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The Relationship of Ambivalence towards Lecturers with University Students' Psychological Distress and Mental Health

Raphael M. Herr [1,*], Wendy C. Birmingham [2], Veronika M. Deyerl [1] and Katharina Diehl [1]

[1] Department of Medical Informatics, Biometry and Epidemiology, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), 91054 Erlangen, Germany; veronika.deyerl@fau.de (V.M.D.); katharina.diehl@fau.de (K.D.)
[2] Psychology Department, Brigham Young University, Provo, UT 84602, USA; wendy_birmingham@byu.edu
* Correspondence: raphael.herr@gmx.de

Abstract: Social interactions that are simultaneously characterized by positive and negative aspects—i.e., ambivalent relationships—have been found to be related to distress and poor mental health. As the university setting is also characterized by several social interactions, this study aimed to investigate for the first time to what extent objective and subjective ambivalence towards lecturers or instructors are linked to university students' distress levels and mental health indicators. A notable relationship of ambivalence with the outcomes was found in 1105 students from Germany. The association with psychological distress was more pronounced for objective than for subjective ambivalence (adjusted betas = 0.342 vs. 0.261, p-values < 0.001), while both also had an independent association. The association with mental health was comparable for both types (adjusted beta = −0.206 vs. −0.191, p-values < 0.001). For paradoxical emotions, the relationship with objective ambivalence was stronger, and only this remained significant in the mutually adjusted model (adjusted beta = 0.376, p-value < 0.001). This study provided evidence of a previously unconsidered stressor at the university—ambivalence towards lecturers—associated with negative health effects among students. Future studies are needed to establish this connection and to create the basis for preventative measures.

Keywords: ambivalence; distress; mental health; university students; ambivalent social relationships; paradoxical emotions

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> "Was Direktor Wulicke persönlich betraf, so war er von der rätselhaften, zweideutigen, eigensinnigen und eifersüchtigen Schrecklichkeit des alttestamentarischen Gottes. Er war entsetzlich im Lächeln wie im Zorne. Die ungeheure Autorität, die in seinen Händen lag, machte ihn schauerlich launenhaft und unberechenbar. Er war imstande, etwas Scherzhaftes zu sagen und fürchterlich zu werden, wenn man lachte. Keine seiner zitternden Kreaturen wußte Rat, wie man sich ihm gegenüber zu benehmen habe. Es blieb nichts übrig, als ihn im Staub zu verehren und durch eine wahnsinnige Demut vielleicht zu verhüten, daß er einen nicht dahinraffe in seinem Grimm und nicht zermalme in seiner großen Gerechtigkeit . . . "
>
> ["As far as Director Wulicke himself was concerned, he had the enigmatic, ambiguous, stubborn and jealous awfulness of the Old Testament God. He was terrible in his smile as well as in his anger. The immense authority that lay in his hands made him terribly capricious and unpredictable. He was capable of saying something facetious and becoming terrible when you laughed. None of his trembling creatures knew how to behave towards him. There was nothing left to do but to worship him in the dust and perhaps, through a mad humility, to prevent him from carrying you away in his wrath and crushing you in his great justice . . . "] (Thomas Mann: Buddenbrooks)

1. Introduction

A growing number of studies provide empirical evidence that ambivalence is related to distress and negative health consequences. Increased ambivalence towards others in social networks is associated with greater psychological distress (i.e., a negative emotional state) and decreased mental well-being (i.e., a state of happiness and contentment) (Bonanno et al. 1998; Fingerman et al. 2008; Gilligan et al. 2015; Kiecolt et al. 2011; Lüscher and Pillemer 1998; Uchino et al. 2001, 2004). Furthermore, observational and experimental studies indicate that ambivalent relationships might also result in negative health outcomes, such as higher blood pressure (Birmingham et al. 2019; Holt-Lunstad et al. 2003), cardiovascular responses (i.e., change in blood pressure, heart rate, respiratory sinus arrhythmia) (Birmingham et al. 2024; Carlisle et al. 2012; Holt-Lunstad et al. 2007), shorter telomere length (Uchino et al. 2012), and increased inflammation (Uchino et al. 2013). Health-threatening and distressing ambivalence can occur in a variety of settings, including romantic relationships, private social networks, and the workplace. At work, ambivalence towards one's supervisor was associated with high levels of self-reported distress and an increased release of the stress hormone cortisol (Herr et al. 2019). In addition, a robust association of ambivalence towards leader behavior with reduced mental well-being and health (i.e., depression, anxiety, vital exhaustion, fatigue) in subordinates has been found (Herr et al. 2022b). Taken together, these findings suggest that the experience of ambivalence in social interactions might exert negative health effects by being a source of distress (Herr et al. 2019; Holt-Lunstad et al. 2007). The manifestation of ambivalence and its potential association with distress and mental health in the university setting is, however, hitherto unexplored.

