

Personality and Social Psychology Bulletin

<http://psp.sagepub.com/>

Depression, School Performance, and the Veridicality of Perceived Grades and Causal Attributions

Friedrich Försterling and Martin J. Binser

Pers Soc Psychol Bull 2002 28: 1441

DOI: 10.1177/014616702236875

The online version of this article can be found at:

<http://psp.sagepub.com/content/28/10/1441>

Published by:



<http://www.sagepublications.com>

On behalf of:



Society for Personality and Social Psychology

Additional services and information for *Personality and Social Psychology Bulletin* can be found at:

Email Alerts: <http://psp.sagepub.com/cgi/alerts>

Subscriptions: <http://psp.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations: <http://psp.sagepub.com/content/28/10/1441.refs.html>

>> [Version of Record](#) - Oct 1, 2002

[What is This?](#)

Depression, School Performance, and the Veridicality of Perceived Grades and Causal Attributions

Friedrich Försterling

Martin J. Binsler

Ludwig-Maximilians-University, Munich

An external criterion was assessed to test whether depressives have distorted perceptions of covariation information and whether their attributions are consistent with this information. Students' actual and self-perceived grades, depression status, and attributions for failures were assessed. Furthermore, participants estimated average grades. Generally, self-perceived own past grades were inflated. Depressed students and those with low grades distorted their own grades (but not the average grade) more to their favor than individuals low in depression and those with high grades. Depression went along with lower actual grades and with internal, stable, and global failure attributions. Mood differences in attributions were not due to differences in previous grades. Depressed individuals drew (unrealistically) more depressogenic causal inferences when they perceived average grades to be low than when average grades were perceived to be high. However, they (realistically) attributed failure more in a depressogenic fashion than did nondepressives when their own grade history was low.

The issue of whether realistic assessments of one's personal attributes and situational circumstances are associated with mental health or with mental dysfunctions is being discussed in diverse literatures, such as in social, clinical, personality, and cognitive psychology. In addition, much research has investigated whether realistic, favorably distorted, or unrealistically pessimistic judgments are beneficial or harmful (see, e.g., Colvin & Block, 1994; Sedikides & Strube, 1997; Taylor & Brown, 1988). The judgments that were investigated included detection of contingencies (Alloy & Abramson, 1979), perceptions of conveyed impressions (Campbell & Fehr, 1990), and estimations of frequencies of reinforcement (Nelson & Craighead, 1977).

Among the many research studies investigating consequences and correlates of realistic judgments, there is a series of studies dedicated to the question of whether a

specific widespread disorder, that is, depression, is associated with a specific type of judgment, that is, more or less veridical causal attributions (see Alloy & Abramson, 1979; Försterling, 1994; Försterling, Bühner, & Gall, 1998; Haaga & Beck, 1995).

With regard to the causal judgments of depressives, it has been suggested that their tendency to attribute failure to internal, stable, and global causes is more realistic than the (comparatively more external, variable, and specific) causal ascriptions of nondepressed persons: Depressed individuals' attributions are more "balanced" than the ones of nondepressives. For instance, it was found that depressives attributed success as well as failure about equally strongly to their ability, whereas nondepressed individuals exhibited "self-serving" attributional tendencies, that is, they attributed success more so than failure to their ability (see Campbell & Fairey, 1985; Kuiper, 1978; Rizley, 1978; see Taylor & Brown, 1988, for a summary).

Several authors have doubted that the finding of depressives making more "balanced" attributions (i.e., consistency between success and failure attributions) reflects attributional veridicality (see Ackermann & DeRubeis, 1991; Alloy & Abramson, 1979; Colvin & Block, 1994; Försterling, 1986, 1994). For instance, attributing success more strongly to ability than failure might be quite realistic. Individuals might typically select tasks only when assuming to be able to solve them.

Authors' Note: We are grateful to Mark Alicke and an anonymous reviewer for valuable comments on a previous draft of this article. The research was supported by Grant FOR 204/2-3. Correspondence concerning this article should be addressed to Friedrich Försterling, Department Psychologie, Ludwig-Maximilians-Universität, Leopoldstr. 13, 80802 München, Germany; e-mail: forst@mip.paed.uni-muenchen.de.

PSPB, Vol. 28 No. 10, October 2002 1441-1449

DOI: 10.1177/014616702236875

© 2002 by the Society for Personality and Social Psychology, Inc.

Hence, failure to complete a task is inconsistent with prior experiences and beliefs and attribution to external causes such as chance might therefore be realistic. All of these authors have criticized that there is no external criterion against which attributions, for example, for success versus failure, can be compared to decide which attribution is correct.

Försterling (1986, 1994) has argued that the (specific) question of whether depressives' attributions are more realistic than nondepressives' and the (more general) question of whether realistic or distorted attributions favorably influence emotional well-being or achievement behavior can be theoretically conceptualized and empirically investigated while referring to theories about attribution antecedents.

