and less affectively positive than counselors in other patterns (as reflected in Table III).

Psycho-educational Teaching—The psycho-educational teaching pattern comprises 27% of all sessions (n=41) and is characterized by delivery of high levels of both clinical and psychosocial information. Inspection of the psychosocial subcategories shows a greater relative emphasis on lifestyle behaviors than any of the other patterns. Consistent with the greater emphasis on lifestyle, more information is also presented in personalized terms than in the clinical teaching model. The balance between clinical and psychosocial content of the session is also reflected in a moderate percentage (32%) of psychosocial questions.

Both emotional and facilitative talk is low, and the sessions are the most verbally dominated by counselors (by almost a factor of 6). While the counselors were rated by coders to be more controlling, nevertheless, they were rated to be relatively positive in emotional tone.

Supportive Counseling—One third of sessions (n=50) are characterized as supportive counseling; these have the lowest levels of both clinical and psychosocial information given

and the highest levels of emotional and facilitative talk. The sessions are moderate in levels of verbal dominance (4.4:1) and were rated by coders to be lower in controlling and relatively positive in emotional tone.

Psychosocial Counseling—Psychosocial counseling is found in 9% (n=14) of sessions and is characterized by the combination of high levels of psychosocial exchange, relatively low levels of clinical exchange, and the highest percentage of psychosocial questions (42%). Levels of emotional and facilitative talk are high relative to the teaching patterns. Two subcategories within the facilitative category stand out: there is more elicitation of opinion and less checking for client understanding than in other patterns. These sessions are also marked by significantly lower levels of verbal dominance and higher positive affect ratings than any of the others. Also noteworthy is the longer duration of these sessions; they are on average 10 minutes longer than any other pattern (see Table III).

Patterns of Counseling Practice and Scenario Variation

The simulated client script systematically varied 3 client elements: case (prenatal or BRCA1/2), ethnicity (Caucasian, African American, or Hispanic), and presence of spouse (present or not present). As shown on Table IV, Chi square analysis found no significant effect for client ethnicity or presence of spouse in pattern use. However, prenatal counselors favored the use of the clinical teaching pattern over psycho-educational teaching, while the opposite was true for cancer counselors. All counselors in both scenarios showed a preference for teaching models over counseling models, characterizing 57% and 58% of all cancer and prenatal sessions, respectively.

No other counselor characteristic, including age, experience, or geographic location of practice, was related to pattern use.

Patterns of Counseling Practice and Simulated Client Outcomes

The client and spouse rated the sessions independently; nevertheless, there was substantial agreement between them (Pearson correlations between client and spouse were .61 for general satisfaction;.51 for effective use of nonverbal behavior; and .36 for affective impression). As displayed on Table V, client ratings were significantly higher for the two counseling patterns compared with the teaching patterns on all three measures. While a similar distinction was evident for spouse ratings, the differences were statistically significant only for spouse ratings of satisfaction.

None of the GC self-ratings were related to the counseling patterns (data not shown).

DISCUSSION

The GC Video Project has provided the largest and most nationally representative study of genetic counseling practice described in the literature. While reliance on counselor volunteers may have resulted in the participation of the more confident counselors in the field, putting forth their best efforts, the large numbers of participants diminishes the likelihood that the sample is especially unique. Indeed, the 177 genetic counselors who participated in our study represent some 10% of the total NSGC membership, including approximately 15% of cancer genetic counseling specialists. The sociodemographic and practice profile of the participants, furthermore, reflects the diversity of the field in terms of age, experience, and geographic location of practice.

While discussion of teaching and counseling models of genetic counseling practice date back to the beginning of the profession, there has been little systematic investigation of how,

or even if, the models are articulated in practice. The current study makes a contribution in this area. The findings identified four communication patterns: two of these reflect variation in the conceptualization of the teaching model, and two reflect variation in the counseling model. All four models are heavily laden with information, as might have been expected given the enormity of the teaching aspect of the genetic counseling task. Whereas the teaching patterns present information in a didactic, lecture style with relatively little interactivity or emotional responsivity, the counseling patterns present information in a manner that encourages increased client engagement in the dialogue, both actively in the use of facilitators and passively in reduced verbal dominance. The greater interactivity of the counseling patterns is also associated with higher levels of emotional engagement: this is evident in explicit responses to the client's emotional state, particularly in the use of reassurance and concern, and implicitly through the conveyance of more positive affect (as judged by coders).

