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Inferences in Therapy: Processes and Hazards

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Abstract

Psychotherapists are constantly involved in the process of forming hypotheses about clients. These hypotheses are a combination of direct observation and inferred information. This study considered how nine therapists made inferences during hypotheses formation. They made restructuring and supplemental inferences in about half of their comments about the client in an initial session. As was expected, they made inferences based on obviously missing information. This study also reveals that therapists make inferences based upon other inferences which over time were remembered and used as direct observations. Caution is offered for clinicians and therapist-educators in working with inferential information.

Inferences in Therapy: Processes and Hazards

Much of the art and skill of therapy involves inferential reasoning. This qualitative study takes up the task of evaluating how that inferential process works. An analysis of the patterns of how therapists use direct observations of factual information as compared to inferred observations will be presented. In order to conduct quality therapy, it is important to understand more about how the inference making process works, and some of the hazards which must be avoided. It is also necessary to dispel some of the mystery of the inference making process, replacing it with intentionality (Ivey, 1993).

Over the past 20 years, a small but important body of literature has been emerging primarily from the fields of counseling psychology, social work, and cognitive psychology concerning the hypothesis formation process. A joint focus of these disciplines has been on the elements of the hypothesis which are formed outside of direct client input. For example, inference making is studied in the processes of heuristics in clinical judgment (Kahneman, Slovic, & Tversky, 1982; Nurius, & Gibson, 1990, Turk & Salovey, 1986) and stereotype based expectancies (Hamilton, Sherman, & Ruvulo, 1990). A third example of this type of research and the focus of this article is inferential processing (Dumont & Lecomte, 1987; Merluzzi, Rudy, & Glass, 1981).

An inference is a judgment that goes beyond the information presented by the client, or that is operative in memory (Dumont, 1993). A representation is a mental picture, or way of understanding the client's situation. When information is missing in the client's presentation, the therapist mentally fills in the missing information, via an inference, to complete the representation. As representations become more complex and elaborate, the therapist forms an hypothesis about the client's issues that eventually will lead to intervention. Hopefully, trained clinicians would be cautious about jumping in too soon with inferences, but some evidence shows

otherwise (Dumont & Lecomte, 1987). Indeed, most social-science research in the area of cognition suggests that once beliefs-- whether formed from direct observation or inferences-- are adopted into one's representation about a person or situation, they are resistant to change (Hollon & Kriss, 1984). This study investigates the process of inference making and use of inferences in a therapy situation.

Method

Subjects

A small but diverse group of therapists was selected to be studied in depth. Experience was used as a distinguishing variable. Nine therapists were selected: three highly experienced therapists, three novices, and three counseling students. An experienced therapist was defined as a therapist, currently employed in full-time practice, having completed advanced degrees (two Ph.D. level psychologists and one M.S.W.) at least three years previous to the study (not graduate students). Novices were defined as professional therapists in private practice, the first year out of their master's degree programs. Students were defined as first-quarter, first-year master's degree students in counseling, without prior background as counselors.

Experience was used as the distinguishing variable due to the suggestion in the literature of experience-related differential ability in conceptualization (Hillerbrand, & Claiborn, 1990; Martin, Slemon, Hiebert, Hallberg, & Cummings, 1989). This study did not evaluate differences between groups. Rather, in an effort to evaluate ways in which therapists form inferences, it was important to have variety in the types of therapists under investigation. The therapists were also selected for diversity in gender (four males, five females), age (six between 30-39, three between 40-49), and type of training background. All were European-American.

Procedure

The therapists observed a videotaped initial therapy session. While they watched, imagining themselves to be the therapist, they used a think-aloud technique (Hayes & Flowers, 1980), audio recording their hypotheses about the client's issue. After the session, the therapist and the investigator watched it again, using Interpersonal Process Recall (IPR) (Kagan, 1975) to further analyze the therapist's inferential processes. The therapist's comments of both sessions were transcribed. Each observation was evaluated to determine if the comment was based on something the therapist had actually heard the client say, or something inferred from the client. A subject comment was considered an inference if the client had not actually made the same comment. Numbers of factual observations were compared to inferred observations. Inferences were measured in individual observation meaning units, usually consisting of a few words, and in broader inferential reasoning structures. Broad inferential reasoning structures were labeled as to the type of inference. A further qualitative exploration of the ways in which these inferences developed was conducted.

Results

In this study, inferences made up a large part of the data base by which therapists made their hypotheses. Although there was variability, about forty-nine percent of the therapists' individual meaning units involved inferential processing (Table 1). When broad inferential structures were analyzed, two key types of inferences (supplemental and restructuring) were made and combinations of those were evident (Table 2). A discussion follows of the important patterns of inference making which were discovered.

