

The Relationship between Perfectionism, Cognitive Rumination, Mindfulness and Mental Health in Music Students at a South African University

Madaleen Botha

<https://orcid.org/0000-0001-6741-8119>
University of Pretoria, South Africa
madaleen7@gmail.com

Clorinda Panebianco

<https://orcid.org/0000-0002-0637-966X>
University of Pretoria, South Africa

Andries Masenge

<https://orcid.org/0000-0001-8372-2356>
University of Pretoria, South Africa

Abstract

The increasing performance and academic demands within the tertiary setting, in conjunction with perfectionistic behaviour and ruminative thinking, may contribute towards mental health difficulties among music students. The current study explored the relationship between perfectionism, rumination, mindfulness and mental health in music students. Using a cross-sectional survey design, 72 university music students participated in the study. According to their self-report mental health status, the participants were clustered into self-report mental health ($n = 26$) and no mental health ($n = 46$) groups. The results revealed that anxiety and depression were the most prominent mental health issues. Essential correlations between perfectionistic concerns and brooding rumination emerged in both groups; however, the participants from the no mental health group displayed significant inverse associations between perfectionism and mindfulness (Pursuit of Perfection and Non-judging of Inner Experiences; Concern over Mistakes and Non-judging of Inner Experiences) which were not evident among the participants from the self-report mental health group. Moreover, significantly higher scores of perfectionistic concerns, brooding and reflective rumination were found among participants from the self-report mental health group compared to those from the no mental health group. The results provide valuable insights into the mental health status of music students.

Keywords: perfectionism; rumination; mindfulness; mental health; music students; South Africa; university

Introduction and Background

Perfectionism, specifically the setting of high standards, striving for excellence, and self-critical evaluation, is frequently regarded as a desirable trait for the skilled musician (Dews and Williams 1989; Kenny, Davis and Oates 2004; Stoeber and Eismann 2007). However, perfectionism has been linked with psychological problems for many years, with research mainly focusing on the relationship between perfectionism and psychopathology (Shafran and Mansell 2001). This notion is also reflected in the extant research on musicians, as the overwhelming majority of studies on perfectionism in musicians have found a positive association between perfectionism and music-related anxiety (Dobos, Piko and Kenny 2019; Kenny, Davis and Oates 2004; Kobori et al. 2011; Patson and Osborne 2016), while some studies have explored the relationships between perfectionism and eating disorders (Kapsetaki and Easmon 2017), and burnout (Linnett 2016). Considering the stressors of tertiary studies, such as high-level performance demands, perfectionistic tendencies, competitiveness, and many hours of isolation during practising, there is a definite need to explore musicians' mental health further. According to Wristen (2013), the prevalence rates of depression and anxiety among American music students are similar to those of students majoring in other fields. However, the high rate of untreated depression (75%) and anxiety (68%) among university music students raised concerns (Wristen 2013). A similar study by Koops and Kuebel (2019) considered the self-reported mental health of music students and discovered mild to extreme levels of depression, anxiety and stress among the majority of the participants. Further, the results suggested the academic content and workload and the "emotional connection to music-making and critique" do contribute to these mental health challenges (Koops and Kuebel 2019, 1).

A further look into perfectionism and psychopathology revealed the importance of cognitive rumination. Rumination can be defined as "the process of thinking perseveratively about one's feelings and problems rather than in terms of the specific content of thoughts" (Nolen-Hoeksema, Wisco and Lyubomirsky 2008, 400). An important distinction is made between brooding rumination and reflective rumination. Brooding rumination involves negative thoughts, is more passive and abstract, and is potentially driven by fears and losses. On the other hand, reflective rumination is characterised by an active attempt to recognise the underlying causes of distress; have a more purposeful and self-directed orientation; and is perhaps motivated by curiosity and self-interest (Kegelaers, Schuijjer and Oudejans 2020; Nolen-Hoeksema, Wisco and Lyubomirsky 2008; Trapnell and Campbell 1999; Treynor, Gonzalez and Nolen-Hoeksema 2003).

Rumination, together with perfectionism, have been proposed as risk factors for depression and anxiety (Besharat et al. 2014), and several studies have suggested the mediating role of rumination in the relationship between perfectionism and depressive symptoms (Harris, Pepper and Maack 2008; O'Connor, O'Connor and Marshall 2007). In a sample of 96 undergraduate university students, Harris, Pepper and Maack (2008)

found the brooding aspect of rumination to fully mediate the relationship between maladaptive perfectionism and depressive mood. Brooding can, therefore, fully account for the relationship between perfectionism and depressive symptoms. However, the reflective aspect of rumination also partly mediated this relationship. Therefore, it is possible that both brooding and reflective pondering can increase depressive symptoms, with only brooding contributing to the development of long-term depression (Harris, Pepper and Maack 2008). Olson and Kwon (2008) reached similar findings in a longitudinal study with a sample of 305 undergraduate students. Over four weeks, they found that high levels of self-oriented and socially prescribed perfectionism, high levels of brooding rumination, and high levels of stress caused the greatest increases in depressive symptoms. In contrast, high levels of perfectionism (self-oriented and socially prescribed) in combination with low levels of brooding rumination did not result in increased depressive symptoms. These results confirmed the mediating role of brooding rumination in perfectionism and depression. Olson and Kwon (2008) further suggested that perfectionism may be adaptive for some and maladaptive for others since high levels of self-oriented and socially prescribed perfectionism, when combined with low levels of brooding, do not necessarily lead to high levels of depressive symptoms when faced with high stress.