Several theoretical approaches aim to explain why ambivalence is stressful to people. For example, based on uncertainty management theory (Lind and Van den Bos 2002), it is argued that ambivalence induces uncertainty which leads to high stress levels (Herr et al. 2019; Suurd Ralph and Barling 2022). Empirical research revealed that a supervisor, who shows sometimes fair and sometimes unfair behavior, creates more distress in his or her subordinates than a consistently unfair supervisor, as they are therefore predictable (Matta et al. 2016). The ABC (Affect, Behavior, Cognition) model of ambivalence sees people striving for internal consistency, and the state of ambivalence experienced as unpleasant, resulting in negative affect and distress (van Harreveld et al. 2015). Similarly, the Stress Enhancing Hypothesis and the Social Ambivalence and Disease (SAD) model state that ambivalence in relationships causes distress because such relationships provide little support and do not help cope with distress (Holt-Lunstad et al. 2007; Holt-Lunstad and Uchino 2019).

A distinction is made between different types of ambivalence, which may also be associated with different levels of distress. The most popular are *objective or potential*, and *subjective or felt* ambivalence. "*Potential ambivalence* is a state of conflict that exists when people simultaneously possess positive and negative evaluations of an attitudinal object (. . .). In contrast, *felt ambivalence* is the actual feeling of tension that people experience when they consciously think about the attitude object" (Maio and Haddock 2014; emphasis in original). Felt or subjective ambivalence is thought to directly reflect distress, but based on theoretical reasoning and recent empirical findings there is good reason to assume that potential or objective ambivalence is also stressful (Herr et al. 2019, 2022b). As most individuals might try to resolve the emergence of subjective ambivalence by compensatory cognition or systematic processing, subjective ambivalence might have a greater probability of being resolved because of the triggering of a conscious unpleasant state (van Harreveld et al. 2015). A desire to resolve the attitudinal conflict in subjective ambivalence may help explain why its association with objective ambivalence is modest (r = 0.4) (Priester and Petty 1996; Thompson et al. 1995) to moderate (r = 0.66) (Birmingham et al. 2019). In consequence, two scenarios are conceivable. On the one hand, subjective ambivalence—as hot attitudinal conflict—might be related to more perceived distress (and poorer mental health) than objective ambivalence, which exists as unconscious contradictory attitudes. On the other hand, the hot conflict of subjective

ambivalence might be easily experienced and solved and therefore be less distressing in consequence. Objective ambivalence might thus be associated with higher levels of psychological distress and poorer mental health, as this cause might not be easily solved due to its mostly unconscious nature.

Taken together, ambivalence in social interactions is related to distress and adverse health outcomes, however, this association was hitherto not examined in a university setting. Furthermore, it is unknown which type of ambivalence—objective or subjective—might exert stronger effects. Therefore, the aim of this study was to examine the single and independent associations of objective and subjective ambivalence towards lecturers (including professors and instructors) with psychological distress and mental health indicators in university students in Germany, using different conceptualizations of mental health (Keyes 2005).

2. Materials and Methods

2.1. Study Population

Students from the panel of a market research institute were invited with the goal to get a representative sample for Germany according to type of university and sex. The sample size strived for was 1000 students and the quotas were set a priori at 50% male and 50% female students, and 70% students from universities and 30% students from universities of applied sciences. The final sample comprised 1105 German students who all completed an online questionnaire. All participants gave informed consent and the Ethics Commission approved the study (Ethics Committee of the Medical Faculty Mannheim of Heidelberg University, 2019-1123N; 31 January 2019).