The extent of psychosocial or lifestyle exchange, in terms of information or question asking, is comparable across teaching and counseling patterns and, consequently, is not a distinguishing factor. However, these topics appear to be important in distinguishing the kind of teaching or counseling that is given. The clinically focused, in contrast to the psychosocial, teaching pattern not only includes less psychosocial information, but many fewer psychosocial relative to clinical questions, and a high proportion of closed to open-ended questions. Interestingly, while more clinical information is given in this pattern than elsewhere, a lower proportion is presented in personalized terms. Information presented with both generalized and personalized frames of reference may play important functions within the counseling session. It is noteworthy, however, that genetic counselors in this study differed in their relative attention to these two ways of framing information.

Cancer counselors engaged in more lifestyle discussion than the prenatal counselors, and this was especially evident in their tendency to use the psycho-educational rather than the clinical teaching pattern. The bulk of the difference is in the higher frequency with which cancer counselors discussed mammograms, breast self-exam and routine pap tests, as well as healthy lifestyle recommendations regarding diet and exercise. As the simulated clients were scripted to present comparable levels of health consciousness and psychosocial and emotional concerns across roles, the cancer counselors' responses may reflect a greater routine attention to this domain than prenatal counselors.

Several elements of our descriptive communication profile are consistent with reports that actual cancer genetic counseling sessions are predominantly clinical in focus, with little psychosocial or emotional exchange, and are verbally dominated by counselors [Pieterse et al., 2005c; Pieterse et al., 2005b; Lobb et al., 2004; Lobb et al., 2002; Lobb et al., 2003; Butow and Lobb, 2004; Ellington et al., 2005]. Estimates of verbal dominance in these studies have ranged from ratios of 3:1 in the Ellington and Butow study and 3:2 in the Pieterse study. Our result in terms of verbal dominance is even more pronounced: counselors' verbal dominance averaged 5:1 overall and 5.8:1 in the cancer sessions.

Interestingly, Pieterse et al note that after training genetic counselors with feedback based on videos of their own communication, counselors provided more psychosocial information to clients but also became more verbally dominant [Pieterse et al., 2005a]. In the current study, psycho-educational teaching was associated with greater verbal dominance than clinical teaching, perhaps reflecting a tendency of some counselors to be more verbally dominant when psychosocial topics are addressed without enhanced attention to facilitative and emotional communication domains.

Two explanations can be offered for the greater verbal dominance found in the current study than in the others. The simulated client and spouse were scripted to be high school educated, unfamiliar with genetic terminology, and somewhat tentative and reserved. They were instructed to be cooperative and responsive to the counselor but not to initiate discussion or disclose concerns without being asked. Consequently, client characteristics that are generally associated with greater verbal activity, such as college education and assertiveness, were diminished. Secondly, as noted above, the previous studies are based on very small numbers of genetic counseling providers, and only a few counselors, and may reflect some unspecified selection bias in communication style that would lower verbal dominance.

Study Limitations

Are these sessions “real”? A clear limitation of the study is the use of simulated, rather than actual, clients. Although it is difficult to argue with the value of authentic settings for experimental and observational studies of genetic counseling, the contribution of simulation is worthy of consideration. There are some questions that are so logistically difficult to investigate in natural settings, without prohibitive expense, that they are not likely to be addressed at all. The videotape recording of a large nationally representative sample of genetic counselors, such as described here, would present this kind of logistical challenge. Moreover, even if it could be managed, client variation would necessitate a ten-fold increase in the client sample to draw comparable conclusions regarding counselors’ practice styles. The added complexity of systematically describing the impact of genetic condition, client ethnicity, and presence of a spouse on patterns of counseling practice would make the conduct of such a descriptive study untenable. However, even with a strong rationale for a simulation study, the interpretation of findings requires careful caveats and validation in future investigations, in both simulated and natural contexts. A subsequent paper will focus on issues related to the validity and reliability of simulated client performance within this study [Hamby Erby, 2005]. Little difference was found between the performances of the different simulated clients or within a given simulated client’s performance over time. Significant differences were also not found in the use of the four different models across the six female simulated clients.

