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DOI
10.1177/0305735620927789

Publication date
2020

Document Version
Submitted manuscript

Published in
Psychology of Music

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Resilience and Mental Health Issues in Classical Musicians: A Preliminary Study

Abstract

Due to considerable occupational challenges and stressors, classical musicians might face increased risk for mental health issues, compared to the general population. As such, scholars have highlighted the importance of developing psychological resilience in musicians. Nevertheless, this important psychological characteristic has remained understudied within music psychology. The present study therefore examined the relationship between mental health issues and resilience. Using a cross-sectional survey design, a total of 64 musicians (including both music students and professionals) participated in this study. Results highlight that symptoms of depression/anxiety were relatively high within the current population. Moreover, music students experienced significantly more symptoms compared to professional musicians. Both resilience and general physical health were found to be negatively associated with mental health issues. The results highlight the need for further research into mental health issues in music students and provide preliminary evidence for the importance of psychological resilience in classical musicians.

Keywords: Anxiety, Depression, Mental disorders, Occupational stress, Positive adaptation

Resilience and Mental Health Issues in Classical Musicians: A Preliminary Study

High-level classical musicians engage in a stressful profession, which might place them under increased risk for mental health issues. Existing research has typically focused on music-specific issues such as performance pressure (e.g., Buma, Bakker, & Oudejans, 2015; Oudejans, Spitse, Kralt, & Bakker, 2017) and music performance anxiety (e.g., Papageorgi, Creech, & Welch, 2013; Steptoe & Fidler, 1987; van Kemenade, van Son, & van Heesch, 1995; for a review see Kenny, 2011). However, musicians experience a much broader range of clinical or sub-clinical mental disorders (Barbar, De Souza Crippa, & De Lima Osório, 2014; Hildebrandt, Nübling, & Candia, 2012; Kenny & Ackermann, 2015; Kenny, Driscoll, & Ackermann, 2014; Vaag, Bjørngaard, & Bjerkeset, 2016; van Fenema et al., 2013; van Fenema & van Geel, 2014; Wristen, 2013). To illustrate, Kenny et al. (2014) found high symptom prevalence rates of affective disorders, such as social phobia (33%), PTSD (22%), and depression (32%) in Australian professional orchestra musicians. Likewise, a study with Brazilian musicians reported prevalence rates of 13% for moderate to severe general anxiety symptoms, 19% for social anxiety symptoms, and 20% for symptoms of depression (Barbar et al., 2014). Finally, in a recent large-scale study with Norwegian professional musicians, Vaag, Bjørngaard, et al. (2016) found prevalence rates of 20.1% for symptoms of depression and 14.7% for symptoms of anxiety. Overall, studies have shown that the prevalence of mental health issues in musicians tend to be higher compared to the general population (Vaag, Bjørngaard, et al., 2016; van Fenema & van Geel, 2014).

The relatively high rates of mental health issues might be directly related to musicians' experienced occupational stressors and challenges (Perkins, Reid, Araújo, Clark, & Williamon, 2017). For example, classical musicianship is characterised by extensive comparison and competition, as well as high levels of job insecurity, financial instability, and personal sacrifice (MacNamara, Holmes, & Collins, 2008; Pecen, Collins, & MacNamara,

2016; Perkins et al., 2017). Furthermore, musicians are subject to very long practice hours, often conducted in isolation (Ericsson & Harwell, 2019). These challenges might all act as barriers to optimal mental health (Perkins et al., 2017; Wristen, 2013). Moreover, the high quantity of practice can also lead to playing-related musculoskeletal pain (Baadjou, 2018) and overuse injuries (Bird, 2013), which in turn have been related to increased risk for depression (Kenny & Ackermann, 2015). Finally, musicians traditionally possess poor health-promoting behaviours (Araújo et al., 2017; Pecen et al., 2016). For example, sleep quality is poor in many musicians (Araújo et al., 2017; Vaag, Saksvik-Lehouillier, Bjørngaard, & Bjerkeset, 2016), which is reciprocally associated with mental health issues (Roberts & Duong, 2013). Given these music-specific stressors and challenges, scholars have proposed that musicians should be supported in building psychological resilience (Araújo et al., 2017; Osborne, Greene, & Immel, 2014; Wiggins, 2011).

The concept of psychological resilience has typically been used to understand how an individual (or group of individuals) is able to withstand or bounce back from significant stressors or challenges that threaten its functioning, development, or wellbeing (Kegelaers, 2019; Masten, 2014). Research suggests that resilience reflects a psychological state that emerges over time, resulting from the dynamic interaction between personal (e.g., challenge appraisals, optimism, self-efficacy, commitment, etc.) and environmental (e.g., social support, psychological climate, etc.) protective resources (Bryan, O'Shea, & MacIntyre, 2019; Fletcher & Sarkar, 2013). Over the past decade, the construct of resilience has gained interest from a number of different performance psychology domains, including education (Hartley, 2011), the military (Crane et al., 2019), police work (van der Meulen, van der Velden, Setti, & van Veldhoven, 2018), sports (Kegelaers & Wylleman, 2019), and visual arts (Siddins, Daniel, & Johnstone, 2016).