2.2. Measurements

Objective ambivalence. In order to measure objective ambivalence, an established approach from workplace research to assess ambivalent supervisor behavior was adapted to the university setting (Herr et al. 2019, 2022b). In the workplace research approach, ambivalent leadership was assessed by measuring supervisor behavior on two subscales from the Subjective Work Analysis (SALSA) Questionnaire (Rimann and Udris 1997): five items measured positive (supporting) behavior, and three items negative (burdening) behavior. Mean scores of the positive and negative subscales were combined into an ambivalence index according to Griffin's formula (Thompson et al. 1995). Accordingly, in this study, positive lecturer behavior was measured with the five items adapted to lecturers' behavior (Cronbach's alpha = 0.815; "the lecturers let you know how well you have completed your tasks", "the lecturers are interested in ensuring that the students are doing well", "you have easy access to your lecturers", "the lecturers pay attention to what I say", "the lecturers help me to complete the tasks"). Negative behavior was assessed with three items that were adjusted accordingly (Cronbach's alpha = 0.788, "if something goes wrong, the lecturers always blame the students, never themselves", "the lecturers make your work more difficult with their instructions", "the lecturers treat you unfairly"). The items were assessed on a 5-point Likert scale: 1. "strongly disagree", 2. "somewhat disagree", 3. "partly agree", 4. "somewhat agree", and 5. "completely agree". In line with the research on ambivalent supervisor behavior, Griffin's formula was also used to calculate an ambivalence index from the average positive and negative behavior: $(P + N)/2 - |P - N|$, whereby P = positivity (i.e., mean of positive behavior items) and N = negativity (i.e., mean of negative behavior items) (Herr et al. 2019, 2022b; Thompson et al. 1995). The positive and negative scales were statistically independent ($r = -0.38$, p-value = 0.204). The resulting objective ambivalence scores rose with more ambivalent behavior, i.e., with the intensity and similarity of the positive and negative ratings.

Subjective ambivalence. Analogous to the most widely used approach to measure subjective ambivalence, two items by Priester and Petty (1996) were modified and adapted to the university context. In this study, the participants were asked to rate the items "my attitudes towards my lecturers are mixed", and "my feelings towards my lecturers are mixed" on a 5-point Likert scale (1. "strongly disagree", 2. "somewhat disagree", 3. "partly agree",

4. "somewhat agree", 5. "completely agree") to assess the cognitive basis of subjective ambivalence (r = 0.709, p-value < 0.001). The subjective ambivalence score was calculated by averaging both items. The higher the values of the score, the more subjective ambivalence.

Psychological distress. Psychological distress was measured with the German version of the established Patient Health Questionnaire (PHQ-8) (Kroenke et al. 2009). Participants used a 4-point Likert scale (1. "not at all", 2. "on single days", 3. "on more than half of the days", 4. "almost every day") to rate eight items about their feelings (e.g., "feeling tired or having little energy"). Cronbach's α of the questionnaire was 0.882. A mean score was calculated and rescaled to range from 0 to 100 ((score $-$ 1) $\times$ 100/3) with higher values indicating more psychological distress.

Mental well-being. Mental well-being was assessed by the 5-item World Health Organization Well-Being Index (WHO-5) (Bech 2004; Sischka et al. 2020; Topp et al. 2015). The five items (Cronbach's α = 0.900) relating to how the participants felt in the last two weeks (e.g., "I have felt cheerful in good spirits.") were rated on a 6-point Likert scale (5. "all of the time", 4. "most of the time", 3. "more than half the time", 2. "less than half the time", 1. "some of the time", 0 "at no time"). They were then summed up and multiplied by 4 to range from "0" representing the worst imaginable well-being to "100" representing the best imaginable well-being.

Mental health. Mental health was defined according to the dual continua model of Keyes (Keyes 2005), which suggests that psychological distress and mental well-being are two related but distinct dimensions of mental health. Psychological distress (see PHQ-8, described above) and mental well-being (see WHO-5, described above) were combined into a continuous mental health score (Keyes 2002). A quotient approach was applied by dividing the mental well-being score by the psychological distress score (1 was added to both scores to avoid subtraction by 0). This score ranged from 0.01 for maximal psychological distress and minimal well-being ("languishing"), to 101 for minimal psychological distress and maximal mental well-being ("flourishing") (Westerhof and Keyes 2010).

