

# Is Understanding Why Necessary for Treatment Choices?

Chantal Berens<sup>1</sup>, Cilia L. M. Witteman<sup>1,2</sup>, and Monique O. M. van de Ven<sup>1</sup>

<sup>1</sup>Diagnostic Decision Making, Behavioral Science Institute, Radboud University Nijmegen, The Netherlands, <sup>2</sup>Faculty of Psychology, University of Bergen, Norway

**Abstract.** Models of the psychodiagnostic process prescribe that clinicians should analyze explanations for their clients' problems and subsequently use this information to decide upon the most appropriate treatment plan. However, studies of clinical practice suggest that the role of explanations is minimal, and that considering only symptoms gives clinicians enough information to plan treatment. In this experimental study we tested whether different explanations for the same problem are related to different treatment plans. Analyses of the responses given by 151 psychologists for cases of anorexia and conduct disorder in which the explanations were manipulated, suggest that explanations matter. Different explanations for the same constellation of symptoms were related to different treatment plans. This implies that clinical psychologists do not propose a treatment based on symptoms only. Implications of our findings are discussed.

**Keywords:** psychodiagnosis, explanatory diagnosis, treatment decisions, diagnostic cycle

## Introduction

The psychodiagnostic process in mental health care starts with a client presenting a complaint and ends with a decision about the most appropriate advice or treatment for this complaint (Gough, 1992). Several prescriptive models for the psychodiagnostic process have been developed, for example the Diagnostic Cycle (De Bruyn, 1992; De Bruyn, Ruijsenaars, Pameijer, & Van Aarle, 2003).

The Diagnostic Cycle prescribes four activities to be performed in this order: complaint analysis, problem analysis, explanation analysis, and indication analysis. In the complaint analysis, the client's personal story is assessed in order to identify the client's (subjective) complaints. Subsequently, in the problem analysis, these subjective complaints are rephrased in objective and testable terms, using theoretical models or a classification system such as the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000). This constitutes the input for the explanation analysis. In this phase, several (alternative) hypotheses are generated and tested, using scientific knowledge, to understand what precipitated or caused and maintains the problems. This phase results in an integrative model of the client and the problems: the explanatory diagnosis or case formulation. Finally, in the fourth phase, the indication analysis, a treatment is selected that is believed to alleviate the problems identified in the problem analysis and to target the causes identified in the explanation analysis, and proposed to the

client (De Bruyn et al., 2003). Thus, the prescription is that, in order to decide upon a treatment plan, the problems have been identified and explanations for those problems have been formulated (see Gough, 1992).

Research in the field of psychodiagnosis has mainly focused on problem analysis or diagnostic (mostly DSM) classifications, and psychodiagnostic explanations have been studied much less extensively (Caspar, 1997; Galanter & Patel, 2005; Garb, 2005; Witteman, Harries, Bekker, & Van Aarle, 2007). Explanations are prescribed (see above), since they are thought to be essential for treatment planning (Krol, Morton, & De Bruyn, 2004). They help select treatment goals and appropriate interventions (Kendjelic & Eells, 2007; Kuyken, Fothergill, Musa, & Chadwick, 2005). They can be formulated with satisfactory reliability (Bieling & Kuyken, 2003), especially by expert therapists (Eells, Lombart, Kendjelic, Turner, & Lucas, 2005), and clinicians have been found to become more accurate when they consider alternative explanations (Garb, 1998).

Although causal explanations are thought to be crucial for treatment planning, actual practice appears not to follow suit (Groenier, Pieters, Hulshof, Wilhelm, & Witteman, 2008). Groenier et al. found that psychologists considered an explanation analysis the least necessary of all diagnostic activities and they were also the least likely to perform it. These results suggest that clinicians select a treatment method without considering an explanation for the client's problem (Groenier et al., 2008). Similar results are presented by Mayfield, Kardash, and Kivlighan (1999) and Kim and Ahn (2002), who found that clinicians acti-

vate schemas directly upon seeing a client's symptoms, based on implicit causal theories. This precludes the need of explicit causal reasoning, since explanations of the symptoms are implicitly included in the schemas.