More specifically, Försterling et al. (1998) have suggested that the veridicality of an attribution can be determined on the basis of the fit of the attribution with the antecedent covariation information (see Försterling, 1989; Kelley, 1967). For instance, an attribution of failure to an internal, stable, and global factor (e.g., lack of ability) can be considered as realistic when the individual's failure occurred with low consensus (most others succeeded), high consistency (the individual failed this task in the past as well), and low distinctiveness (he failed at most other tasks). By contrast, if the attribution made (e.g., to lack of ability) is not consistent with previous covariation information, it can be considered as unrealistic (e.g., when a person fails at a task at which most others fail [high consensus] and usually succeeds at this [low consistency] and other tasks [high distinctiveness]). Note that according to the conceptualization of attributional veridicality as "fit" of an attribution with antecedent covariation information, unbalanced attributions for success and failure can be quite realistic (for instance, when success occurs with low consensus, low distinctiveness, and high consistency, whereas there is high consensus, high distinctiveness, and low consistency of failure).

Försterling et al. (1998; Försterling & Bühner, in press) have used this conception of veridicality to investigate whether depressives in fact make more realistic attributions than nondepressives. In one series of studies, covariation information was experimentally manipulated in hypothetical scenarios (Försterling et al., 1998; Studies 1 to 3) and a second series of studies (Försterling et al., 1998, Study 4; Försterling & Bühner, in press, Studies 1 and 2) assessed both causal attributions and perceived covariation information.

In the studies that experimentally manipulated covariation information, participants were classified as depressed or nondepressed on the basis of the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). In addition, they were con-

fronted with the hypothetical scenarios typically used to assess attributional style ("imagine that you fail an important exam"; see Peterson et al., 1982). Furthermore, covariation information was provided in these hypothetical scenarios; for instance, one group received covariation information designed to lead to depressogenic (internal, stable, and global) and the other group received information designed to lead to anti-depressogenic (external, variable, and specific) failure attributions. To induce depressogenic attributions, for example, participants were asked to imagine that most other individuals who took the exam succeeded at it (low consensus) and that they also failed similar (high consistency) and dissimilar (low distinctiveness) exams in the past. To suggest antidepressogenic attributions, it was indicated that most other individuals also failed the exam (high consensus) and that they had succeeded at similar (low consistency) and dissimilar tasks (high distinctiveness) in the past. As a dependent variable, it was assessed to what extent depressive and nondepressive persons attributed the described events to internal, stable, and global causes.

Försterling et al. (1998; Experiments 1, 2, and 3) did not find significant differences with regard to the influence of covariation information on depressives' or nondepressives' attributions. Depressives generally showed a tendency to attribute failure more strongly to internal, stable, and global causes than did nondepressives, and covariation information too significantly influenced attributions in the expected direction (depressogenic covariation information leads to internal, stable, and global failure attributions, whereas antidepressogenic information leads to external, variable, and specific attributions). An interaction between "depression" and "covariation information," which would indicate that the two mood groups differentially process the presented covariation information, however, was not found. Hence, these findings indicate that depressives have a general bias to drawing more internal, stable, and global attributions from experimentally provided covariation information; however, they do not process covariation information in a different way than nondepressives. One possibility for the lack of differential influence of covariation information on causal conclusions might be that hypothetical, experimentally provided covariation information does not possess the necessary personal relevance for triggering depressogenic information processing schemata.

In the studies that assessed (rather than experimentally manipulated) perceived covariation information, participants also were confronted with the above-described scenarios. However, they indicated both their causal attributions (e.g., how internal or external a cause for a hypothetical failure might be) as well as perceived

covariation information (e.g., perceived consensus, that is, how many other individuals probably would have failed at the task in question). The study revealed that depressives made—also in relation to their self-perceived covariation information—more internal, stable, and global attributions for failure, hence, conceptually replicating the reported findings regarding the causal attributions drawn from experimentally provided covariation information. However, depressives also tended to assume that there was low consensus, high consistency, and low distinctiveness of failure. In other words, not only the attribution but also the perceived information the attribution is presumably based on was biased in a depressogenic direction.

As already indicated, the comparison of the attributions with self-perceived or experimentally provided covariation information allows for a judgment about the fit, consistency, or veridicality of the attribution (in relation to covariation information). However, the reported differences between the mood groups regarding self-perceived covariation information do not allow conclusions about the veridicality of these perceptions, because an external criterion for these perceptions is lacking. For instance, the fact that depressives—compared to nondepressives—assume low consensus with regard to their failures (i.e., “I failed but others succeeded at this task”) might reflect a correct assessment of the facts or a biased perception. Or, more technically, none of the studies investigating depressive attributions or perceived covariation information has done both, that is, assessed (or manipulated) actual covariation information before measuring perceived covariation information (in addition to attributions). This, however, is necessary to assess whether self-perceived covariation information is veridical.