Paradoxical emotions. The psychological distress score (range 0 to 100) and the mental well-being score (range 0 to 100) were also combined with the Griffin formula (Thompson et al. 1995). The resulting paradoxical emotions score indicates that rising values correspond to strong psychological distress with simultaneously high levels of mental well-being.

Confounders. Potential confounders comprised age (continuous), gender (male and female), type of university (university or university of applied sciences), and lifestyle factors. Lifestyle factors included alcohol consumption (never; once a month or less; two to four times a month; two to three times a week; four or more times a week), smoking status (yes, daily; yes, occasionally; no, not anymore; never smoked), physical activity (no physical activity; less than 1 h a week; regularly 1 to 2.5 h a week; more than 2.5 h a week), and nutrition (number of portions of fruit and vegetables per day: 0–2 portions, 2–4 portions, 5 or more portions).

2.3. Statistical Analysis

Linear regression models estimated the separate associations of objective and subjective ambivalence with the outcomes psychological distress, mental well-being, mental health, and paradoxical emotions. The first model was unadjusted (Model 1), while the second model (Model 2) controlled for age, gender, type of university, and lifestyle factors (alcohol consumption, smoking, physical activity, and nutrition habits). In addition, both models were also run with mutual adjustment for objective and subjective ambivalence (mutually adjusted models), and the models were also stratified for gender. The mental health score was logarithmically transformed; the distributions of the other scales showed a good approximation to the normal distribution. All analyses were performed applying IBM SPSS Statistics (version 29).

3. Results

Table 1 provides an overview of the sample characteristics. The sample consisted of 551 male (49.9%) and 554 female (50.1%) students with an average age of 25.5 years. Most participants studied at universities (67.2%), consumed alcohol two to four times a month (34.2%), never smoked (60.6%), were regularly, from 1 to 2.5 h a week, physically active (37.5%), and ate a maximum of two portions of fruits and vegetables per day (47.1%). The most studied subjects were "law, economics, and social sciences" (29.7%), followed by "engineering" (15.9%).

Table 1. Characteristics of study participants.

Gender (% and n)		
Female	50.14	554
Male	49.86	551
Age (years, mean and SD)	25.51	5.43
Migration background		
Yes	18.76	206
No	81.24	892
Type of institution of higher education (% and n)		
University	67.24	743
University of applied sciences	32.76	362
Study subject		
Humanities	14.84	164
Law, economics and social sciences	29.68	328
Mathematics, natural sciences	14.66	162
Medicine, health sciences	8.14	90
Agricultural, forestry and nutritional sciences, veterinary medicine	2.26	25
Engineering	15.93	176
Art, art science	2.62	29
Sports	2.17	24
Others	9.68	107
Alcohol consumption (% and n)		
Never	18.21	199
Once a month or less	30.83	337
Two to four times a month	34.22	374
Two to three times a week	12.17	133
Four or more times a week	4.57	50
Smoking habits (% and n)		
Yes, daily	10.49	115
Yes, occasionally	14.78	162
No, not anymore	14.14	155
Never smoked	60.58	664
Physical activity (% and n)		
No physical activity	7.71	84
Less than 1 h a week	19.28	210
Regularly 1 to 2.5 h a week	37.47	408
More than 2.5 h a week	35.54	387
Nutrition: number of portions of fruit and vegetables per day (% and n)		
0–2 portions	47.07	514
2–4 portions	45.33	495
5 or more portions	7.60	83
Ambivalence (mean and SD)		
Objective ambivalence (−1 to 5)	1.93	1.20
Subjective ambivalence (1 to 5)	3.27	1.01
Outcomes (mean and SD)		
Psychological distress (0 to 100)	42.33	23.65
Mental well-being (0 to 100)	54.83	23.10
Mental health (0.01 to 101)	5.14	16.14
Paradoxical emotions (−50 to 100)	16.49	29.69

As shown in Table 2, bivariate correlations showed the expected correlation of objective with subjective ambivalence ($r = 0.485$, p-value < 0.001). Psychological distress had a moderate correlation with objective and subjective ambivalence, while the correlation with mental well-being and mental health was small. With paradoxical emotions, the correlations

with objective and subjective ambivalence were moderate in effect size. Associations were evident in gender-stratified analyses, with somewhat higher correlations in males than in females.

Table 2. Correlations between key variables.