To the best of our knowledge, this discrepancy between prescriptions for explanatory diagnosis and actual practice has not been addressed yet, except through clinicians' self-report (Groenier et al., 2008). We present an experimental study in which we focused on the role of explanations in the diagnostic process, specifically for treatment planning. We aimed to find out whether explanations make a difference to treatment plans. To answer this question, we manipulated explanations, and we compared treatment plans for the same case with different explanations. If clinicians perform an explanation analysis to inform their treatment decisions, treatment decisions should be dissimilar with different explanations. If explanations are redundant and only symptoms matter, the treatment decisions should be the same, regardless of the explanations.

## Method

### Participants

Approximately 1,100 clinical psychologists were approached by e-mail with the invitation to take part in this study. The response rate was 13.7%, which was low (compare Beerthuis, Witteman, & Swinkels, 2007; who had a response rate of 22.0%), resulting in a final sample of 151 psychologists. The majority of the participants were registered clinical psychologists (84.1%), the remaining participants were clinical psychologists in training. Our sample was representative for the population of Dutch clinicians. The age of the participants ranged from 25 to 74 years, with a mean of 46 years ( $SD = 11.7$ ; compare Ploeg & Scholte, 2001; who reported a mean age of 46 years). In 2000, 64% of Dutch clinicians were women, but our sample consisted of 76.2% women ( $N = 115$ ). This can be explained by a steady increase in the percentage of female clinical psychologists in training since 2000. On average, our participants had 14.2 years of clinical experience ( $SD = 8.6$ ; range = 1–39 years). The majority of the therapists reported a cognitive-behavioral orientation (57.2%), 25.5% an eclectic, and 9.0% a psychodynamic orientation. The remaining 12 therapists (8.3%) did not have a specific orientation.

### Materials

*Vignettes* (short case descriptions) were constructed to describe adolescents with one of two disorders that are quite prevalent in this age group: Anorexia nervosa (with a prevalence of 0.5–1%) and conduct disorder (prevalence of 1–10%). The vignettes consisted of three paragraphs. In the first paragraph, general information (e.g., age) and descrip-

tions of symptoms (e.g., aggression) were presented. The second paragraph focused on interpersonal information, that is: information about the family situation and how this influenced the adolescent. The third paragraph included information about the adolescent's behavior and cognitions. We constructed three versions of each vignette. In the neutral version (N), we simply summarized all the case information. In the other two versions we emphasized an explanation by adding words such as *is mainly caused by*, *the most important cause is*. In the second, interpersonal version (I), causal and explanatory terms were added to the interpersonal items in the second paragraph; and in the third, cognitive-behavioral version (CB) we added causal terms to the behavioral and cognitive information in the third paragraph (see Appendix for the vignettes).

The vignettes were constructed in cooperation with experienced clinicians and were pretested to see whether, with our additions of causal terms, the differences in explanations were recognized. Participants in this pretest were 74 third-year bachelor students of the School of Pedagogical Sciences of the Radboud University Nijmegen. They were randomly assigned to one of three groups, with  $N$ s of 23, 26, and 25. Each participant received two vignettes: one of each disorder, in a different version. The order of versions was counterbalanced. The participants were instructed to carefully read each case description, and then to write down what they thought was the most important cause of the disorder. Results of the pretest indicated that the manipulations were successful for both the anorexia nervosa and the conduct disorder vignettes. For the CB versions, participants wrote down a cognitive and/or behavioral cause of the disorders four to five times more often than for the N versions and they gave no cognitive-behavioral explanation for the I versions. For the I versions, most participants saw an interpersonal cause as the most important, and they indicated much fewer interpersonal causes in the CB or N versions.

### Procedure

An e-mail was sent to the participants, which included a hyperlink to a web-based questionnaire. In the questionnaire, the vignettes were presented. After reading each vignette, the clinician was asked to answer the following questions: (1) Which treatment do you propose? and (2) What is your main reason for proposing this treatment? For the anorexia case, we presented, in consultation with experienced psychologists, the following treatment options from which participants could choose: cognitive-behavioral, psychodynamic, interpersonal/system, a combination of cognitive-behavioral and system therapy, and other therapies or referral. For the conduct disorder case, the treatment options were: cognitive-behavioral, group, interpersonal/system, a combination of cognitive-behavioral with system and/or group therapy, and other therapies or referral. In addition, participants were asked to answer questions

about their age, gender, years of experience, theoretical orientation, and professional registration.