Di Schiena et al. (2012) elaborate on this by hypothesising that adaptive perfectionism, unrelated to depressive symptoms, should be associated with an adaptive type of rumination. They, however, did not find any such association and therefore question whether perfectionistic strivings truly foster adaptation and resilience. In addition to their mediating roles, perfectionism and rumination have also been found to be predictive factors of depression. Besharat et al. (2014) found socially prescribed perfectionism and rumination to be significant predictors of depressive symptoms in a group of undergraduate university students. Furthermore, Brown and Kocovski (2014) consider perfectionism to be a predictor of post-event rumination in a sample of students struggling with social anxiety. Their results showed state and trait perfectionism to be significant predictors of post-event rumination when controlling for baseline social anxiety, depression and state anxiety. Thus, perfectionism and rumination undoubtedly have a significant yet complex association, especially in relation to symptoms of distress, anxiety and depression.

Research on rumination among musicians has delivered interesting results. Jones, Roy and Verkuilen (2014, 219) found positive correlations between reflective rumination and musical ability and also suggested higher levels of reflective rumination among musicians compared to non-musicians, as the “repetitive thought style in rumination may mirror the repetitive practice required to succeed as a musician”. Another possibility for this relationship could be the involvement of both music and rumination in the expression and regulation of emotion (Juslin and Västfjäll 2008). Several other studies support the link between reflective rumination and artistic creativity (Cohen and Ferrari 2010; Davis and Nolen-Hoeksema 2000). Roy, Radzevick and Getz (2016) had similar results, as they found musicians to display increased levels of reflective and

brooding rumination compared to non-musicians. Rumination has also been researched concerning music performance anxiety (Kenny 2009). Nielsen et al. (2017) examined the development of post-event rumination and anxiety following a musical performance. The results suggest a relationship between music performance anxiety, increased negative post-event rumination and decreased positive post-event rumination. Negative and positive post-event rumination levels also remained elevated for a more extended period in high-anxious musicians than in low-anxious musicians.

Upon exploring various mental health treatment options for university music students, mindfulness¹ emerged as a feasible possibility since it has been proposed in the treatment of depression, anxiety, ADHD, childhood trauma, and addiction (Shonin, Gordon and Griffiths 2015), with evidence being the most conclusive in its use for treating depression and anxiety (Hofmann et al. 2010; Spinhoven et al. 2017; Vollestad, Nielson and Nielson 2012). Some researchers have even compared mindfulness to antidepressant medication (Goyal et al. 2014); however, this comparison should be made with caution due to the individual differences in response to various treatments and the absence of scientific accuracy of mindfulness research in clinical contexts (Davidson and Kaszniak 2015; Goyal et al. 2014; Van Dam et al. 2018). In terms of musicians, a recent study by Diaz (2018) explored how mindfulness meditation practices contribute to music performance anxiety among university music students when controlling for trait perfectionism and trait mindfulness. From the sample of 255 music students, about 48% had engaged in frequent meditation during the past six months. Upon holding trait mindfulness and perfectionist traits constant, the participants reported a lower level of music performance anxiety after weekly meditation sessions. The findings also showed higher trait mindfulness to predict lower performance anxiety, whereas higher self-oriented perfectionism and socially prescribed perfectionism predicted higher performance anxiety levels. Together with existing levels of trait mindfulness, perfectionism was predictive for up to a 24% variation in music performance anxiety levels. Therefore, meditation practice can be valuable for decreasing music performance anxiety for individuals with high levels of self-oriented and socially prescribed perfectionism. Several other studies have explored the impact of mindfulness interventions on music students and displayed favourable outcomes in psychological well-being (Czajkowski, Greasley and Allis 2020; Diaz, Silveira and Strand 2019; Serrano and Espirito-Santo 2017; Steyn et al. 2016).

The current study aimed to explore the relationship between perfectionism, rumination, mindfulness and mental health in university music students.

1 Mindfulness can be explained as a broader awareness of a person's present sensations, thoughts, and feelings; an ongoing non-judgemental observation of internal and external stimuli as they emerge (Baer 2003; Kabat-Zinn 2003).

Method

Participants

The sample group was drawn from a target population of undergraduate and postgraduate music students from the University of Pretoria, South Africa. The sample included volunteering first-, second-, third- and fourth-year BMus students (undergraduate) and MMus and DMus students (postgraduate). A total of 72 participants were gathered by means of non-probability sampling, specifically purposive and convenience sampling. The researcher approached potential participants who met the inclusion criteria (purposive sampling) from the University of Pretoria as ethical clearance had already been obtained to use students from this institution (convenience sampling). The inclusion criteria for the study were that the participants should: (a) live in South Africa; (b) be enrolled as a full-time music student at the University of Pretoria; (c) be 18 years or older; (d) be able to express themselves effectively in English; and (e) be willing to sign the informed consent form. Participants who did not meet all the inclusion criteria were excluded from the study.

Materials

The current study employed a cross-sectional survey design, which included four sections. Section 1 included demographic information, such as gender, year of study, main instrument, home language, and questions regarding mental health. The following three sections included standardised research instruments in determining the participants' mental health status and measuring their perfectionism cognitions, ruminative tendencies and mindfulness.

Mental Health Status

The survey included two questions to assess mental health status. The first question addressed the prevalence of mental health concerns, "Have you ever received treatment for a mental health condition?", and was indicated with a yes/no answer. The second question probed more detail of the mental health condition, "If yes, please indicate the mental health condition and the treatment received – medical and or psychological." This question was open, allowing participants to elaborate.