	OA	SA	PS	MW	MH
SA	**0.485** **				
PS	**0.339** **	0.272 **			
MW	0.068 *	−0.059	**−0.372** **		
MH	−0.146 **	−0.126 **	**−0.437** **	**0.342** **	
PE	**0.413** **	0.211 **	**0.544** **	0.061 *	**−0.461** **

OA = objective ambivalence; SA = subjective ambivalence; PS = psychological distress; MW = mental well-being; MH = mental health; PE = paradoxical emotions. Pearson Correlations. * $p < 0.05$ ** $p < 0.001$. r > |0.3| are presented in bold.

Linear regressions revealed that both objective and subjective ambivalence were significantly related to psychological distress, independent of demographics and lifestyle factors (Model 2: $beta_{OA} = 0.343$, $beta_{SA} = 0.261$, p-values < 0.001; Table 3). In the mutually adjusted model, both ambivalent types remained significant with a somewhat higher beta-value for objective ambivalence ($beta_{OA} = 0.268$, $beta_{SA} = 0.135$, p-values < 0.001; Model 2). For well-being, things looked different. In Model 2, objective ambivalence had no association with well-being in the individual model ($beta_{OA} = -0.001$, p-value > 0.1), nor in the mutually adjusted model ($beta_{OA} = 0.056$, p-value > 0.1). By contrast, subjective ambivalence was significantly related to mental well-being in all models (Model 2: $beta_{SA} = -0.072$, p-value = 0.015, mutually adjusted model 2: $beta_{SA} = -0.098$, p-value = 0.004). The association of objective and subjective ambivalence with mental health was comparable (Model 2: $beta_{OA} = -0.206$, $beta_{SA} = 0.191$, p-values < 0.001), and both types had an independent association ($beta_{OA} = -0.136$, $beta_{SA} = 0.127$, p-values < 0.001; mutually adjusted model). The associations of objective and subjective ambivalence with paradoxical emotions were significant (Model 2: $beta_{OA} = 0.377$, $beta_{SA} = 0.184$, p-values < 0.001), but only remained significant for objective ambivalence in the mutually adjusted model ($beta_{OA} = 0.376$, p-value < 0.001, $beta_{SA} = 0.006$, p-value = 0.859).

Table 3. Associations of objective and subjective ambivalence with distress and mental health.

	Psychological Distress				Well-Being				Mental Health				Paradoxical Emotions			
	B	Beta	p	R^2	B	Beta	p	R^2	B	Beta	p	R^2	B	Beta	p	R^2
Model 1																
Objective ambivalence	6.69	0.34	<0.001	0.12	1.39	0.07	0.019	0.00	−0.18	−0.17	<0.001	0.03	10.04	0.406	<0.001	0.17
Subjective ambivalence	6.43	0.28	<0.001	0.08	−1.48	−0.07	0.035	0.00	−0.26	−0.20	<0.001	0.04	6.15	0.211	<0.001	0.0
Mutually adjusted																
Objective ambivalence	5.18	0.26	<0.001	0.13	2.84	0.15	<0.001	0.02	−0.09	−0.08	0.018	0.05	10.00	0.402	<0.001	0.17
Subjective ambivalence	3.44	0.15	<0.001		−3.12	−0.14	<0.001		−0.21	−0.16	<0.001		0.32	0.011	0.738	
Model 2																
Objective ambivalence	6.74	0.34	<0.001	0.15	−0.02	−0.00	0.980	0.12	−0.22	−0.21	<0.001	0.12	9.33	0.377	<0.001	0.19
Subjective ambivalence	6.04	0.26	<0.001	0.11	−1.63	−0.07	0.015	0.13	−0.25	−0.19	<0.001	0.12	5.36	0.184	<0.001	0.10
Mutually adjusted																
Objective ambivalence	5.30	0.27	<0.001	0.16	1.09	0.06	0.112	0.13	−0.15	−0.14	<0.001	0.13	9.36	0.376	<0.001	0.189
Subjective ambivalence	3.13	0.14	<0.001		−2.23	−0.10	0.004		−0.16	−0.13	<0.001		0.17	0.006	0.859	

Model 1: unadjusted. Model 2: adjusted for age, gender, type of university, and lifestyle factors (alcohol consumption, smoking, physical activity, and nutrition habits). Mutually adjusted: objective and subjective ambivalence in same model.