To summarize, studies manipulating covariation information experimentally and studies assessing perceived covariation information are silent as to whether perceived covariation information is biased or correct. The first type of study simply does not assess this parameter and the second type of study does not assess an external criterion (i.e., actual covariation information) to compare with perceived covariation. Finally, both series of studies have used hypothetical scenarios rather than real life situations and hence might have used situations that lack sufficient personal importance for triggering depressogenic schemata.

To answer the question of whether perceived covariation and/or attributions are biased or distorted, studies are needed that assess both actual and perceived covariation information as well as attributions. In addition, covariation information and attributions in highly relevant personal contexts might be especially informa-

tive regarding the question of what cognitive processes accompany depression.

An area of life in which such objective covariation information is readily and reliably available and of great personal importance is the school context. In addition, the school context allows us to assess interesting long range performance measures and constitutes an environment with sufficient personal relevance to elicit affective reactions such as depression. Attributions for failure at a certain task (e.g., a math exam) as well as perceived covariation information can be related to actual previous covariation information (i.e., outcomes), more specifically to consistency information (i.e., performances in math in the past), distinctiveness (e.g., performances in German or English), and consensus information (i.e., the outcomes of all other classmates and/or the outcomes of the classmates that might be especially important for the respective students and therefore lend themselves for social comparison). Hence, personally highly important “objective” covariation information is available for a comparison with perceived covariation information and attributions. Therefore, the present research assessed subjectively perceived and actual school grades to determine whether depressed or non-depressed individuals are more realistic.

METHOD

Participants

The study included 85 female and 98 male students of Grades 9 and 10 of a high school (Gymnasium) in Munich. They participated in the study during their regular class hours.

Experimental Material

The data were assessed with the help of a questionnaire consisting of five pages. On the first page, participants identified their age and sex and were asked to design their personal code that was needed to ensure anonymity in the further steps of the study (they wrote down the last letter of the first name of their mother, the first letter of the first name of their father, the second letter of their own first name, and the first letter of their month of birth). Furthermore, they were asked to write down their name and their code on a separate sheet of paper that was handed to their teachers. This sheet of paper was used (later) so that the teacher could retrieve the grades from the archive. The teacher then gave these grades together with the secret code but without the name of the student to the experimenters.

On the second and third page of the booklet, causal attributions for three hypothetical bad school grades were assessed. The design of the items was guided by the Attributional Style Questionnaire (ASQ) (Peterson

et al., 1982). Participants were informed that we wanted to assess how students explain their own failures and to vividly imagine each of three depicted situations. In the first item of the attribution questionnaire, they were asked to imagine receiving “a very bad grade” in a math exam and to write down what they perceived to be the most important cause for this failure. In addition, they indicated on scales ranging from 1 (*resides entirely outside of my person*) to 10 (*resides entirely within myself*) whether the reported cause for the failure was perceived to be external or internal to their own person. The second scale was designed to assess causal stability (1 = *the cause will never have relevance in the future* to 10 = *will always be relevant in the future*). A third scale assessed perceived globality of the cause (1 = *influences only this area* to 10 = *influences also other areas*). The second item consisted of the same form with the only exception that the situation to be imagined was a failure in English and the third item concerned a hypothetical failure at an exam in German.

The second part of the questionnaire assessed students' self-perceived grades in math, English, and German (i.e., perceived distinctiveness and consistency; “What were your grades in math, English, and German on your last report card?”). In addition, we assessed their perception of the average grades of their classmates in these areas (i.e., perceived consensus; “Please estimate the average grade in your class in the following areas: math, English, and German”). Finally, participants indicated the grades in math, English, and German of the three classmates they liked most.

The third part of the questionnaire consisted of a short (six item) version of the BDI. The following items were taken from the original BDI (“I am not sad . . . I am so sad and unhappy that I can hardly stand it anymore”; “I can enjoy things as much as in the past . . . I am discontent and bored with everything”; “I am not disappointed with myself . . . I hate myself”; “I do not feel like a failure . . . I have the feeling to be a total failure”; “I am as decisive as ever . . . I cannot make decisions anymore”; “I can work as good as before . . . I am unable to work”).

RESULTS

Grades and Perceived Grades

Students' perceived cumulative grades (numeric values reaching from 1 = “A” to 5 = “F”) strongly correlated with their actual grades as retrieved from the archival records, $r(182) = .95$, $p < .001$. However, a 2 (actual vs. self-perceived grades) \times 3 (area: math, English, and German) ANOVA with repeated measures revealed a significant main effect for the first factor, indicating that indi-

viduals judged their grades to be better ($M = 3.18$) than they actually were ($M = 3.23$), $F(1, 181) = 11.13$, $p < .001$.

When separately looking at the three different areas, most students reported their grades accurately (84.1% in math; 82.0% in English; and 85.7% in German). Very few students reported that their grade was worse than it actually was (1.6% in math, 5.5% in English, and 4.2% in German; i.e., in 22 of the 183 participants \times 3 areas = 549 instances [3.7%]) and none of these individuals distorted more than one grade to their own disfavor. By comparison, more individuals showed inflated self-perceptions of grades (10.6% in math, 8.5% in English, and 5.8% in German; i.e., in 47 of the 549 instances = 8.6%), and among cases of inflated memories of their grades, there were 4 missing their true grades by more than one grade.