As in the pilot study, the participants were assigned to one of three groups. Each participant received one vignette of each disorder, which differed in emphasis: N, I, or CB. After participation, the psychologists received a gift voucher worth 10 Euros. Responses to the questions and personal details (name, address) were kept in separate files, ensuring that responses could not be traced back to individual participants.

## Data Analysis

The participants' answers regarding their main reason for their treatment proposal were categorized as either cognitive-behavioral, interpersonal, or other or a combination, and used in the manipulation check. Their answers regarding which treatment they would propose were tabulated and differences in the three versions were tested using  $\chi^2$  analyses.

## Results

### Manipulation Check

We examined whether the clinicians noticed our emphasis on a specific explanation, as had the students in our pilot study, by looking at the main reasons they gave for their treatment proposal. First, we separated cause-related reasons from other reasons. For the three anorexia vignettes, 67.5% ( $N = 102$ ) of the participants gave cause-related reasons; for the conduct disorder vignettes this was 80.1% ( $N = 121$ ). For instance, in an anorexia vignette answers were given such as: "to change cognitions regarding eating behavior and weight." The remaining participants mentioned reasons that were not related to any cause of the problem, for example: "because of the severity of the complaints." We then examined whether the cause-related reasons, divided into cognitive-behavioral, interpersonal, and other or combination, were associated with the experimental version (see Table 1). The analysis revealed a significant association, for both anorexia ( $N = 102$ ,  $\chi^2 = 15.51$ ,  $df = 4$ ,  $p < .01$ ), and conduct disorder ( $N = 121$ ,  $\chi^2 = 12.81$ ,  $df = 4$ ,  $p < .05$ ). Based on these results we concluded that our manipulation had been successful, implying that the clinicians endorsed the specific explanation we had emphasized.

### Explanations – Do They Matter?

We first examined the relation between theoretical background and treatment proposals. Theoretical background was not related to the proposed treatment plans for ano-

*Table 1.* Reasons for treatment proposals of those participants who gave cause-related reasons, for anorexia ( $N = 102$ ) and conduct disorder ( $N = 121$ ) in the three versions

Disorder	Reason	% within version		
		N	I	CB
Anorexia	Cognitive-behavioral	45.9	19.4	65.5
	Interpersonal	35.1	47.2	13.8
	Other/combination	18.9	33.3	20.7
Conduct disorder	Cognitive-behavioral	48.6	31.8	67.5
	Interpersonal	18.9	38.6	15.0
	Other/combination	32.4	29.5	17.5

*Note.* N = neutral version, I = interpersonal version, CB = cognitive-behavioral version.

rexia ( $N = 151$ ,  $\chi^2 = 17.45$ ,  $df = 12$ ,  $p = .13$ ) or conduct disorder ( $N = 146$ ,  $\chi^2 = 9.53$ ,  $df = 12$ ,  $p = .66$ ). Therefore, it was not necessary to control the subsequent analyses for theoretical background. We then looked at the treatment proposals for the N versions, to explore whether equal or different treatment plans were proposed for the same client when no specific explanation was emphasized. Next, to test whether different explanations for the same problem were associated with different treatment proposals, the proposals in the three versions were compared for each disorder.

### Treatment Proposals for the Neutral Version

#### Anorexia

As can be seen in the first column of Table 2, the treatment proposals for the anorexia vignette in the N version were dissimilar. The psychologists did not propose the same treatment for the same client. Cognitive-behavior therapy appeared to be the favored option, followed by interpersonal/system therapy.

*Table 2.* Treatment proposals for anorexia in the three versions ( $n = 151$ )

Treatment	% within version		
	neutral $N = 57$	interpersonal $N = 45$	cognitive-behavioral $N = 49$
Cognitive-behavior therapy	34.0	20.0	46.9
Psychodynamic therapy	11.3	2.2	14.3
Interpersonal/system therapy	30.2	51.1	16.3
CBT + system therapy	11.3	20.0	10.2
Other therapy/refer	13.2	6.7	12.2

*Note.*  $\chi^2 = 20.88$ ,  $df = 8$ ,  $p = .007$ .