Perfectionism Cognitions

The English adaptation of the Multidimensional Perfectionism Cognitions Inventory (MPCI-E) was used to measure the perfectionism cognitions of the participants (Stoerber, Kobori and Tanno 2010). The MPCI-E consists of 15 items exploring perfectionism according to the dimensions of Personal Standards ("It's important to set high standards for myself"), Pursuit of Perfection ("I can't feel satisfied unless I make it perfect") and Concern over Mistakes ("I would feel worthless if I fail"). According to a Likert scale rating, the items were scored, ranging from 1 – "Never" to 4 – "Always". Internal consistency of the MPCI-E in the current sample was high ($\alpha = .83$).

Rumination

The participants' ruminative tendencies were measured by the short version of the Rumination Response Scale (RRS) (Treyner, Gonzalez and Nolen-Hoeksema 2003). The shortened RRS includes the Brooding ("I think about a recent situation, wishing it had gone better") and Reflection ("I go away by myself and think about possible reasons for my feelings") subscales, resulting in a total of 10 items. The instrument used a four-point Likert scale ranging from 1 – "Almost never" to 4 – "Almost always". The internal consistency of the RRS in the present sample was high ($\alpha = .80$).

Mindfulness

The Five Facet Mindfulness Questionnaire (FFMQ) (Baer et al. 2006) was used to measure the mindfulness trait of the participants. The FFMQ consists of 39 items and considers mindfulness in terms of Observing ("I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing"); Describing ("I have trouble thinking of the right words to express how I feel about things"); Acting with Awareness ("I find myself doing things without paying attention"); Non-judging of Inner Experiences ("I tell myself that I shouldn't be thinking the way I'm thinking"); and Non-reactivity to Inner Experiences ("I watch my feelings without getting lost in them"). The items were scored according to a five-point Likert scale ranging from 1 – "Never or very rarely true" to 5 – "Very often or always true". The internal consistency of the FFMQ proved to be high for the current sample ($\alpha = .87$).

The Cronbach's alpha scores of the scales are presented against the scores of the original scales and appeared to be similarly strong in reliability (see Table 1).

Table 1: Reliability statistics of the MPCCI, RRS and FFMQ

Subscales of the research instruments		Cronbach's alpha		Number of items
		Original scale development	Current study	
MPCCI	Personal Standards	.83	.82	5
	Pursuit of Perfection	.84	.81	5
	Concern over Mistakes	.78	.75	5
RRS	Brooding	.77	.79	5
	Reflection	.72	.78	5
FFMQ	Observing	.83	.78	8
	Describing	.91	.92	8
	Acting with Awareness	.87	.85	8
	Non-judging of Inner Experiences	.87	.87	7
	Non-reactivity to Inner Experiences	.75	.75	8

Statistical Analysis

The statistical analysis was conducted using SPSS version 26.0. The descriptive statistics (means, standard deviations) were first calculated for all variables, and the internal validity of the measurement instruments was established using Cronbach's alpha coefficients. Next, mental health status was determined, and participants with depression/anxiety were identified (self-report mental health group).

Descriptive Statistics

The participants spoke various home languages, which included English, Afrikaans, and Other (African and European languages). They played a wide range of instruments, categorised into four groups, namely: Keyboard (including piano, organ, and harpsichord); Strings (including cello, guitar, viola, and violin); Winds (including clarinet, flute, French horn, saxophone, trombone, and tuba), and Voice (classical and jazz voice). The current study's data presented a more elaborative view on the mental health status of the participants. Of the 26 participants in the self-report mental health group,² 22 students indicated the specific psychological condition(s) with which they struggle; eight students shared that they struggle with both depression and anxiety disorders;³ seven students indicated that they suffer from depression only; and five students revealed their diagnoses as anxiety disorder. The data thus suggested depression as the most prominent mental health condition among music students, with 15 of the 22 participants struggling with this disorder and anxiety being ranked a close second as 13 participants indicated this condition. Descriptive statistics in terms of self-report mental health and no mental health groups are included in Table 2.

Table 2: Frequency (%) of total sample – self-report mental health group and no mental health group – according to gender, academic year, home language, instrument and mental health condition

Demographic	Total N = 72	Self-report mental health issues n = 26	No mental health issues n = 46
<i>Gender (%)</i>			
Female	45 (62%)	18 (69%)	27 (59%)
Male	27 (38%)	8 (31%)	19 (41%)
<i>Academic year (%)</i>			
First	14 (19%)	3 (12%)	11 (24%)
Second	7 (10%)	3 (12%)	4 (30%)
Third	15 (21%)	4 (15%)	11 (24%)
Fourth	20 (28%)	9 (35%)	11 (24%)
Postgraduate	16 (22%)	7 (27%)	9 (20%)

-
- 2 The self-report mental health group included only students who indicated that they had received medical or psychological self-report mental health for a mental health condition.
 - 3 Anxiety and depression are common co-morbid conditions since generalised anxiety and major depression share a common genetic predisposition (Mineka, Watson and Clark 1998).

Demographic	Total N = 72	Self-report mental health issues n = 26	No mental health issues n = 46
<i>Home language (%)</i>			
Afrikaans	30 (42%)	11 (42%)	19 (41%)
English	31 (43%)	13 (50%)	18 (39%)
Other	11 (15%)	2 (8%)	9 (20%)
<i>Instrument (%)</i>			
Keyboard	22 (31%)	9 (35%)	13 (28%)
Strings	14 (19%)	6 (23%)	8 (17%)
Voice	27 (37%)	8 (31%)	19 (41%)
Winds	9 (13%)	3 (12%)	6 (13%)
<i>Mental health condition (%)</i>			
Anxiety		13 (50%)	
Depression		15 (58%)	
Undisclosed		4 (15%)	

Results

Inferential Statistics

A Kruskal-Wallis test was conducted to examine the differences in MPCII, RRS and FFMQ between the self-report mental health group and the no mental health group (see Table 3). The results suggest differences in perfectionistic cognitions, specifically on the Concern over Mistakes subscale, and variations in the rumination responses, involving both the Reflection and Brooding subscales.