With regard to the estimations of the average class notes in math, English, and German, a 2 (objective vs. subjective average class grade) \times 3 (areas: math, English, German) ANOVA with repeated measures did not reveal a significant main effect for subjective versus objective average grade ($F < 1$), reflecting that subjective estimations of the overall average grade did not differ from the actual overall grade. However, there was a significant main effect for area, $F(2, 360) = 65.27$, $p < .001$, reflecting that both objective and subjective grades were best for English ($M = 3.01$), second best for German ($M = 3.25$), and worst for math ($M = 3.38$). In addition, there was a significant interaction for the factors Subjective Versus Objective Mean Grade and Area, $F(2, 360) = 3.05$, $p < .05$, reflecting that pupils estimated the average grades in math and English to be worse than they actually were, whereas the average grade in German was rated to be better than it was. (Neither of these main effects or interactions regarding the actual and perceived average class notes were qualified by interactions with BDI or ASQ scores or with overall grade.)

To summarize, with regard to the question of whether perceived covariation information (self-perceived own grades [i.e., consistency and distinctiveness] and perceived average class grades [i.e., consensus]) are veridical or biased, we found that most individuals in most cases had accurate memories of their own grades on their report card. The individuals who did not accurately report their grades predominantly erred in a self-serving fashion, that is, they reported better grades than they actually had. With regard to perceived average school grades (i.e., perceived consensus), we could not detect such a bias. Perceived average grades in class accurately reflected the true mean grade. Hence, in the context of school grades, there is a tendency to bias per-

ceived consistency and distinctiveness favorably and to realistically perceive consensus information.

Attributions, Depression, and Grades

High depression scores went along with depressogenic attributions (aggregated across the three dimensions and the three areas [math, English, and German]), $r(183) = .17, p < .024$. In addition, high depression scores went along with low actual overall grades, $r = .14, p < .06$, and (nonsignificantly) with low perceived grades, $r(183) = .11, p < .13$.

Individuals with low grades made more depressogenic attributions than did individuals with high grades. This was true in general, $r(182) = .15, p < .04$, as well as for the individual areas of math, $r(181) = .18, p < .014$, English, $r(180) = .13, p < .09$, and German $r(182) = .17, p < .024$. Attributions for one area (e.g., German) also correlated positively with the performance at another area (e.g., math; $r = .09, ns$); however, correlations between attribution and performance measures were always highest when both concerned the same area.

Naturally, there was also a significant relation between perceived overall grade and overall attribution, $r(183) = .16, p < .03$, as well as between perceived grades in the individual areas and the attributions made for failure at the respective areas, math, $r(182) = .19, p < .01$, English, $r(181) = .12, ns$, and German, $r(183) = .21, p < .01$.

The actual or perceived average grade in the respective areas, however, did not significantly correlate with attributions ($r = .09$ and $r = -.08$, respectively). Neither was there a significant correlation between the average grade for the three best friends and attributions or depression.

In sum, we found the expected relations between covariation information (i.e., actual and perceived grades) and causal attributions for consistency as well as distinctiveness, but not for (actual or perceived) consensus. In addition, the classical finding of a tendency to make internal, stable, and global failure attributions to go along with depression was replicated. Moreover, we too found that depression was related with actual covariation information (i.e., actual grades). These findings are consistent with the idea that low grades (i.e., “depressogenic” actual covariation information) lead to depressogenic self-perceived covariation information that, in turn, triggers depressogenic attributions that subsequently lead to depression. Or, in other words, this pattern of findings is consistent with the idea that depressives are in a worse situation than nondepressives and differences in the attributions of the mood groups are reflections of this (perceived) situation.

Veridicality-Related Analyses

As outlined above, with regard to the veridicality of perceived covariation information, we found a general tendency to favorably distort self-perceived grades. A one-way ANOVA with three categories of depression (low, intermediate, and high values) for degree of distortion (objective minus subjective grades in the three areas) as a dependent variable revealed a significant difference between the mood groups, $F(2, 182) = 3.05, p < .05$, indicating that individuals high in depression had more positively distorted perceptions of their own grades ($M = .11$) than did individuals with intermediate ($M = .008$) or low degrees of depression ($M = .04$). The tendency to distort was not connected with attributional style, $r(182) = -.02$.

In addition, an ANOVA with three levels of overall objective grade (low, intermediate, and high) as a quasi-independent variable and degree of distortion as a dependent variable revealed a significant main effect, $F(2, 182) = 6.71, p < .002$, indicating that individuals with low grades distorted their self-perceived grades more in a positive direction ($M = 0.12$) than did individuals with intermediate ($M = 0.04$) and high grades ($M = -.019$). Hence, a positive distortion of one’s own grades went hand in hand with low performance.

As already indicated above, there was neither a general tendency to distort the average class grade nor an influence on the tendency to distort the average class grade as a function of attributional style, depression, or general overall grade level.