Table 3. Treatment proposals for conduct disorder in the three versions ( $n = 146^*$ )

Treatment	% within version		
	Neutral $N = 47$	Interpersonal $N = 49$	Cognitive-behavioral $N = 43$
Cognitive-behavior therapy	27.7	24.5	41.9
Group therapy	29.8	12.2	20.9
Interpersonal/system therapy	17.0	30.6	14.0
Combination CBT + system/group	12.8	26.5	11.6
Other therapies/refer	12.8	6.1	11.6

Note. \*Five clinicians did not answer the questions for the conduct disorder vignette.  $\chi^2 = 14.55$ ,  $df = 8$ ,  $p = .069$ .

### Conduct Disorder

For the treatment proposals for conduct disorder in the N version, a similar outcome was found. Again different treatments were proposed (see the first column of Table 3). Group therapy was proposed most often when no specific explanation of the problems was emphasized. The responses were more varied than in the anorexia vignette. Cognitive-behavior therapy was proposed almost as often as group therapy, and the number of psychologists who proposed a combination or other therapies was relatively large.

### Comparison of Treatment Proposals in the Three Versions

#### Anorexia

Table 2 shows the treatment proposals suggested by the participants for the three versions of the anorexia vignette. We found a significant association between treatment proposal and experimental version ( $N = 151$ ,  $\chi^2 = 20.88$ ,  $df = 8$ ,  $p = .007$ ). While in the N version participants seemed to favor cognitive-behavior therapy, for the I version most psychologists considered interpersonal/system therapy to be the best option for treatment. When a cognitive-behavioral explanation was emphasized, the majority of the psychologists proposed cognitive-behavior therapy. Since the range of experience of our participants was large, we separated the sample into three experience groups (0–5 years of experience,  $n = 24$ ; 6–15 years,  $n = 71$ ; and more than 16 years,  $n = 56$ ) and used a test for conditional independence to assess the mediating role of experience on the relation between version and treatment proposals. This test showed that the participants' experience did not play a role ( $N = 151$ ,  $\chi^2 = 19.53$ ,  $df = 24$ ,  $p = .72$ ).

#### Conduct Disorder

The treatment proposals of the participants for all three versions of the conduct disorder vignettes are presented in Ta-

ble 3. As with anorexia, there was an association between treatment proposal and version, although for conduct disorder this was only marginally significant ( $N = 146$ ,  $\chi^2 = 14.55$ ,  $df = 8$ ,  $p = .069$ ). Although no post hoc analyses could be conducted to test for the significance of differences within groups because of the small sample size, group therapy seemed to be proposed less frequently in the two versions in which a specific type of explanation was emphasized than in the N version. When we emphasized an interpersonal explanation, clinicians seemed to propose interpersonal/system therapy more often than when no explanation was suggested or when a cognitive-behavioral explanation was emphasized. In the CB version, most psychologists seemed to propose cognitive-behavior therapy more often than in the N or I versions. This relation between treatment proposals and type of explanation was again independent of the participants' experience ( $N = 146$ ,  $\chi^2 = 19.30$ ,  $df = 8$ ,  $p = .73$ ).

### Discussion

Our main goal with this experimental study was to examine the role of explanations in psychodiagnostic decision making. We aimed to explore whether explanations make a difference to treatment plans, as prescriptions say they should, or do not, as descriptive studies seem to suggest. To test this, we systematically varied the explanation of the symptoms of two disorders, and asked for treatment decisions. Our results suggest that explanations matter, implying that clinicians do not propose a treatment plan based on symptoms only. Going back to the discrepancy between prescriptions for explanatory diagnosis and actual practice mentioned in the introduction, our study underscores the validity of the claims of the Diagnostic Cycle and other prescriptive models that explanation analyses are important ingredients of the psychodiagnostic process.

When no explanation was emphasized, the proposed treatment plans were dissimilar. This result is in line with studies on low interclinician agreement (e.g., McDermott, 1980; for reviews see Garb, 1998). For anorexia, when no specific type of explanation was emphasized, most psychologists proposed cognitive-behavior therapy. This is in line with the Dutch multidisciplinary guideline for eating disorders (see e.g., <http://www.ggzrichtlijnen.nl>), which states that the preferred treatment for clients diagnosed with anorexia nervosa is individual psychotherapy, such as cognitive behavior therapy. Since this type of therapy is recommended, we suggest that the decisions made by the psychologists in this study for the N version can be explained by actual clinical practice in the Netherlands. For conduct disorder, no such guidelines have been developed (yet). This might explain why psychologists did not favor one specific type of treatment for conduct disorder in the N version.

