The Unconscious Thought Effect in Clinical Decision Making: An Example in Diagnosis
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The unconscious thought effect refers to improved judgments and decisions after a period of distraction. The authors studied the unconscious thought effect in a complex and error-prone part of clinical decision making: diagnosis. Their aim was to test whether conscious versus unconscious processing influenced diagnosis of psychiatric cases. They used case descriptions from the DSM-IV casebook. Half of the participants were randomly assigned to the conscious-processing-condition (i.e., consciously thinking about the information they read in the case description), the other half to the unconscious-processing condition (i.e., performing an unrelated distracter task). The main dependent measure was the total number of correct classifications. Compared to conscious processing, unconscious processing significantly increased the number of correct classifications. The results show the potential merits of unconscious processing in diagnostic decision making. Key words: unconscious thought effect; clinical decision making; diagnosis; classification; DSM.

Diagnosis is important in clinical decision making. On the basis of diagnosis, clinicians make decisions (e.g., about treatment) that affect the well-being of clients and costs of health care. The Diagnostic and Statistical Manual of Mental Disorders (DSM) is the American Psychiatric Association’s (APA’s) handbook for the diagnosis of psychological disorders, used as the standard in psychiatric diagnosis in most countries.1 The task of psychiatric diagnosis can be difficult and has been shown to be problematic for clinicians.2 Here, we focus on whether the way in which information is processed, conscious or unconscious, affects performance in psychiatric diagnostic classification.

Classifications can be performed through different modes of information processing. Numerous dual-processing models of cognition distinguish deliberate, conscious, and analytical processing from unconscious and intuitive processing.3–6 Many factors determine whether clinicians classify based more on deliberate or based more on intuitive processing. For example, with increasing levels of experience, clinicians appear to decrease the use of deliberate reasoning and increase their reliance on intuitive processes.7 Other factors include a clinician’s mood state, motivation, available cognitive resources, personal preferences for the use of intuition or deliberation, and distraction.8–10 Intriguingly, while being consciously distracted from a judgment or decision task, information can still be processed at an unconscious level.11 In clinical decision making, most emphasis has been placed on explicit, deliberate reasoning in diagnosis.

Recent findings in the field of psychology speak to the role of conscious and unconscious processing in judgment and decision making. Conscious processing does not always increase the quality of judgments and decisions. When decision tasks are complex—that is, involve a large amount of information—people do not always have enough cognitive resources to consciously analyze all the
relevant pros and cons. 12,13 Moreover, people often find it rather hard to explicitly know which aspects are most important. 9,13,14 In such cases, unconscious processing and reliance on intuition can result in better decisions than conscious, deliberative processing. 9,13–15

The unconscious thought effect 9,16 refers to improved judgments and decisions after a period of distraction. It is as yet unclear whether this effect occurs in the domain of medical decision making. The current research aimed to contribute to the understanding of the potential role of unconscious processing in clinical decision making. Specifically, we tested the influence of conscious versus unconscious thought on the quality of classification in diagnosis, a complex and error-prone part of clinical decision making. Diagnosis often involves a considerable amount of information that has to be taken into account. Whereas conscious thought has only a limited amount of capacity available, the capacity of the unconscious is vast. 12,13 Moreover, conscious processing can hamper decision making due to the assignment of inappropriate weights to the attributes of a decision problem. 13,14,16,17 Diagnostic information may be “overruled” by more salient but less diagnostic information. 18 Therefore, we hypothesized that a short period of distraction (i.e., allowing unconscious but not conscious processing of the information relevant for the classification) would result in more accurate classifications of complex psychiatric disorders than consciously thinking about the information for a similar amount of time.

**METHOD**

**Participants and Design**

Participants were 80 students (68 women, 12 men) in clinical psychology, with advanced-level training in DSM classifications, from the Radboud University Nijmegen, participating for course credits. They were randomly assigned to either of 2 processing conditions (conscious v. unconscious).