To assess the veridicality of the attributions of depressed and nondepressed individuals, partial correlations were calculated: If the above-reported correlation between depression and attributional style, $r(183) = .17, p < .03$, would indicate that depressed—as compared to nondepressed—individuals’ attributions only realistically reflected differences in their objective or self-perceived grades, we would expect this correlation to become insignificant when actual and/or perceived grades were partialled out. However, this was not the case. After partialing out objective overall grades and self-perceived grades, respectively, the correlation between depression and attributional style still remained significant, $r(181) = .15, p < .05$, and $r(181) = .15, p < .05$, respectively.

We also calculated partial correlations for the relation between actual overall grades and attributional style and between self-perceived overall grades and attributional style while controlling for depression. These correlations too remained stable when BDI scores were partialled out, $r(179) = .13, p < .07$ (ASQ and subjective grades) and $r(180) = .14, p < .05$ (ASQ and objective

grades). Hence, these results indicate that the correlation between attributional style and depression is not mediated by self-perceived or actual grades and that, therefore, the mood differences with regard to the tendency to make internal, stable, and global attributions does not reflect antecedent covariation information and should therefore reflect lack of realism of (one of the two) mood groups. In addition, the reported configuration of results also suggests that the influence of grades on attributional style is not mediated by depression.

Another methodological possibility to test more specifically whether (and how) the attributions of depressed and nondepressed individuals are differentially influenced by covariation information (i.e., actual or perceived grades) consists of ANOVAs. For instance, we would expect that failure is attributed more to internal, stable, and global factors when previous grades were low than when they were high (i.e., when failure occurred with high consistency and low distinctiveness). Furthermore, if individuals differing in depression would draw different attributional conclusions from their previous performances, we would expect an interaction between mood status and previous overall grade.

A 2 (levels of depression: high vs. low) \times 3 (average own grade level: high vs. intermediate vs. low) ANOVA with overall attributional style scores as a dependent variable only revealed the already reported significant main effect for depression, $F(1, 181) = 5.21, p < .03$, and no significant main effect for overall grades ($F < 1$) and, most important, no significant interaction between overall grades and depression ($F = 1.22$). With regard to the quasi-independent variable perceived overall grades, the respective ANOVA (3 levels of perceived grades \times 2 levels of depression), however, revealed a marginally significant interaction, $F(2, 183) = 2.42, p < .09$, reflecting the fact that depressives made (realistically) more internal, stable, and global attributions when their previous self-perceived grades were low than when they were high, whereas nondepressives' attributions were comparatively uninfluenced by their self-perceived grades (see Figure 1). When entering high and low self-perceived grades only into the ANOVA (i.e., while leaving out intermediate self-perceived grades), the interaction (with depression) became significant on the conventional level, $F(1, 118) = 4.10, p < .05$.

Hence, the results of these ANOVA reflect that depressed and nondepressed pupils' attributions are equally (in-)sensitive to objective (consistency and distinctiveness) covariation information (i.e., objective grades), whereas depressives seem to be somewhat more strongly influenced by self-perceived covariation information. Most important, depressives (more so than nondepressives) showed attributional conclusions consistent with the covariation principle in that they traced

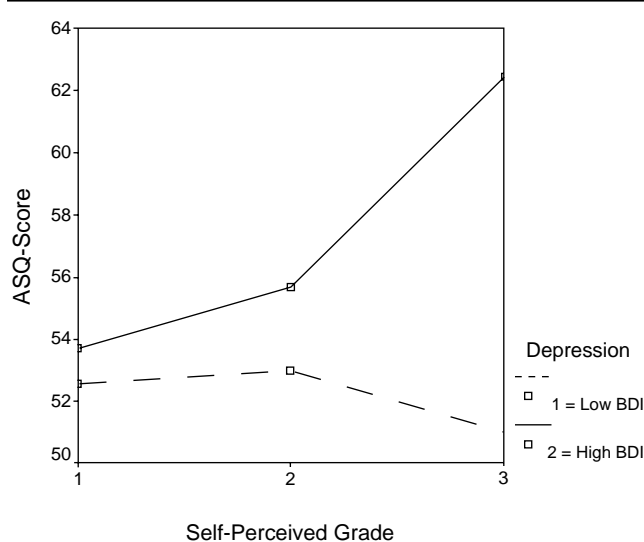


Figure 1 Attributions to internal, stable, and global causes as a function of perceived own grade and depression status.

NOTE: 1 = high, 2 = intermediate, and 3 = low. BDI = Beck Depression Inventory, ASQ = Attributional Style Questionnaire.

back failure occurring against the background of low previous performance more to internal, stable, and global factors than failure occurring against the background of high self-perceived grades.