When a specific type of explanation was emphasized, a strong association was found between that explanation and

the proposed treatment. This result was found for both of the disorders considered in our study. Thus, we conclude that when explanations are suggested psychologists seem to take them into account while deciding upon the most appropriate treatment plan, by relating the treatment to the explanation.

Our study has some limitations. First, the clinicians were asked to propose a treatment plan without seeing the client, and they were presented with treatment options to choose from instead of being asked to propose one themselves. However, in clinical practice, making decisions based on a description of the client does take place, for instance when advice is sought by a colleague, or during (multidisciplinary) team meetings. In addition, Garb (1998) argues, based on a review of published studies, that either seeing and hearing an interview with a client or reading a description on paper does not influence the diagnostic outcomes. Therefore, although the experimental situation differs in setting from the situation of the clinician who is asked for advice by a colleague or in a team (computer-based vs. face-to-face discussion) and, thus, results have to be interpreted with some caution, we assume that our research method was valid (compare Estrada, Isen, & Young, 1997) and that the descriptions provided in the vignettes were indeed realistic, as the clinicians we had consulted had assured us. The options that were presented were the most prevalent treatments for these disorders, and by presenting these choices we avoided having to interpret clinicians' terminology used to denote different treatment. In addition, as in any self-report study, there is the issue that we cannot be certain that all participants answered the questions seriously, yet we had no indication that they did not.

Second, the psychologists were only asked to propose a treatment plan. They did not have to actually treat the client. Because of this limitation, it remains uncertain whether they would actually have performed the treatment they proposed. Actual practice could be analyzed by way of a retrospective or a longitudinal study. Such studies might also be of value since they would allow evaluation of the treatment outcomes. In line with studies on treatment utility (Nelson-Gray, 2003), the question remains whether treatment proposals *should* be related to the explanation of the problem in order to respond to the client's request for help in the best possible way. Results of the present study imply that explanations play a role in deciding upon a treatment. Further studies should examine whether this leads to better treatment outcomes. If so, the Diagnostic Cycle is correct in its prescription to include an explanatory diagnosis, and this prescription should be stressed and aids developed to guide this diagnostic phase. As was found for diagnostic classifications (Sartorius et al., 1993), applying such aids might lead to more reliable explanatory diagnoses. Two other limitations of this study include the limited statistical power for particular analyses because of a relatively small sample size, and the fact that it was not possible to analyze the reliability of our outcome measure because treatment preferences were only assessed once, by a single item.

This experimental study is rather unique in its manipulation of clinical stimulus material, which allows for clear conclusions. The findings have implications for actual clinical practice and for the training of future psychologists. We deliberately provoked framing effects, which occur when a choice depends on how the situation is presented (Baron, 2008; Kahneman & Tversky, 1984; Tversky & Kahneman, 1981), by manipulating the presentation of the information in the vignettes. We "framed" the situation by emphasizing a specific explanation. In actual practice, this type of framing may also occur, for instance when information is provided by clients or colleagues. So our manipulation was ecologically valid, while at the same time clinicians should be warned about such framing effects. The ideas of clients or colleagues about the cause(s) of the problems might be accepted without further testing. Clinicians should be advised to gather their own information and to perform their own explanation analysis. This could avoid mismatched interventions, and ensure that a treatment plan is proposed that relates to the most likely causal factors (Haynes & Williams, 2003).

## Acknowledgments

The authors thank Pieter van Groenestijn (RTOG) and John van den Bercken for their assistance in data collection and analysis.