Discussion

The process of inference making can be described as an intentional event that occurs after the therapist has made observations, realized that something is missing, and moved to make a necessary inference. However, it appears from this study that the process of inference making

may not be a secondary step, but rather a parallel and central part of the hypothesis formation process. A qualitative look at the patterns of inference making suggests this parallel process.

Merluzzi, Rudy and Glass (1981) suggest that in times of uncertainty we use three types of inferences: addition (adding more information to the story), restructuring (rearranging the presented information in order to make sense out of it), and bridging (adding a missing middle piece of information is between a known beginning and ending). An attempt was made to evaluate the therapy inferences according to these categories.

In some cases the inferences were obviously tied to an observation. For example in response to client comment, "...maybe because I was born a big brother," a novice subject inferred, "Birth order issues? Oldest son, maybe?". Other times, however, the inference was made in another domain and much less obviously connected to the observation. For example, to the client comment, "I'll get mad at (my girlfriend) for not being able to read my mind," the therapist inferred, "I just had a thought that he's an only child." When queried during IPR, the therapist discussed her inferential process. "People who come from bigger families have more awareness of other people and where they are...he's not used to checking in with people." Another example was when the client was describing how he is verbally abusive to his girlfriend and co-workers. One therapist commented, "...Makes me wonder whether there was any alcohol or drug abuse in this family background." The inference could not have been made directly from missing information about alcohol or drug habits, as those topics were never raised. The therapist mentally compared this individual and his family's communication patterns with family patterns often seen in addictive families, and made the inference which later became part of his hypothesis.

Restructuring inferences were identifiable. In fact, at times they appeared similar to the counseling skill of a paraphrase, (i.e., repeating back to the client the essence of a client's words and thoughts using the client's own main words. [Ivey, 1993 p. 105]). The difference between a

paraphrase and a restructuring inference is the response to missing information, that is, what the therapist infers about the essence of the client's words and thoughts.

It was more difficult to consistently discriminate between addition and bridging inferences. Addition inferences were identifiable. But in order to identify a bridging inference, one must be able to identify the known beginning and ending. Frequently, endings were available, but beginnings were inferred. Sometimes beginnings were available, but it was unclear if the ending was evident and the bridge was made, or if both the ending and the bridge were inferred. Therefore, in the evaluation of these data, bridging and addition inferences were collapsed and designated supplemental inferences. Supplemental inferences were defined as those which require the supplementing of information to the beginning, middle or ending of the story in order to make sense out of it.

An example of a supplemental inference is, "I'd want to know more about this. I suspect there's a lot more underlying tension than he's admitting to. The client mentioned his girlfriend gets a little bit upset, and discusses this with a smiling face. He is now in counseling." Thus the supplemental inference of tension may be made.

In the therapist protocols, there were events of relatively pure observation, and pure inferring. Also, frequently, there appeared paired observation-inferences. A therapist would make an observation and quickly move to an inference about that observation. This is the expected process for making an inference.

However, a critical phenomenon was observed in several therapists' inference-making behaviors. This involved the development of an inference based on a previous inference. The typical pattern was the therapist making a supplemental inference, shortly thereafter treating this inferred idea with the same weight as an observation, then making a restructuring inference based upon both. This pattern suggests some interesting problems should it occur in an actual counseling setting.

One possible problem is the therapist forgetting that this information is an inference, and beginning to think of it as fact. Heider (1958, p. 82) observed that this response is common, that "typically they are not experienced as interpretations [inferences] at all." This slippery slope on the continuum between fact and inference is one that needs constant vigilance for therapists, pertaining both to their hearing of client inferred information and their own internal processing of client facts and inferences (Dumont, 1993).

In most therapy skills-type classes, students are taught to check their inferences, which would help to make the boundary between factual observation and inference more clear. It seems however, several therapists in this study found it easy to slip across that boundary without being aware of it. One example of this by an experienced therapist is, "There are some themes of perfectionism here (supplemental inference)" then later, "Given that he's a perfectionist... (restructured inference)." Another example by the same therapist was, "One of the things that I think this man deals with is a lot of denial of his feelings (supplemental inference). So I'm expecting that he won't remember details of being humiliated or shamed for not catching on (restructuring inference based on client disclosures and previous inference)."

If the therapist is correct in the first inference, it allows quick cognitive movement into prediction or explanation of behaviors, which might facilitate the therapy. However, if the first inference is incorrect, but is now given "fact" status in the therapist's mind, misunderstanding the client issues could easily occur. The result could be that the therapy would be at least temporarily sidetracked.