Next, we investigated what attributional conclusions are drawn from actual and self-perceived consensus information (i.e., the average grade in class). Recall that the mean estimate of the average grade did not correlate with depression and performance level. However, it might well be that individuals differing in overall performance and/or depression draw different attributional conclusions from this (unbiased) representation of the average grade. Hence, we calculated a 2 (levels of depression: high vs. low) \times 3 (perceived average grade level: high vs. intermediate vs. low) ANOVA with overall attributional style scores as a dependent variable. In addition to the unsurprising (and already reported) main effect for depression level, this ANOVA too revealed an interesting interaction between perceived average grades and depression, which approached significance, $F(2, 182) = 2.58, p < .07$ (see Figure 2). This interaction reflected the fact that when perceived average grades were high, depressed and nondepressed individuals' attributions did not differ in their failure attributions. If the perceived average grade, however, was intermediate or low, depressed pupils made more depressogenic attributions than did nondepressed pupils (again, this interaction reached the traditional significance level when only high and low grades were entered into the ANOVA), $F(1, 111) = 4.53, p < .04$. When objective average grade was entered into the analysis, no

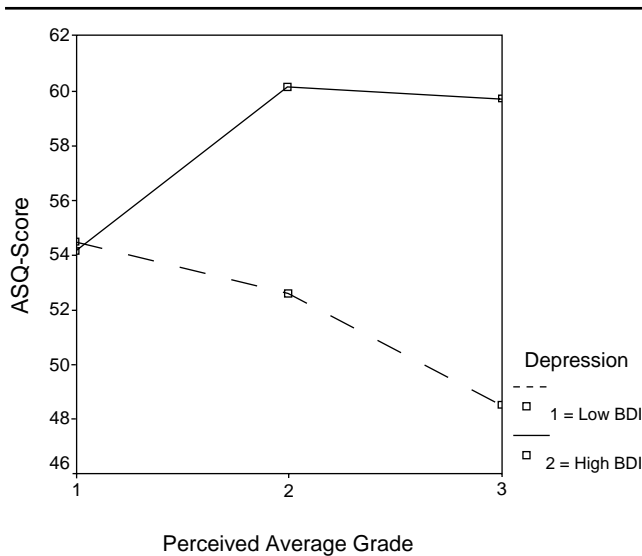


Figure 2 Attributions to internal, stable, and global causes as a function of perceived average grade and depression status.

NOTE: 1 = high, 2 = intermediate, and 3 = low. BDI = Beck Depression Inventory, ASQ = Attributional Style Questionnaire.

significant main effect or interactions in addition to the already reported main effect occurred. Hence, with regard to social norms (consensus information, i.e., the actual and perceived average grade), depressed persons' attributions seem to be more unrealistic in relation to covariation information (i.e., consensus) than nondepressed individuals' causal judgments in that they tend to attribute a failure in a situation in which grades are generally low more to internal, stable, and global causes than failure in an area with generally high grades.

Finally, with regard to the influence of the perceived average grades of the three most liked peers on attributions, a 2 (high vs. low depression) \times 3 (high vs. intermediate vs. low grades) ANOVA did not reveal a significant main effect for "best liked peer grade" or an interaction of this factor with depression.

To summarize, there are mood differences with regard to the translation of actual covariation information to self-perceived covariation in that depressed individuals—more so than nondepressives—positively distort their perceptions of consistency and distinctiveness (i.e., their own past grades). Such distortions are also characteristic for individuals with low (rather than high) actual grades. In addition, the two mood groups differ in the way they draw attributional inferences from perceived covariation information. Contrary to nondepressed students, depressives with a previous history of low grades make more internal, stable, and global (and hence realistic) attributions than those with a history of high grades. However, when attributions are set into a relation with the perceived grades of the peers in

class, depressed persons seem to be more unrealistic than nondepressives: They make (unlike nondepressives) more internal, stable, and global attributions for failures when the grades of others are perceived to be low than when they are high.

DISCUSSION

In the present study, the complete attributional sequence (i.e., objective covariation information [previous school grades], perceived covariation [memorized school grades], attributions, and emotional reactions) was assessed to investigate whether depressives are more or less realistic than nondepressives. The school context appears to be an ideal site for such investigations because (a) objective covariation information (i.e., school grades) is reliably available on records and hence lends itself as an objective criterion against which self-perceptions can be compared (see also Robins & Beer, 2001); (b) students definitely have fairly good—however not perfect—memories of their prior grades; (c) grades are of a great personal relevance; and (d) school performances are clearly stimuli for causal explanations. Many of the reported results support these assumptions. For instance, the study revealed that students had a fairly good recollection of their grades and attributions for school performances and overall grades themselves are related to depression.

Moreover, the present study replicated several classical findings regarding the relation between attributions, depression, and achievement behavior, strengthening the trust that the empirical tools used also can be meaningfully applied to the more specific issues that are addressed by the present research, that is, the attributional veridicality of the mood groups. Consistent with previous literature, we found that both pupils with low grades and those who are depressed attributed failure more to internal, stable, and global causes than did high achievers and nondepressed persons. The finding that individuals with a history of poor performances attribute failure in a more depressogenic fashion is consistent with the covariation principle in that low overall grades imply that failure occurred consistently and nondistinctively with low consensus (see, for a summary, Försterling, 1989). The finding that depressed individuals make internal stable and global attributions is consistent with data of numerous previous studies (see, for a summary, Buchanan & Seligman, 1994).