## References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental Disorders* (4th ed.). Washington, DC: Author.
- Baron, J. (2008). *Thinking and deciding* (4th ed.). Cambridge, MA: Cambridge University Press.
- Beerthuis., R.J., Witteman, C., & Swinkels, J.A. (2007, April). *Diagnostiek in de psychiatrische praktijk* [Diagnostics in psychiatric practice]. Poster presented at the psychiatry Spring conference. Maastricht, The Netherlands.
- Bieling, P. J., & Kuyken, W. (2003). Is cognitive case formulation science or science fiction? *Clinical Psychology: Science and Practice*, 10, 52–69.
- Caspar, F. (1997). What goes on in a psychotherapist's mind? *Psychotherapy Research*, 7, 105–125.
- De Bruyn, E. E. J. (1992). A normative-prescriptive view on clinical psychodiagnostic decision making. *European Journal of Psychological Assessment*, 8, 163–171.
- De Bruyn, E. E. J., Ruijsenaars, A. J. J. M., Pameijer, N. K., & Van Aarle, E. J. M. (2003). *De diagnostische cyclus: Een praktijkleer* [The diagnostic cycle: Theory in practice]. Leuven: Acco.
- Eells, T. D., Lombart, K. G., Kendjelic, E. M., Turner, L. C., & Lucas, C. (2005). The quality of psychotherapy case formulations: A comparison of expert, experienced, and novice cognitive-behavioral and psychodynamic therapists. *Journal of Consulting and Clinical Psychology*, 73, 579–589.

- Estrada, C. A., Isen, A. M., & Young, M. J. (1997). Positive affect facilitates integration of information and decreases anchoring in reasoning among physicians. *Organizational Behavior and Human Decision Processes*, 72, 117–135.
- Galanter, C. A., & Patel, V. L. (2005). Medical decision making: A selective review for child psychiatrists and psychologists. *Journal of Child Psychology and Psychiatry*, 46, 675–689.
- Garb, H. N. (1998). *Studying the clinician: Judgment research and psychological assessment*. Washington, DC: American Psychological Association.
- Garb, H. N. (2005). Clinical judgment and decision making. *Annual Review of Clinical Psychology*, 1, 67–89.
- Gough, H. (1992). Some reflections on the meaning of psychodiagnosis. *Journal of Personality Assessment*, 59, 410–423.
- Groenier, M., Pieters, J. M., Hulshof, C. D., Wilhelm, P., & Witteman, C. L. M. (2008). Psychologists' judgments of diagnostic activities: Deviations from a theoretical model. *Clinical Psychology and Psychotherapy*, 15, 256–265.
- Haynes, S. N., & Williams, A. E. (2003). Case formulation and design of behavioral treatment programs: Matching treatment mechanisms to causal variables for behavior problems. *European Journal of Psychological Assessment*, 19, 164–174.
- Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, 39, 341–350.
- Kendjelic, E. M., & Eells, T. D. (2007). Generic psychotherapy case formulation training improves formulation quality. *Psychotherapy: Theory, Research, Practice, Training*, 44, 66–77.
- Kim, N. S., & Ahn, W. (2002). Clinical psychologists' theory-based representations of mental disorders predict their diagnostic reasoning and memory. *Journal of Experimental Psychology: General*, 131, 451–476.
- Krol, N., Morton, J., & De Bruyn, E. (2004). Theories of conduct disorder: A causal modeling analysis. *Journal of Child Psychology and Psychiatry*, 45, 727–742.
- Kuyken, W., Fothergill, C. D., Musa, M., & Chadwick, P. (2005). The reliability and quality of cognitive case formulation. *Behavior Research and Therapy*, 43, 1187–1201.
- Mayfield, W. A., Kardash, C. M., & Kivlighan, D. M., Jr. (1999). Differences in experienced and novice counselors' knowledge structures about clients: Implications for case conceptualization. *Journal of Counseling Psychology*, 46, 504–514.
- Nelson-Gray, R. O. (2003). Treatment utility of psychological assessment. *Psychological Assessment*, 15, 521–531.
- McDermott, P. A. (1980). Congruence and typology of diagnosis in school psychology: An empirical study. *Psychology in the Schools*, 17, 12–24.
- Ploeg, J. D. van der, & Scholte, E. M. (2001). *De gz-psycholoog in beeld* [The clinical psychologist in the picture]. Amsterdam: NIP/NVO/Nippo.
- Sartorius, N., Kaelber, C. T., Cooper, J. E., Roper, M. T., Rae, D. S., Gulbinat, W., . . . Regierl, D. A. (1993). Progress toward achieving a common language in psychiatry: results from the field trials of the clinical guidelines accompanying the WHO Classification of Mental and Behavioral Disorders in ICD-10. *Archives of General Psychiatry*, 50, 115–124.
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 211, 453–458.
- Witteman, C. L. M., Harries, C., Bekker, H. L., & Van Aarle, E. J. M. (2007). Evaluating psychodiagnostic decisions. *Journal of Evaluation in Clinical Practice*, 13, 10–15.