Table 3: Group comparison: Self-report mental health/no mental health

Research instrument	H	df	P
MPCI			
Personal Standards	0.13	1	0.714
Pursuit of Perfection	0.23	1	0.633
Concern over Mistakes	4.40	1	0.040
RRS			
Brooding	8.38	1	0.005
Reflection	5.16	1	0.027
Observing	1.45	1	0.223
FFMQ			
Describing	0.00	1	0.972
Acting with Awareness	1.48	1	0.224
Non-judging of Inner Experiences	3.10	1	0.078
Non-reactivity to Inner Experiences	1.29	1	0.257

* Significance level at $p \leq .05$

As seen in Figure 1, the MPCII delivered similar results for the groups on the Personal Standards and Pursuit of Perfection subscales. The Concerns over Mistakes subscale, however, displayed significantly higher scores ($p = 0.040$) for the self-report mental health group (2.84) in comparison to the no mental health group (2.51).



Figure 1: MPCCI: Comparisons between the two groups

The RRS revealed significant differences for the groups on both subscales (see Figure 2). The self-report mental health group (2.99) displayed significantly higher Brooding tendencies ($p = 0.005$) compared to the no mental health group (2.5). Similarly, on the Reflection subscale, the self-report mental health participants (2.84) scored markedly higher ($p = 0.027$) than the no mental health participants (2.41). Those receiving medical or psychological self-report mental health for their mental health are much more likely to engage in ruminative thinking than those not receiving any treatment for their mental health.

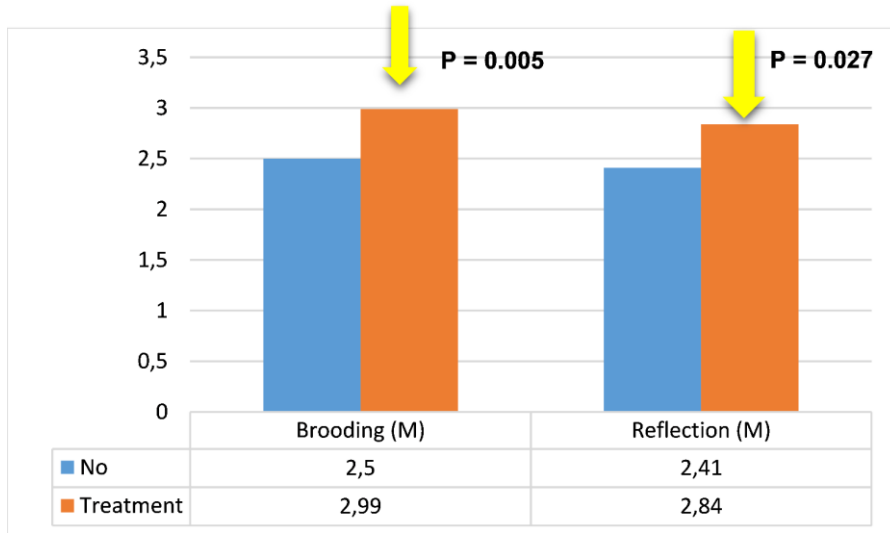


Figure 2: RRS: Comparisons between the two groups

The self-report mental health group also obtained a significantly higher score on Concern over Mistakes perfectionism than the no mental health group. This finding is endorsed by the substantial amount of literature suggesting relations between high levels of self-oriented perfectionism and anxiety (Mackinnon et al. 2014; Newby et al. 2017; O'Connor, Rasmussen and Hawton 2010).

Correlational Analysis

Correlations within the no mental health and self-report mental health groups were considered, and several differences were found between the groups (see tables 3 and 4). The strongest correlations among the participants from the no mental health group included Pursuit of Perfection and Concern over Mistakes ($r = 0.60$; $p < .000$); and inversely, Brooding and Non-judging of Inner Experiences ($r = -0.60$; $p < .000$). However, the no mental health group displayed significant correlations between perfectionism and mindfulness, which were not evident in the self-report mental health group. Non-judging of Inner Experiences and mindfulness correlated inversely with Pursuit of Perfection ($r = -0.49$; $p = 0.001$) and Concern over Mistakes ($r = -0.49$; $p = 0.001$) among the no mental health group.

Table 4: Correlational analysis: No mental health group

Subscale	1	2	3	4	5	6	7	8	9	10
1. Personal Standards	1	.45**	.10	.18	.05	.00	.08	.28	-.12	.06
2. Pursuit of Perfection		1	.60**	.42**	-.04	.05	-.16	.09	-.49**	.00
3. Concern over Mistakes			1	.50**	.01	-.10	-.28	-.14	-.49**	-.22
4. Brooding				1	.18	.09	-.37*	-.27*	-.60**	-.44**
5. Reflection					1	.36*	.34*	.20	-.03	.05
6. Observing						1	.24	.06	-.14	.08
7. Describing							1	.44**	.25	.48**
8. Acting with Awareness								1	.25	.37*
9. Non-judging of Inner Experiences									1	.33*
10. Non-reactivity to Inner Experiences										1

Note: * $p < .05$; ** $p < .01$

The self-report mental health group presented slightly less inter-scale correlations than the no mental health group. The strongest correlations among the self-report mental health participants emerged between Reflection and Observing ($r = 0.74$; $p < .000$); Concern over Mistakes and Brooding ($r = 0.62$; $p = 0.001$); and Brooding and Non-judging of Inner Experiences ($r = -0.55$; $p = 0.004$), inversely.