The gender-stratified models revealed a similar pattern for men and women (Table 4). While for men, associations with psychological distress and paradoxical emotions were somewhat stronger, for women the relationship of ambivalence with well-being was a little stronger. For mental health, the effect sizes between the genders were very similar.

Table 4. Associations of objective and subjective ambivalence with distress and mental health stratified for gender.

	Psychological Distress				Well-Being				Mental Health				Paradoxical Emotions			
	B	Beta	*p*	R^2	B	Beta	*p*	R^2	B	Beta	*p*	R^2	B	Beta	*p*	R^2
Male																
Objective ambivalence	7.84	0.39	<0.001	0.22	0.94	0.05	0.239	0.09	−0.23	−0.21	<0.001	0.12	12.11	0.45	<0.001	0.26
Subjective ambivalence	7.19	0.29	<0.001	0.16	−0.40	−0.02	0.681	0.09	−0.28	−0.20	<0.001	0.12	10.39	0.31	<0.001	0.17
Mutually adjusted																
Objective ambivalence	6.55	0.32	<0.001	0.23	1.69	0.09	0.081	0.09	−0.15	−0.14	0.009	0.14	10.59	0.39	<0.001	0.26
Subjective ambivalence	2.81	0.11	0.019		−1.52	−0.07	0.188		−0.18	−0.13	0.011		3.30	0.10	0.036	
Female																
Objective ambivalence	5.26	0.26	<0.001	0.09	−1.25	−0.06	0.153	0.03	−0.21	−0.19	<0.001	0.06	5.95	0.26	<0.001	0.11
Subjective ambivalence	4.82	0.23	<0.001	0.07	−2.86	−0.13	0.002	0.04	−0.22	−0.19	<0.001	0.06	0.48	0.02	0.650	0.04
Mutually adjusted																
Objective ambivalence	3.75	0.18	<0.001	0.10	0.13	0.01	0.895	0.04	−0.13	−0.12	0.011	0.07	7.16	0.31	<0.001	0.12
Subjective ambivalence	3.16	0.15	0.002		−2.91	−0.14	0.005		−0.15	−0.13	0.005		−2.78	−0.12	0.013	

Adjusted for age, gender, type of university, and lifestyle factors (alcohol consumption, smoking, physical activity, and nutrition habits). Mutually adjusted: objective and subjective ambivalence in same model.

4. Discussion

This study reported a remarkable association between ambivalence towards university lecturers and distress and the mental health of students of both genders. Regarding the ambivalence types, the association with psychological distress and paradoxical emotions was more pronounced for objective than for subjective ambivalence, while for mental health, associations were comparable for both types. The relevance of objective ambivalence seems somewhat stronger, albeit both types show an independent association with psychological distress and mental health. Thus, there is a meaningful relationship between ambivalence in social interactions at the university and enhanced distress levels and poorer health of students, which has not been recognized to date.

Rising distress and mental health problems present growing issues in students, but mostly general stress perceptions were assessed in this group (Breiter et al. 2015; Brenneisen Mayer et al. 2016; Dahlin et al. 2005). Research focusing on specific psychosocial aspects liable for mental strain is sparse, but theoretical foundations are essential to gain insights into the underlying sources of distress and for deriving preventive measures (Herr et al. 2022a; Wege et al. 2017). This study could contribute by revealing that ambivalent behavior by lecturers represents a potential source of distress in students and a risk factor for their mental health, potentially by inducing uncertainty or indicating the relationship to be dysfunctional in providing support or in coping with distress (Herr et al. 2019; Holt-Lunstad et al. 2007; Holt-Lunstad and Uchino 2019; Suurd Ralph and Barling 2022). A first preventive step might be to create awareness of the potential consequences of ambivalent behavior among lecturers. A permanent, but predictable, negative behavior appears less burdening for students than a sometimes positive and sometimes negative behavior. In consequence, it seems advisable to teach university lecturers about this effect in pedagogical training. Lecturers should take care to show as uniform (positive) behavior as possible, as it is not possible to compensate (some) negative behavior with (some) positive behavior, because this only makes problems worse.