More important, the present study was designed to assess the veridicality of perceived covariation information and the attributions of depressed versus nondepressed individuals by comparing these judgments with parameters of the situation, that is, own previous performances in this area (consistency), performances

in other areas (distinctiveness), and previous performances of others (consensus).

With regard to the objective situation, we found that depressed individuals had a disadvantage when compared to their nondepressed peers, that is, depressives had lower overall grades than nondepressives. In addition, as a consequence, their achievements were—in relation to their peers—worse than the achievements of nondepressed individuals. In other words, failures at school occur for the depressed person with (relatively) high consistency, low distinctiveness, and low consensus.

When considering the subjectively perceived covariation information (i.e., perceived own grades and perceived average grades of their classmates), we found that depressed individuals—when compared to nondepressed persons—tended to have positively distorted representations regarding their own previous achievements (i.e., grades in the same and other areas, i.e., consistency and distinctiveness) but not with regard to the average grade (consensus). Similarly, we found that individuals with low overall performance had a less accurate self-perception (i.e., positive illusions) of their previous grades when compared to individuals high in achievement. To our knowledge, the present study is one of the few investigations that allows for a clear comparison of self-perceptions with an external criterion (see Colvin & Block, 1994), and it clearly shows that although positive illusions might be a characteristic of the general sample (in that respect they replicate the general message of Taylor & Brown, 1988, and with regard to the self-perceived school grades, data of Bahrack, Hall, & Berger, 1996), they are most pronounced among those who are depressed and low achievers. The causal relation among grades, depression, and distortion remains to be investigated. Because depression and grades are correlated, it is possible that low grades lead to distorted memories of one's own grades only inasmuch as low grades lead to depression. On the other hand, depression might only lead to distortion inasmuch as it is connected with low grades.

It is worth emphasizing that the inclusion of an objective external criterion revealed interesting insights concerning the genotypic determinants of the mood differences regarding self-perceived school grades (i.e., perceived covariation information). At first glance, and in the absence of an external criterion, the (non-significant) positive correlation between self-perceived (low) grades (i.e., perceived consistency and distinctiveness) and depression might be interpreted as a realistic assessment or even a tendency for a pessimistic bias of depressives to viewing reality as worse than it is. The assessment of objective grades, however, revealed that depressives' self-perceived grades are higher than the ones of nondepressives when compared to the actual

grades. Hence, perceptions that look at first glance as pessimistic biases (i.e., when comparing perceived covariation between mood groups) might genotypically turn out to be positive biases (i.e., when comparing with an external criterion).

Due to the correlational nature of the study, it is naturally not possible to decide whether the reported positive illusions are causes or consequences of depression. However, the finding that depressives have—possibly as a denial mechanism designed to avoid embarrassment—positive illusions in certain situations is certainly interesting and it might have been overlooked in previous research that has not incorporated objective parameters of the situation.

The assessments of the objective and subjectively perceived covariation information also made it possible to investigate whether depressives and nondepressives draw different attributional conclusions from the parameters that characterize their situation. Most important, we found that depressives drew more internal, stable, and global attributional conclusions from the parameters characterizing their situation than did nondepressives. Correlational analyses revealed that the relation between depression and attributional style did not disappear when covariation information (i.e., past actual and/or perceived grades) was statistically controlled for. This finding shows that the difference between the attributions of depressed and nondepressed persons cannot be entirely traced back to differences in attributionally relevant antecedent information.

However, this finding is not informative with regard to the question as to whether depressives or nondepressives have biased or veridical attributions in relation to their actual or self-perceived grades (covariation information). More informative concerning this question is the finding of a statistical interaction between depression and perceived average grade for the dependent variable of attributional style. We found that depressives (more so than nondepressives) drew attributional conclusions consistent with the covariation principle in that they traced back failure occurring against the background of low previous performance more to internal, stable, and global factors than failure occurring against the background of high self-perceived grades. In that respect, they were more realistic in their attributions than were nondepressives.

However, in a perceived situation of high consensual failure (i.e., when pupils perceived the average grade to be low), depressed persons—but not nondepressed persons—made more internal, stable, and global attributions for failure than when failure occurred with low consensus (i.e., perceived average grades were high). The covariation principle would clearly suggest that attributions of consensual failure should be less depressogenic

than attributions of failure occurring with low consensus. Hence, the attributional conclusions of depressives from the above-mentioned (low-consensus) information can be labeled unrealistic.