While few significant differences were seen in simulated clients’ satisfaction ratings over time, it is possible that the act of participating in multiple genetic counseling visits could alter an individual’s perception of the characteristics of satisfying communication. The simulated clients involved in this study were not trained to prefer specific aspects of communication over others and were not experienced with genetic counseling prior to the study. In order to validate our findings related to client satisfaction, we are currently in the process of asking independent “analogue client” participants to rate the communication within each session. This process will also allow us to examine the impact of different counseling styles on client recall and comprehension.

Finally, the current study was designed to examine variation in genetic counseling styles based on counselor-driven communication patterns in a single session with a standard client. In practice, genetic counselor styles may vary from client to client, depending on the client’s own style of communication. However, when controlling for variation in client communication, the current study demonstrates some variety in the ways that different genetic counselors choose to communicate.

Implications for the Field

While genetic counseling training programs commonly stress both the presentation of clinical knowledge and attention to the client’s psychosocial needs, our data suggest that the

former clearly predominates within counseling visits. The variation in the extent to which genetic counselors employed psychosocial, emotional, and partnership building skills, even when counseling the "same" client under the same conditions, suggests that the field has much room to grow in terms of achieving high levels of ideal practice. The fact that three of the four models of counseling did not differ significantly in terms of average length suggests that these variations in practice are not entirely explained by institutional differences related to time constraints. Especially important are differences observed in genetic counselors' ability to engage the client through the use of active facilitation skills and in lowered verbal dominance. These skills highlight critical distinctions between the observed "teaching" and "counseling" models of practice, and suggest areas that may benefit from additional attention in the training and continuing education of genetic counselors and in practice. Even relatively modest differences in these skills were linked with more positive simulated client ratings, further suggesting that counseling behaviors are ones that clients are apt to notice and value.

Although new genetic information continues to emerge, future challenges to the field of genetic counseling will not be in the mastery of new and complex clinical content; counselors have already demonstrated their abilities to excel in this very important aspect of practice. The challenges are the same as those being faced by our medical colleagues --to listen more and speak less, to engage and empower clients, and to be emotionally present when they are needed.

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Table I

Categories of Roter Interaction Analysis System

Functional grouping	Communication behavior (specific coded elements within larger composites)	Example of counselor dialogue (Note: client talk is also coded but examples are not included here)
Data Gathering	Clinical Questions: Individual & family history; Therapeutic interventions (tests & treatments) (Question format closed and open noted)	Will you be 38 at the time of delivery?(closed); What can you tell me about your family? (open) Have you ever heard of a test called amniocentesis? (closed); What have you heard about genetic tests? (open)
	Psychosocial Questions Psychological --emotional reactions and coping, social relationships; Lifestyle and self-care	Are you worried about any exposure to medicine or alcohol? (closed) What worries you most? (open) When did you last have a mammogram? (closed)What are you doing to keep yourself healthy? (open)
Client education and Counseling	Clinical Information (personalized): --Medical condition; --Testing and treatment; Clinical Information (generalized): --Medical condition; --Testing and treatment;	Based on what you told me, there is 20% chance that the genetic mutation would be found. You already had a blood test and now we are talking about a more invasive test for you, amniocentesis. Nobody has zero risk, most women have about a1 in 9 chance of developing breast cancer. There are several tests available, some are invasive and others are not.
	Psychosocial Information --emotional reactions and coping, social relationships; --lifestyle habits, preventive, self-care behaviors, finances, work issues	Some people feel a little anxious about the test. It is often helpful to talk these things over with your husband – ask him what he thinks. Eating healthy and exercising may be protective You should keep doing the breast self-exam. Insurance usually covers the test. You shouldn't miss much work, a day or two.
Building a Relationship	Positive talk: (1) approval; (2) agreement; (3) jokes	It seems you have really given thought to this. You're right. We're on candid camera.
	Disagreements and criticisms	I don't feel right giving my opinion.
	Social talk: non-medical chit-chat	How about them O's last night?
	Emotional talk: (1) concerns; (2) reassurance; (3) empathy, (4) partnering, (5) self-disclosure	I'm sorry your sister relapsed; You don't have to rush into a decision; You look a little scared by that; I want you to call me if you think of anything else at all; I had the same experience myself.
Activating and Partnering	Facilitation: (1) asking for client opinion; (2) asking for understanding; (3) paraphrase; (4) back-channels	What do you think it is?; Do you follow me?; I heard you say you didn't like that; Uh-huh, go on, hmm.
	Orientation: (1) directions and instructions; (2) transition statements and fragments	I'd like to go over this chart first. Look at this diagram. Okay, now—well.