To reduce the risk of this type of error, therapists in this study seemed to check their inferences by often forming them into questions. In these therapy protocols, an observation of a client seemed to be an almost symbolic cue taken by the therapist to a host of other non-observed issues. This would take the form of the therapist thinking aloud, "Hmm, that's interesting. I wonder if that means he is...". By the frequency of this type of language, it seems that the

therapist assumes there are usually more events or observations to connect to the one observation that actually appeared in the session. The therapist infers what those other potentially observable phenomena might be and goes on to build the hypothesis based on this inference. As the therapist becomes aware of the inference, the reality base of it needs to be checked, and so a question is asked. The inference may be confirmed and added to the "facts" or observations of the case, or disconfirmed and discarded. For example, "I really wonder if this had ever caused him a problem before, or if his girlfriend is just the only one who said, 'Look, you're being a jerk?'". Likely, had this therapist been in a real session, she would have asked a question to confirm or disconfirm her hypothesis.

When the therapist checks out an inference with a client, the resulting confirmation or disconfirmation allows the direction of therapy to correct and continue. However, occasionally the client may deny the reality of the inference, yet the therapist may continue to suspect that there is a base to it. The therapist infers that the client is in denial, or is simply unaware of or unready to make a possible connection. The therapist may then intentionally keep the inference in his or her memory (or case notes) to explore more later. An important concept, for the therapist to realize is that the client's description is a representation of the event and not the event itself (Ivey, 1993, p. 237). So in a sense, the client has made inferences about the event, and is describing them to the therapist as facts or observations.

One experienced therapist commented directly on this type of inference. She said that her mode of operation is to assume that clients are almost always unaware of the cause of their pain and the means to alleviate it, otherwise they would have done something about it already. She sees the purpose of the therapy hypothesis formation process as one of discovering with the client the true cause for the distress. This must be inferred from the client's reports of behaviors around the problem and from the enactment of the problem via the client-therapist interactions in the sessions.

Whatever validity the therapist gives to the client's understanding of the problem, one of the therapist's roles is to evaluate the reasonableness of the client's inferences; the therapist does that through the process of professional inference making. Therapists must also be reminded to check the accuracy of their own inferences to be sure they have not taken on a fallacious life of their own, or are based on countertransference.

Limitations

The constraints which normally exist in qualitative designs prevent wide generalizability from this study. The small, heterogeneous sample, which was not analyzed for between-group differences is such a limitation. The qualitative analysis provided important suggestions as to the patterns and types of inferential behavior. Future research could involve a larger sample of experienced therapists, looking specifically for supplemental, restructuring, and combination inferences. Future qualitative study could evaluate the inference upon inference situation, questions about how it occurs, and results of its occurrence in terms of accurate hypothesis formation.

Conclusion

In everyday life and in our clinical work, we make many inferences. Practitioners should be cautious especially in their diagnostic work to not overreach the reasonableness of their inferences. They must be especially careful to check back with themselves periodically, as to the original source and foundation for a hypothesis, asking "What are my data?". As ethical practice mandates therapists do not overinterpret their assessment techniques, the use of inference in hypothesis formation must be done cautiously. Suggestions for thoughtful use of inferential heuristics in hypothesis formation (Dumont, 1993) and in therapist training objectives (Dumont and Lecomte, 1987) continue to be helpful. Faculty in therapist preparation programs should stress the differences between hypotheses made upon known or unknown data. Examination of the sources of the unknown data, such as projecting personal bias, experience, or cultural centrism

may expose an invalid inference, which might be harmful for the client.

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Table 1

Summary of Therapist Direct Observations as Compared to Inferential Observations

Subject	Total observations	Inferred Observations	Percent inferred
Student #1	665	185	28
Student #2	484	242	50
Student #3	310	107	35
Novice #1	664	450	68
Novice #2	562	242	43
Novice #3	579	230	40
Experienced #1	627	321	51
Experienced #2	795	431	54
Experienced #3	472	340	72
		$\overline{X}$ =	49
		SD =	13.6

Table 2

Summary of Therapist Inferential Reasoning by Type

Subject	Type	No. of inferences	Proportion	Combinations
Student #1	Supplemental	65	.74	S + R = 2
	Restructuring	23	.26	
	Total	88		
Student #2	Supplemental	36	.53	S + R = 2
	Restructuring	27	.43	R + R = 1
	Total	63		
Student #3	Supplemental	19	.53	-0-
	Restructuring	17	.47	
	Total	36		
Novice #1	Supplemental	51	.47	S + R = 1
	Restructuring	57	.53	R + R = 1
	Total	108		
Novice #2	Supplemental	43	.53	S + R = 4
	Restructuring	38	.47	
	Total	81		
Novice #3	Supplemental	43	.53	S + R = 4
	Restructuring	38	.47	
	Total	81		
Experienced #1	Supplemental	48	.59	S + R = 4
	Restructuring	70	.41	
	Total	118		
Experienced #2	Supplemental	94	.60	S + R = 4
	Restructuring	62	.40	
	Total	156		
Experienced #3	Supplemental	70	.54	S+ R = 4
	Restructuring	59	.46	
	Total	129		

S = Supplemental inference
R = Restructuring inference