Both types of ambivalence showed a robust association with psychological distress (positive) and mental health (negative). Associations were somewhat stronger for objective ambivalence than for subjective ambivalence. One explanation might be that the conscious experience of subjective ambivalence is unpleasant, thus one tries to resolve it, while objective ambivalence is somewhat unconscious, yet stressful to students (Herr et al. 2019). This assumption is speculative at this point and requires further verification. However, this study demonstrated that both types have an independent association with distress and mental health indicators; both types explain a distinct part of the variance in the outcomes.

The correlation between objective and subjective ambivalence (r = 0.485) was comparable to other studies (ranging from r = 0.4 to 0.66 (Birmingham et al. 2019; Priester and Petty 1996; Thompson et al. 1995)). A theoretical integration of their relationship is provided by the Affect, Behavior, Cognition (ABC) model of ambivalence (van Harreveld et al. 2015). According to the ABC model, objective ambivalence might lead to subjective ambivalence if the positive and negative aspects are simultaneously and consciously accessible, which provokes a "hot" attitudinal conflict and negative affect (van Harreveld et al. 2015). The underlying mechanism might emerge from different sources, such as when people start to reflect on their thoughts, beliefs, and emotions (i.e., engaging in introspection), or when a decision has to be made (Schneider et al. 2015; van Harreveld et al. 2014; van Harreveld et al. 2015). The situation and the context that establish the relevance and importance seem to underpin the likelihood that an attitudinal conflict in terms of felt ambivalence will arise (Nohlen et al. 2016). Thus, it might be speculated that the current relevance and importance of the lecturer might determine whether the ambivalence is objective or subjective. This idea should be examined in further studies.

The remarkable association of objective ambivalence with paradoxical emotions might point to a general manifestation of conflicting constitutions, such as in ambivalent perceptions of the environment (e.g., the lecturer) and one's own emotions. Thus, both perceiving simultaneous positive and negative aspects and experiencing positive and negative emotions at the same time might have a common basis, like an inner conflict. However, as the relation was especially pronounced in objective ambivalence and both were calculated with the same mathematical formula (Griffin formula) this might also be a measurement artifact, similar to common method variance (cf. Podsakoff et al. 2024). Therefore, further studies might, for example, use biomarker measurement to shed light on this issue.

Individual personality differences might play a significant role in the formation and maintenance of ambivalence, as well as in its relevance in relation to distress and mental health. For example, Need for Cognition (NFC; negative), and Personal Fear of Invalidity (PFI; positive) were found to be associated with ambivalence (Thompson and Zanna 1995). Individuals with high NFC, a specific personality trait that involves dedicating oneself to effortful cognitive activities and structuring events in a meaningful way, have lower levels of ambivalence because they are better able to resolve conflicts. By contrast, individuals concerned with the cost of committing errors (i.e., those with high PFI), experience higher levels of ambivalence. In addition, preference for consistency and tolerance for ambiguity might play a similarly important role (Cialdini et al. 1995; Newby-Clark et al. 2002). In addition, individuals with a high preference for consistency and a low tolerance for ambiguity are more likely to experience ambivalence as unpleasant and suffer health consequences. In addition, dialectical thinking and mindfulness are seen as relevant factors (Schneider and Schwarz 2017). As these factors were not measured in this study, further studies are needed.

This study has some limitations to report. First, as the assessment was cross-sectional in nature, no inferences about the causal relationship of studied aspects can be drawn. Second, as all aspects were measured by questionnaire, common method variance might create spurious associations (Podsakoff et al. 2024). Third, for the measurement of types of ambivalence, no validated questionnaires could be used as there are none so far for the university setting. Therefore, scales needed to be adapted, modified, and newly developed.

As the measurement of ambivalence is strongly oriented to an established procedure for measuring ambivalent supervisor behavior at the workplace (Herr et al. 2019, 2022b), the assessment of subjective ambivalence was further away from the original measurement (Priester and Petty 1996). Future studies must show to what extent this is empirically and theoretically permissible. Fourth, the findings can only be applied to the German university context. Applicability in other countries and university cultures must be proven in further studies. Finally, no personality traits were assessed and thus a possible influence, as discussed above, could not be verified.

5. Conclusions

In conclusion, the more ambivalent the lecturers' behavior is assessed—the more strongly the lecturers behave both positively and negatively towards the students—the higher the students' experience of distress and the lower their mental health. Future research and possible interventions should take into account this previously ignored risk factor for students' health.

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