Table 5: Correlational analysis: Self-report mental health group

Subscale	1	2	3	4	5	6	7	8	9	10
1. Personal Standards	1	.31	.15	.10	.29	.17	.36	.11	-.33	.16
2. Pursuit of Perfection		1	.51**	.06	-.20	.07	-.07	.05	-.27	-.20
3. Concern over Mistakes			1	.62**	-.02	.10	-.15	-.22	-.38	-.36
4. Brooding				1	.45*	.48*	.01	-.23	-.55**	-.42*
5. Reflection					1	.74**	.40*	-.10	-.50*	.34
6. Observing						1	-.31	.20	-.45*	.20
7. Describing							1	.31	-.11	.41*
8. Acting with Awareness								1	-.11	.05
9. Non-judging of Inner Experiences									1	.11
10. Non-reactivity to Inner Experiences										1

Note: * $p < .05$; ** $p < .01$

The self-report mental health group furthermore showed the following relations, which did not emerge among the no mental health group: Brooding displayed moderately strong correlations with Observing ($r = 0.48$; $p = 0.013$) and Reflection ($r = 0.45$; $p = 0.022$); and Non-judging of Inner Experiences presented a moderately strong negative correlation with Reflection ($r = -.45$; $p = 0.010$) and Observing ($r = -0.45$; $p = 0.021$).

Discussion

The results demonstrated that more than a third of the music students (36%) receive treatment for a mental health condition, with depression (58%), and anxiety (50%) being the most common disorders among the self-report mental health group. This is low compared to the data of a recent study in the Netherlands (Kegelaers, Schuijjer and Oudejans 2020), which found 61% of their music students displayed symptoms of mental health issues. There could be several reasons for this lower score among South African university music students. Firstly, several of the current music students are struggling with mental health difficulties but are not seeking help or receiving treatment. In South Africa specifically, Bantjes et al. (2020) found minimal use of mental health facilities among first-year students, with persistent discrepancies among historically marginalised groups. Also, within the South African tertiary setting, Bantjes et al. (2019) found that female students, who made up more than two-thirds of the current study sample, displayed an increased risk of common mental disorders. Therefore, it is likely that the current statistic of 36% students in the self-report mental health group is a misrepresentation and there is in fact a higher prevalence of mental health difficulties among South African university music students.

A key result of the current study was the significant differences between the perfectionism and rumination scores between the self-report mental health ($n = 26$) and no mental health ($n = 46$) groups. The self-report mental health group scored

significantly higher on Concern over Mistakes, Reflection, and Brooding, thereby suggesting that students receiving treatment are more engaged in perfectionistic concerns and ruminative thought patterns than those not seeking treatment. These results are in line with several other studies as the link between mental health and increased perfectionistic concerns among university students is no novel finding in the research (Schweitzer and Hamilton 2002). Eley, Bansal and Leung (2020) recently discovered high levels of Concern over Perfectionism among medical students to be associated with the highest levels of stress, anxiety and depression. The notion of elevated brooding and reflection levels among the self-report mental health group is also supported by several studies, as research has found definite links between brooding and psychopathology (Michael et al. 2007; Nolen-Hoeksema 2000), and reflection and depressive symptoms (Joormann, Dkane and Gotlib 2006; Siegle, Moore and Thase 2004).

Important correlations between perfectionistic concerns and brooding rumination emerged in both the self-report mental health and no mental health groups; however, the participants from the no mental health group displayed noteworthy inverse associations between perfectionism and mindfulness (Pursuit of Perfection and Non-judging of Inner Experiences; Concern over Mistakes and Non-judging of Inner Experiences) which were not evident among the participants from the self-report mental health group. This is an interesting finding, which can be interpreted in several ways. Firstly, as discussed earlier, the self-report mental health group experienced significantly higher levels of perfectionistic concerns, brooding, and reflection. These elevated levels may have somehow prevented any significant relationships between mindfulness and perfectionism. Therefore, in the absence of increased rumination and perfectionism, high levels of mindfulness will be associated with decreased perfectionism levels and, most likely, increased mental well-being. The importance of mindfulness for the career musician is supported by Creswell and Lindsay (2014). They propose a stress-buffering model of mindfulness and agree that “mindfulness-based health effects are mostly likely to be observed in high-stress populations for which stress is known to affect the onset or exacerbation of disease pathogenic processes” (Creswell and Lindsay 2014, 401).

The results of the study have various implications for the training of university music students. For example, music educators can assist students in developing coping mechanisms, such as daily mindfulness practices; increase awareness of brooding and perfectionistic cognitions; and promote the acceptability of seeking mental health treatment when needed.

Several limitations should be recognised when discussing the results of the current study. Firstly, given the relatively small sample size, broad statistical generalisations are limited. In addition, the small sample size also limited the number of variables that could be included in the regression analysis. Multiple additional factors (e.g., availability of social support, history of adverse life events, family history of mental

health disorders, substance and alcohol abuse) can influence the music student's mental health and justify further investigation. Moreover, the students were asked to report their mental health-seeking behaviour, and share their accompanying disorder. Their actual mental health status was not measured. As a result, some of the students who have mental difficulties but are not currently receiving treatment may have been included in the no mental health group. An instrument measuring depression and anxiety could be employed in future research to ensure a more unambiguous mental health status.

Conclusion

The study examined the relationship between perfectionism, rumination, mindfulness and mental health in university music students. The results highlight the occurrence of specifically depression and anxiety among at least 36% of the students. These students also experienced significantly higher levels of perfectionistic concerns, reflective and brooding rumination compared to the students not reporting mental health difficulties. This suggests the critical role of perfectionism and rumination in psychopathology. Furthermore, it seems that mindfulness might be beneficial for a music student's mental health, as it displayed several inverse correlations with perfectionism among the no mental health music group. This, however, needs to be confirmed and explored further with a mindfulness intervention. The study provides valuable insight into mental health issues in South African university music students.