**Materials and Procedure**

Participants read 2 case descriptions from the Dutch version of the DSM-IV casebook (for further details, see the online appendix at http://mdm.sagepub.com/supplemental). 19,20 The DSM-IV casebook consists of case descriptions selected by members of the APA DSM Task Force and Work Group and consultants and advisers. Each case description is a written example of one or more psychiatric disorders, representing the clinical diagnostic criteria from the DSM-IV-TR. With each case description, DSM diagnoses are given and discussed. We used these as our standard for accurate responses in scoring the diagnoses given by the participants of the current study, similar to previous research. 21

After participants had read 2 complex case descriptions, we manipulated their processing mode. Half of the participants (34 women, 6 men) were randomly assigned to the conscious-processing condition. They were instructed to think about the information they had read in the 2 case descriptions for 4 minutes. In the instruction, it was also mentioned that after 4 minutes, they would be asked to answer a few questions about the case descriptions. The other half of the participants (34 women, 6 men) were assigned to the unconscious-processing condition. After they had read the 2 case descriptions, they performed an unrelated distracter task for 4 minutes. These participants solved a word-finding puzzle, which prevented them from thinking consciously about the case descriptions. Importantly, during this period, they could still process the information they had just read unconsciously. 9,11,16

Our main dependent measure was the total number of correct classifications. Participants were asked to fill in what they thought to be the right DSM classifications for the cases they had read. As both cases represented comorbidity, participants were asked to give 2 classifications per case. Thus, the maximum number of correct classifications was 4. They were also asked to indicate their certainty about their classifications for each case description on a 10-point scale, anchored with not certain at all and highly certain.

**RESULTS**

On average, participants classified 2.48 (out of 4, s = 0.84) disorders correctly. Their mean level of confidence was 6.61 on a 10-point scale (1 = 3.9). Our main expectation was that unconscious processing would result in better DSM classifications than conscious processing. In accordance with this expectation, a chi-square test revealed that unconscious processing resulted in more correct classifications than conscious processing, χ²(2) = 15.00, P < 0.003. An analysis of variance (ANOVA) with processing condition (conscious v. unconscious) as the between-subjects factor and accuracy as a continuous dependent variable (from 0–4) revealed a similar pattern of results: compared to conscious processing.
In this study, we investigated whether the way in which individuals process information about a psychiatric case affects their diagnoses. In accordance with our hypothesis, the current results indicate that a brief period of distraction, during which the information relevant for classification could only be processed at an unconscious level, results in more accurate \( DSM \) classifications than consciously thinking about the information provided in the case descriptions. The current results suggest that distraction from a complex clinical case for a brief period of time may help health professionals come up with more accurate classifications.

To the best of our knowledge, the current study is the first to investigate the unconscious thought effect in the field of clinical decision making. We compared classifications made after a brief period of performing a distracter task with classifications made after a brief period in which participants were instructed to think carefully about the case descriptions. In previous research on the unconscious thought effect, a third condition was included in the design, in which participants made a decision or gave a judgment immediately after reading the relevant information. Whereas such an immediate condition is unlikely to be representative for real-world diagnostic decision making, where presumably at least a few minutes pass between being exposed to (information about) a client and making a diagnostic decision, it is important to note that previous research on the unconscious thought effect has shown that typically, participants in the unconscious thought condition made the best decisions and outperformed participants who either thought consciously or decided immediately.\(^{11,22–24}\)

Recently, there has been a fair amount of debate about the potential role of unconscious processing in decision making, with attempts to replicate the unconscious thought effect producing variable results.\(^{11,25,26}\) An important conclusion that can be drawn from this debate is that it is essential to be aware of the existence of moderator conditions under which either conscious or unconscious thinking is likely to result in the best outcomes.\(^{27}\) For example, the complexity of the decision task at hand appears to moderate effects of unconscious thought.

In future research, the breadth of applicability of the current findings in the medical domain could be investigated. One fruitful direction seems to be to investigate the role of expertise of health professionals. The current study concerns people who are relatively inexperienced. We expect that more experienced diagnosticians also benefit from an unconscious decision mode, as experts generally have a well-developed intuition through years of experience with similar cases, which has built an extensive network of implicitly associated knowledge.\(^{4,5,18,21,28}\) Moreover, it would be interesting to include other areas in the medical domain, such as family medicine, in which problems with incorrect diagnoses have been noted.\(^{29}\)

The current results show the potential merits of unconscious information processing in clinical decision making. A brief period of distraction may help health professionals come up with better classifications, a crucial step in diagnosis, with possibly far-reaching implications for the treatment and well-being of their clients.

**REFERENCES**