Table II

Genetic Counselor Characteristics

		Scenario		Total [N (%)]
		Prenatal [N (%)]	Cancer [N (%)]	
Ethnicity	Caucasian			
	Asian			
	Eastern European			
	African American			
	Hispanic			
Gender	Female			
	Male			
Age (yrs)	21–30			
	31–40			
	41–50			
	51–60			
	61+			
Years of experience in genetic counseling	0–2			
	2–5			
	5–10			
	10–15			
	15–20			
	20+			
Region‡	I			
	II			
	III			
	IV			
	V			
	VI			

Table III

Counselor behaviors across the four communication patterns

Overall n=152;100%		**Clinical Teaching n=47; 31%**	**Psycho- educational Teaching n=41; 27%**	**Supportive Counseling n=50; 33%**	**Psychosocial Counseling n=14; 9%**
R IAS Categories					
Clinical Information	.47	.52	.49	.41	.43***
--general	.31	.36	.31	.27	.26***
--personalized	.16	.16	.18	.14	.17*
--% of information presented in personal terms	.35	.30	.38	.35	.37*
Psychosocial Information	.09	.08	.12	.08	.11***
--psychological	.06	.06	.07	.05	.08
--lifestyle	.03	.02	.05	.03	.03
Questions (All)	.10	.10	.08	.10	.10
---clinical	.07	.08	.06	.07	.06***
---psychosocial	.02	.02	.02	.03	.04**
--% of psych questions	.26	.15	.32	.26	.42***
--% of open questions	.32	.30	.35	.31	.33
Facilitative talk	.11	.09	.09	.14	.12***
--paraphrase	.05	.04	.04	.06	.06***
--checking	.03	.03	.02	.04	.01**
--back channel	.02	.01	.02	.03	.03***
--ask for opinion	.01	.01	.01	.01	.02**
Emotional talk	.17	.15	.16	.21	.17***
--partnership	.11	.09	.09	.14	.12***
--reassurance	.03	.03	.03	.03	.02
--concern	.02	.02	.03	.02	.02**
--empathy	.005	.003	.006	.005	.005+

Overall n=152;100%		**Clinical Teaching n=47; 31%**	**Psycho- educational Teaching n=41; 27%**	**Supportive Counseling n=50; 33%**	**Psychosocial Counseling n=14; 9%**
Positive talk	.02	.01	.02	.02	.02
Social talk	.01	.01	.01	.01	.01
Orientations	.03	.03	.03	.03	.04+
Global Ratings					
--Positive Affect	3.8	3.65	3.86	3.89	4.21**
--Controlling	3.5	3.60	3.70	3.32	3.36**
Verbal Dominance					
Ratio of counselor to client talk	5.0	5.45	5.89	4.37	3.62***
Session Length					
Duration in minutes	47.0	42.3	49.6	46.2	59.2***

P values:

+ <.1

* <.05;

** <.01;

*** <.001

P values:

** <.01

*** <.001

[1] X^2 =17.7; df=3; p<.001

[2] X^2 =1.3; df=3; p<.8

[3] X^2 =6.6; df=6; p<.4

Table IV

Session characteristics across the four communication patterns

Overall n=152;100%	Clinical Teaching n=47; 31%	Psycho-educational Teaching n=41; 27%	Supportive Counseling n=50; 33%	Psychosocial Counseling n=14; 9%
Session Type[***1]				
89	37	15	31	6
63	10	26	19	8
Presence of Spouse[2]				
91	26	24	33	8
61	21	17	17	6
Client Ethnicity[3]				
53	18	15	15	5
52	13	11	24	4
47	16	15	11	5

Table V

Communication Patterns and Simulated Client Outcomes

Simulated Client Outcomes	Clinical Teaching n=47; 31%	Psycho-educational Teaching n=41; 27%	Supportive Counseling n=50; 33%	Psychosocial Counseling n=14; 9%
Satisfaction				
--Client Ratings	3.12	3.53	4.06	4.60***
--Spouse Ratings	3.32	3.81	4.57	4.43*
Nonverbal Skill				
--Client Ratings	3.68	3.72	4.29	4.41**
--Spouse Ratings	3.84	4.19	4.53	4.13
Affective Impression				
--Client Ratings	2.29	2.62	3.49	4.02*
--Spouse Ratings	1.81	2.52	3.05	2.55

P values:

* <.05;

** <.01;

*** <.001