References

- Baer, R. A. 2003. "Mindfulness Training as a Clinical Intervention. A Conceptual and Empirical Review." *Clinical Psychology: Science and Practice* 10 (2): 125–143. <https://doi.org/10.1093/clipsy.bpg015>
- Baer, R. A., G. T. Smith, J. Hopkins, J. Krietemeyer, and L. Toney. 2006. "Using Self-report Assessment Methods to Explore Facets of Mindfulness." *Assessment* 13 (1): 27–45. <https://doi.org/10.1177/1073191105283504>
- Bantjes, J., C. Lochner, W. Saal, J. Roos, L. Taljaard, D. Page, R. P. Auerbach, P. Mortier, R. Bruffaerts, R. C. Kessler, and D. J. Stein. 2019. "Prevalence and Sociodemographic Correlates of Common Mental Disorders among First-year University Students in Post-apartheid South Africa: Implications for a Public Mental Health Approach to Student Wellness." *BMC Public Health* 19 (1): 1–12. <https://doi.org/10.1186/s12889-019-7218-y>
- Bantjes, J., W. Saal, C. Lochner, J. Roos, R. P. Auerbach, P. Mortier, R. Bruffaerts, R. C. Kessler, and D.J Stein. 2020. "Inequality and Mental Healthcare Utilisation among First-year University Students in South Africa." *International Journal of Mental Health Systems* 14 (1): 1–11. <https://doi.org/10.1186/s13033-020-0339-y>
- Besharat, M. A., A. Issazadegan, M. Etemadinia, S. Golssanamlou, and A. Abdolmanafi. 2014. "Risk Factors Associated with Depressive Symptoms among Undergraduate Students." *Asian Journal of Psychiatry* 10: 21–26. <https://doi.org/10.1016/j.ajp.2014.02.002>

- Brown, J. R., and N. L. Kocovski. 2014. "Perfectionism as a Predictor of Post-event Rumination in a Socially Anxious Sample." *Journal of Rational-Emotive and Cognitive-Behavior Therapy* 32 (2): 150–163. <https://doi.org/10.1007/s10942-013-0175-y>
- Cohen, J. R., and J. R. Ferrari. 2010. "Take Some Time to Think This Over: The Relation between Rumination, Indecision, and Creativity." *Creativity Research Journal* 22 (1): 68–73. <https://doi.org/10.1080/10400410903579601>
- Creswell, J. D., and E. K. Lindsay. 2014. "How Does Mindfulness Training Affect Health? A Mindfulness Stress Buffering Account." *Current Directions in Psychological Science* 23 (6): 401–407. <https://doi.org/10.1177/0963721414547415>
- Czajkowski, A. M. L., A. E. Greasley, and M. Allis. 2020. "Mindfulness for Musicians: A Mixed-methods Study Investigating the Effects of 8-week Mindfulness Courses on Music Students at a Leading Conservatoire." *Musicae Scientiae* 26 (2): 259–279. <https://doi.org/10.1177/1029864920941570>
- Davidson, R. J., and A. W. Kaszniak. 2015. "Conceptual and Methodological Issues in Research on Mindfulness and Meditation." *American Psychologist* 70 (7): 581–592. <https://doi.org/10.1037/a0039512>
- Davis, R. N., and S. Nolen-Hoeksema. 2000. "Cognitive Inflexibility among Ruminators and Nonruminators." *Cognitive Therapy and Research* 24 (6): 699–711. <https://doi.org/10.1023/A:1005591412406>
- Dews, C. B., and M. S. Williams. 1989. "Student Musicians' Personality Styles, Stresses, and Coping Patterns." *Psychology of Music* 17 (1): 37–47. <https://doi.org/10.1177/0305735689171004>
- Diaz, F. M. 2018. "Relationships among Meditation, Perfectionism, Mindfulness, and Performance Anxiety among Collegiate Music Students." *Journal of Research in Music Education* 66 (2): 150–167. <https://doi.org/10.1177/0022429418765447>
- Diaz, F., J. Silveira, and K. Strand. 2019. "Investigating Musicians' Mindfulness through a Phenomenological Matrix." *MindRxi Papers* September 20. <https://doi.org/10.31231/osf.io/f3nwe>
- Di Schiena, R., O. Luminet, P. Philippot, and C. Douilliez. 2012. "Adaptive and Maladaptive Perfectionism in Depression: Preliminary Evidence on the Role of Adaptive and Maladaptive Rumination." *Personality and Individual Differences* 53 (6): 774–778. <https://doi.org/10.1016/j.paid.2012.05.017>
- Dobos, B., B. F. Piko, and D. T. Kenny. 2019. "Music Performance Anxiety and Its Relationship with Social Phobia and Dimensions of Perfectionism." *Research Studies in Music Education* 41 (3): 310–326. <https://doi.org/10.1177/1321103X18804295>