Cilia Witteman

Diagnostic Decision Making  
Behavioral Science Institute  
Radboud University Nijmegen  
P. O. Box 9104 (6th floor)  
NL-6500 HE Nijmegen  
The Netherlands  
Tel. +31 24 3612123  
Fax +31 24 3612776  
E-mail c.witteman@socsci.ru.nl

## Appendix

### Vignette Conduct Disorder

#### Neutral version

1. Frank is 12 years old and he lives with his mother. Frank never does what he is asked. He is dominant and does not listen. He has little respect for other people's feelings. He does not experience feelings of guilt when he hurts others. He often runs away and does not abide by the rules at home. At school, he initiates fights and clashes with teachers and often skips classes. When Frank was still in preschool he regularly crossed the line. At a young age he bullied and intimidated other children and was angry and rebellious. At the age of eleven, he used a knife to threaten a group of boys, because he felt they were looking for a fight.

2. Frank is fickle by nature and hard to handle. He reacts violently to frustration. He has a low verbal IQ and a difficult disposition. During the last years, his mother had several short-term relationships with different men. Frank was not able to get along with any of these men.
3. Frank has difficulties using problem-solving skills in social interactions. Nonverbal actions, such as hand gestures, as well as short comments are often misinterpreted by Frank as hostile and antagonistic. He uses aggression to solve social conflicts.

#### Paragraph 2 Interpersonal Version

2. Frank reacts violently to frustration. He has a low verbal IQ. His aggressive behavior started when his mother had

several relationships with men. Frank was not able to get along with any of them, and the difficulties he experienced with the ever-changing situation caused his aggressive behavior.

### Paragraph 3 Cognitive-Behavioral Version

3. Frank's conduct disorder was caused mainly by his difficulty in using problem-solving skills in social interactions. He interprets others' behavior negatively and because he does not possess problem-solving skills, he resorts to aggression.

## Vignette Anorexia Nervosa

### Neutral Version

1. 17-year-old Marieke constantly thinks about food and calories. She plans her food intake very carefully. Marieke weighs herself regularly, sometimes more than once a day. She is afraid to gain weight and refuses to keep her bodyweight at or above the normal level for her age and length. Marieke herself insists that there is nothing wrong, even though she cannot concentrate on anything but losing weight. Although she has become quite thin, she stills feels fat. She does not have her periods anymore and she is somber, irritable, and withdrawn. She tries to avoid social situations that involve eating.
2. Marieke's family is close, child-focused, and overprotective, with weak boundaries between the family members. Conflicts, also those relating to eating, are avoided. Marieke's mother is a slender woman. Marieke indicates that she cannot remember a time that her mother was not

thinning. Mother's weight-loss attempts have in the past been rather extreme. At first mother commented positively on her daughter's losing weight.

3. Marieke attends grammar school, is ambitious, a perfectionist, and has a high achievement level. She often feels she fails, and she cannot handle criticism. Marieke's behavior is dependent, she is afraid of being rejected, has a negative self-image and little self-confidence. Marieke dislikes female curves; being thin is her ideal image. Controlling herself in losing weight gives Marieke a strong and competent feeling.

### Paragraph 2 Interpersonal Version

2. The main causes of the anorexia are to be found in Marieke's family, which is close, child-focused, and overprotective. Conflicts, also those relating to eating, are avoided. Another important point is that Marieke indicates that she cannot remember a time that her mother was not dieting, sometimes rather extremely. Her mother's example and positive comments have caused Marieke to start dieting extremely about a year ago.

### Paragraph 3 Cognitive-Behavioral Version

3. Marieke attends grammar school, is ambitious, a perfectionist, and has a high achievement level. She often feels she is a failure, and she cannot handle criticism. Marieke is afraid of being rejected, has a negative self-image and little self-confidence. She dislikes female curves; being thin is her ideal. Her negative self-image and the drive to be in control are the most important causes of Marieke's anorectic behavior.