Somewhat more abstractly, the presented data might best be summarized as follows: Depressive pupils have lower grades than nondepressives (i.e., they are in a worse objective situation) and they somewhat positively distort their own grades (i.e., consistency and distinctiveness) but have (similar to nondepressives) an accurate perception of the grade of their peers (i.e., consensus). Based on their (somewhat positively biased) perceptions of their own grades and on the (accurate) perception of the grades of their peers, they draw more depressogenic attributional conclusions than nondepressives. However, these attributional conclusions are not uniformly more unrealistic. More specifically, depressives make (unrealistically) more depressogenic attributions for failure than do nondepressives when consensus is high. However, they (realistically) make more depressogenic attributions than nondepressives when consistency of own failure is high and distinctiveness is low.

Naturally, the present operationalization of attributional veridicality (i.e., the fit between attributions and perceived covariation information) has limitations. For instance, it does not take into account the temporal sequence of effects and their potential causes. Hence, a covarying entity (e.g., the ringing of the alarm clock) might mistakenly be classified as a realistic causal perception of an effect (the sunrise). However, temporal contiguity could easily be integrated in our definition and operationalization of veridicality and, more important, it is not relevant for the present context of attributions for school grades.

Moreover, the study has limitations. It investigated only attributions for a "very bad" grade and not for a hypothetical "very good" one. It also did not investigate attributions for actual grades but only for hypothetical ones. It remains to be tested whether the attributions of the mood groups differentially reflect antecedent covariation information when such different stimuli are being used.

REFERENCES

- Ackermann, R., & DeRubeis, R. J. (1991). Is depressive realism real? *Clinical Psychology Review, 11*, 565-584.
- Alloy, L. B., & Abramson, L. Y. (1979). Judgments of contingency in depressed and non-depressed students: Sadder but wiser? *Journal of Experimental Psychology: General, 1*, 441-485.
- Bahrack, H. P., Hall, L. K., & Berger, S. A. (1996). Accuracy and distortion in memory for high school grades. *Psychological Science, 7*, 265-271.
- Beck, A. T., Ward, C. H., Mendelsohn, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.
- Buchanan, G. M., & Seligman, M. E. P. (1994). *Explanatory style*. Hillsdale, NJ: Lawrence Erlbaum.
- Campbell, J. D., & Fairey, P. J. (1985). Effects of self-esteem, hypothetical explanations, and verbalizations of expectancies on future performance. *Journal of Personality and Social Psychology, 48*, 1097-1111.
- Campbell, J. D., & Fehr, B. (1990). Self-esteem and perceptions of conveyed impressions: Is negative affectivity associated with greater realism? *Journal of Personality and Social Psychology, 58*, 122-133.
- Colvin, C. R., & Block, J. (1994). Do positive illusions foster mental health? An examination of the Taylor and Brown formulation. *Psychological Bulletin, 94*, 472-505.
- Försterling, F. (1986). Attributional conceptions in clinical psychology. *American Psychologist, 41*, 275-285.
- Försterling, F. (1989). Models of covariation and causal attribution: How do they relate to the analysis of variance? *Journal of Personality and Social Psychology, 57*, 615-625.
- Försterling, F. (1994). The functional value of realistic causal attributions. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 5, pp. 151-179). Chichester, UK: Wiley.
- Försterling, F., & Bühner, M. (in press). Attributional veridicality and evaluative beliefs: How do they contribute to depression? *Journal of Social and Clinical Psychology*.
- Försterling, F., Bühner, M., & Gall, S. (1998). Attributions of depressed persons: How consistent are they with the covariation principle? *Journal of Personality and Social Psychology, 75*, 1047-1061.
- Haaga, A. F., & Beck, A. T. (1995). Perspectives on depressive realism: Implications for cognitive theory of depression. *Behavior Research and Therapy, 33*, 42-48.
- Kelley, H. H. (1967). Attribution theory in social psychology. In D. Levine (Ed.), *Nebraska symposium on motivation*. Lincoln: University of Nebraska Press.
- Kuiper, N. A. (1978). Depression and causal attributions for success and failure. *Journal of Personality and Social Psychology, 36*, 236-246.
- Nelson, R. E., & Craighead, W. E. (1977). Selective recall of positive and negative feedback, self-control behaviors, and depression. *Journal of Abnormal Psychology, 86*, 379-388.
- Peterson, C., Semmel, A., von Baeyer, C., Abramson, L. Y., Metalski, G. I., & Seligman, M. E. P. (1982). The attributional style questionnaire. *Cognitive Therapy and Research, 6*, 287-299.
- Rizley, R. (1978). Depression and distortion in the attribution of causality. *Journal of Abnormal Psychology, 87*, 32-48.
- Robins, R. W., & Beer, J. S. (2001). Positive illusions about the self: Short-term benefits and long-term costs. *Journal of Personality and Social Psychology, 80*, 340-352.
- Sedikides, C., & Strube, M. J. (1997). Self-evaluations: To thine own self be good, to thine one self be sure, to thine one self be true, and to thine one self to be better. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 209-269). New York: Academic Press.
- Taylor, S. E., & Brown, J. (1988). Illusion and well-being: A social-psychological perspective on mental health. *Psychological Bulletin, 103*, 193-210.

Received May 25, 2001

Revision accepted April 25, 2002