- Eley, D. S., V. Bansal, and J. Leung. 2020. "Perfectionism as a Mediator of Psychological Distress: Implications for Addressing Underlying Vulnerabilities to the Mental Health of Medical Students." *Medical Teacher* 42 (11): 1301–1307. <https://doi.org/10.1080/0142159X.2020.1805101>
- Goyal, M., S. Singh, E.M. Sibinga, N.F. Gould, A. Rowland-Seymour, R. Sharma, R., and H. M. Shihab. 2014. "Meditation Programs for Psychological Stress and Wellbeing: A Systematic Review and Meta-analysis." *JAMA Internal Medicine* 174 (3): 357–368. <https://doi.org/10.1001/jamainternmed.2013.13018>
- Harris, P. W., C. M. Pepper, and D. J. Maack. 2008. "The Relationship between Maladaptive Perfectionism and Depressive Symptoms: The Mediating Role of Rumination." *Personality and Individual Differences* 44 (1): 150–160. <https://doi.org/10.1016/j.paid.2007.07.011>
- Hofmann, S. G., A. T. Sawyer, A. A. Witt, and D. Oh. 2010. "The Effect of Mindfulness-based Therapy on Anxiety and Depression: A Meta-analytic Review." *Journal of Consulting and Clinical Psychology* 78 (2): 169–183. <https://doi.org/10.1037/a0018555>
- Jones, M. E., M. M. Roy, and J. Verkuilen. 2014. "The Relationship between Reflective Rumination and Musical Ability." *Psychology of Aesthetics, Creativity, and the Arts* 8 (2): 219–226. <https://doi.org/10.1037/a0035634>
- Joormann, J., M. Dkane, and I. H. Gotlib. 2006. "Adaptive and Maladaptive Components of Rumination?" *Behavior Therapy* 37 (3): 269–280. <https://doi.org/10.1016/j.beth.2006.01.002>
- Juslin, P. N., and D. Västfjäll. 2008. "Emotional Responses to Music: The Need to Consider Underlying Mechanisms." *Behavioral and Brain Sciences* 31 (5): 559–575. <https://doi.org/10.1017/S0140525X08005293>
- Kabat-Zinn, J. 2003. "Mindfulness-based Interventions in Context: Past, Present, and Future." *Clinical Psychology: Science and Practice* 10 (2): 144–156. <https://doi.org/10.1093/clipsy.bpg016>
- Kapsetaki, M. E., and C. Easmon. 2019. "Eating Disorders in Musicians: A Survey Investigating Self-reported Eating Disorders of Musicians." *Eating and Weight Disorders – Studies on Anorexia, Bulimia and Obesity* 24 (3): 541–549. <https://doi.org/10.1007/s40519-017-0414-9>
- Kegelaers, J., M. Schuijjer, and R. R. Oudejans. 2020. "Resilience and Mental Health Issues in Classical Musicians: A Preliminary Study." *Psychology of Music* 49: 1273–1284. <https://doi.org/10.1177/0305735620927789>
- Kenny, D. T. 2009. "The Factor Structure of the Revised Kenny Music Performance Anxiety Inventory." In *Proceedings of the International Symposium on Performance Science*, edited by A. Williamon, S. Pretty and R. Buck, 37–41. Utrecht: European Association of Conservatoires.

- Kenny, D. T., P. Davis, and J. Oates. 2004. "Music Performance Anxiety and Occupational Stress amongst Opera Chorus Artists and Their Relationship with State and Trait Anxiety and Perfectionism." *Journal of Anxiety Disorders* 18 (6): 757–777. <https://doi.org/10.1016/j.janxdis.2003.09.004>
- Kobori, O., M. Yoshie, K. Kudo, and T. Ohtsuki. 2011. "Traits and Cognitions of Perfectionism and Their Relation with Coping Style, Effort, Achievement, and Performance Anxiety in Japanese Musicians." *Journal of Anxiety Disorders* 25 (5): 674–679. <https://doi.org/10.1016/j.janxdis.2011.03.001>
- Koops, L. H., and C. R. Kuebel. 2019. "Self-reported Mental Health and Mental Illness among University Music Students in the United States." *Research Studies in Music Education* 43: 129–143. <https://doi.org/10.1177/1321103X19863265>
- Linnett, R. J. 2016. "Notes of Discord: The Relationship between Multidimensional Perfectionism and Burnout in Amateur and Professional Musicians." Undergraduate diss., University of Northampton.
- Mackinnon, S. P., S. R. Battista, S. B. Sherry, and S. H. Stewart. 2014. "Perfectionistic Self-presentation Predicts Social Anxiety Using Daily Diary Methods." *Personality and Individual Differences* 56: 143–148. <https://doi.org/10.1016/j.paid.2013.08.038>
- Michael, T., S. L. Halligan, D. M. Clark, and A. Ehlers. 2007. "Rumination in Posttraumatic Stress Disorder." *Depression and Anxiety* 24 (5): 307–317. <https://doi.org/10.1002/da.20228>
- Mineka, S., D. Watson, and L. A. Clark. 1998. "Comorbidity of Anxiety and Unipolar Mood Disorders." *Annual Review of Psychology* 49 (1): 377–412. <https://doi.org/10.1146/annurev.psych.49.1.377>
- Newby, J., V. A. Pitura, A. M. Penney, R. G. Klein, G. L. Flett, and P. L. Hewitt. 2017. "Neuroticism and Perfectionism as Predictors of Social Anxiety." *Personality and Individual Differences* 106: 263–267. <https://doi.org/10.1016/j.paid.2016.10.057>
- Nielsen, C., R. K. Studer, H. Hildebrandt, U. M. Nater, P. Wild, B. Danuser, and P. Gomez. 2017. "The Relationship between Music Performance Anxiety, Subjective Performance Quality and Post-event Rumination among Music Students." *Psychology of Music* 46 (1): 136–152. <https://doi.org/10.1177/0305735617706539>
- Nolen-Hoeksema, S. 2000. "The Role of Rumination in Depressive Disorders and Mixed Anxiety/Depressive Symptoms." *Journal of Abnormal Psychology* 109 (3): 504–511. <https://doi.org/10.1037/0021-843X.109.3.504>
- Nolen-Hoeksema, S., B. E. Wisco, and S. Lyubomirsky. 2008. "Rethinking Rumination." *Perspectives on Psychological Science* 3 (5): 400–424. <https://doi.org/10.1111/j.1745-6924.2008.00088.x>

- O'Connor, D. B., R. C. O'Connor, and R. Marshall. 2007. "Perfectionism and Psychological Distress: Evidence of the Mediating Effects of Rumination." *European Journal of Personality* 21 (4): 429–452. <https://doi.org/10.1002/per.616>
- O'Connor, R. C., S. Rasmussen, and K. Hawton. 2010. "Predicting Depression, Anxiety and Self-harm in Adolescents: The Role of Perfectionism and Acute Life Stress." *Behaviour Research and Therapy* 48 (1): 52–59. <https://doi.org/10.1016/j.brat.2009.09.008>
- Olson, M. L., and P. Kwon. 2008. "Brooding Perfectionism: Refining the Roles of Rumination and Perfectionism in the Etiology of Depression." *Cognitive Therapy and Research* 32 (6): 788–802. <https://doi.org/10.1007/s10608-007-9173-7>
- Patson, T., and M. S. Osborne. 2016. "The Developmental Features of Music Performance Anxiety and Perfectionism in School Age Music Students." *Performance Enhancement and Health* 4: 42–49. <https://doi.org/10.1016/j.peh.2015.09.003>
- Roy, M. M., J. Radzevick, and L. Getz. 2016. "The Manifestation of Stress and Rumination in Musicians." *Muziki* 13 (1): 100–112. <https://doi.org/10.1080/18125980.2016.1182385>
- Schweitzer, R., and T. Hamilton. 2002. "Perfectionism and Mental Health in Australian University Students: Is There a Relationship?" *Journal of College Student Development* 43 (5): 684–695.
- Serrano, T., and H. A. Espírito-Santo. 2017. "Music, Ballet, Mindfulness, and Psychological Inflexibility." *Psychology of Music* 45 (5): 725–738. <https://doi.org/10.1177/0305735616689298>
- Shafran, R., and W. Mansell. 2001. "Perfectionism and Psychopathology: A Review of Research and Treatment." *Clinical Psychology Review* 21 (6): 879–906. [https://doi.org/10.1016/S0272-7358\(00\)00072-6](https://doi.org/10.1016/S0272-7358(00)00072-6)
- Shonin, E., W. V. Gordon, and M. D. Griffiths. 2015. "Does Mindfulness Work?" *BMJ: British Medical Journal* 351: h6919. <https://doi.org/10.1136/bmj.h6919>
- Siegle, G. J., P. M. Moore, and M. E. Thase. 2004. "Rumination: One Construct, Many Features in Healthy Individuals, Depressed Individuals, and Individuals with Lupus." *Cognitive Therapy and Research* 28 (5): 645–668. <https://doi.org/10.1023/B:COTR.0000045570.62733.9f>
- Spinhoven, P., M. J. Huijbers, J. Ormel, and A. E. Speckens. 2017. "Improvement of Mindfulness Skills during Mindfulness-based Cognitive Therapy Predicts Long-term Reductions of Neuroticism in Persons with Recurrent Depression in Remission." *Journal of Affective Disorders* 213: 112–117. <https://doi.org/10.1016/j.jad.2017.02.011>
- Steyn, B. J., M. H. Steyn, D. J. Maree, and C. Panebianco-Warrens, C. 2016. "Psychological Skills and Mindfulness Training Effects on the Psychological Wellbeing of Undergraduate Music Students: An Exploratory Study." *Journal of Psychology in Africa* 26 (2): 167–171. <https://doi.org/10.1080/14330237.2016.1163906>

- Stoeber, J., and U. Eismann. 2007. "Perfectionism in Young Musicians: Relations with Motivation, Effort, Achievement, and Distress." *Personality and Individual Differences* 43 (8): 2182–2192. <https://doi.org/10.1016/j.paid.2007.06.036>
- Stoeber, J., O. Kobori, and Y. Tanno. 2010. "The Multidimensional Perfectionism Cognitions Inventory–English (MPCI–E): Reliability, Validity, and Relationships with Positive and Negative Affect." *Journal of Personality Assessment* 92 (1): 16–25. <https://doi.org/10.1080/00223890903379159>
- Trapnell, P. D., and J. D. Campbell. 1999. "Private Self-consciousness and the Five-factor Model of Personality: Distinguishing Rumination from Reflection." *Journal of Personality and Social Psychology* 76 (2): 284–304. <https://doi.org/10.1037//0022-3514.76.2.284>
- Treynor, W., R. Gonzalez, and S. Nolen-Hoeksema. 2003. "Rumination Reconsidered: A Psychometric Analysis." *Cognitive Therapy and Research* 27 (3): 247–259. <https://doi.org/10.1023/A:1023910315561>
- Van Dam, N. T., M. K. van Vugt, D. R. Vago, L. Schmalzl, C. D. Saron, A. Olendzki, and D. E. Meyer. 2018. "Mind the Hype: A Critical Evaluation and Prescriptive Agenda for Research on Mindfulness and Meditation." *Perspectives on Psychological Science* 13 (1): 36–61. <https://doi.org/10.1177/1745691617709589>
- Vollestad, J., M. B. Nielson, and G. H. Nielson. 2012. "Mindfulness and Acceptance-based Interventions for Anxiety Disorders: A Systematic Review and Meta-analysis." *British Journal of Clinical Psychology* 51 (3): 239–260. <https://doi.org/10.1111/j.2044-8260.2011.02024.x>
- Wristen, B. G. 2013. "Depression and Anxiety in University Music Students." *Update: Applications of Research in Music Education* 31 (2): 20–27. <https://doi.org/10.1177/8755123312473613>