Research in those domains has demonstrated that resilience might serve as an important psychological characteristic for optimal mental health (Hu, Zhang, & Wang, 2015; Ungar & Theron, 2019). For example, resilience has been associated with decreased levels of mental disorders in college students (Hartley, 2011), critical care professionals (Arrogante & Aparicio-Zaldivar, 2017), and student-athletes (Sorkkila, Tolvanen, Aunola, & Ryba, 2019); although some scholars have also called into question the protective value of resilience (van der Meulen et al., 2018). In music psychology, Osborne et al. (2014) already proposed that resilience is a critical psychological characteristic to safeguard against the negative consequences of music performance anxiety. However, further empirical work exploring resilience in musicians has remained absent.

The primary aim of the present study was, therefore, to (a) establish the symptom prevalence of common mental health issues in classical musicians and (b) examine the potential relationship between mental health issues and psychological resilience. In relation to mental health issues, we specifically considered combined symptoms of depression and anxiety, as these reflect the globally most prevalent mental disorders (World Health Organization, 2017) with high levels of comorbidity (Gouttebarge et al., 2017; Lundin, Hallgren, Theobald, Hellgren, & Torgén, 2016). Additional potential stressors and other factors influencing this relationship were also considered.

Method

Participants

For this study, both music students as well as music professionals from the Netherlands were recruited. Music students were enrolled in the 3rd bachelor and 1st master Classical music of the *Conservatorium van Amsterdam*. Music professionals were members of one of the professional international orchestras in the Netherlands, as well as academy members of another internationally renowned professional orchestra. The participants played

a wide range number of different instruments, spanning several instrument groups. Due to the relatively small number of participants within the different types of instruments, all participants were divided into three broad instrument groups for further analysis: *Strings* (including: cello, double bass, viola, and violin), *Wind instruments* (including: bassoon, clarinet, flute, French horn, oboe, recorder, and trombone), and *Other* (including: composition, harp, harpsichord, percussion, piano, and voice). Detailed demographics are provided in the results section.

Materials

The present study made use of a cross-sectional survey design. A number of demographics were collected from the participants, including Age, Gender, Experience (i.e., years since starting to play their main instrument), Professional status (i.e., student or professional), and Instrument. Additionally, questionnaires were used to measure participants' symptoms of mental health issues (i.e., Depression/anxiety), resilience, hours of practice per week, and physical health and health promoting behaviours.

Symptoms of mental health issues. The 12-item version of the General Health Questionnaire (GHQ-12) was used to measure the prevalence of symptoms of mental health issues (Goldberg et al., 1997). More specifically, the GHQ-12 is typically used to measure symptoms of both depression and anxiety, given their high levels of comorbidity (Gouttebarge et al., 2017; Lundin et al., 2016). The GHQ-12 has previously been demonstrated to be a valid, reliable, and robust measure for symptoms of mental health issues (Goldberg et al., 1997; Lundin et al., 2016). It contains 12 items (e.g., *"Have you recently lost much sleep to worry?*"), scored on a 4-point scale ranging from 1 "*Not at all"* to 4 *"Much more than usual*". The traditional scoring system was adopted (0-0-1-1), whereby a total scoring range from 0 to 12 was obtained (Goldberg et al., 1997). A cut-off score of 3 or more symptoms was adopted as an indicator for the prevalence of Depression/anxiety

(Goldberg et al., 1997). Internal consistency of the GHQ-12 in the present sample was high (α = .84).

Resilience. Participants' capacity for resilience was measured using the Connor-Davidson resilience scale 10 (CD-RISC-10; Campbell-Sills & Stein, 2007), an abbreviated version of the original CD-RISC (Connor & Davidson, 2003). The CD-RISC-10 is a unidimensional scale, measuring individuals' ability to adapt to adversity and stress through the use of protective resources (Connor & Davidson, 2003; Windle, Bennett, & Noyes, 2011). The scale contains 10 items, scored on a 5-point scale ranging from 1 "*Not true at all*" and 5 "*True nearly all of the time*". The CD-RISC-10 has good demonstrated reliability and validity as a brief instrument to measure resilience within the general population (Campbell-Sills & Stein, 2007). Internal consistency of the CD-RISC-10 in the present sample was high (α = .82).

Hours of practice. Solitary and total hours of practice per week were assessed using two open questions. For solitary practice, participants were asked "*How many hours do you practice individually during a typical week, without a teacher/conductor/répétiteur?*" For total practice, participants were asked "*How many hours do you practice (all types of practice combined) during a typical week?*" Similar approaches have been used in the past to estimate quantity of practice in high-level musicians (e.g., Ericsson, Krampe, & Tesch-Römer, 1993).

Physical health and health promoting behaviours. Four statements were used to assess physical health and health promoting behaviours. Statements addressed General physical health ("*I feel I'm in a good physical condition*"), Chronic pain ("*I was free from chronic physical aches during the past year*"), Sleep quality ("*I have a good night's rest [roughly 8 hours] each night*"), and Eating habits ("*I have a healthy eating pattern*"). All items were scored on a 5-point scale, ranging from 1 "*Totally disagree*" tot 5 "*Totally agree*".

Statistical analysis

The statistical analysis was conducted using SPSS version 26.0. First, basic descriptive statistics (means, standard deviations, frequencies) were calculated for all variables and internal validity of the validated questionnaires was established using Cronbach's alpha coefficients. Prevalence rates of Depression /anxiety were established using the standardized GHQ-12 cut-off score (Goldberg et al., 1997). As such, dichotomised variables were obtained, representing the proportion of participants experiencing symptoms of Depression/anxiety expressed in percentages. 95% confidence intervals (95% CI) were calculated for these proportions. However, in line with recent suggestions (Poucher, Tamminen, Kerr, & Cairney, 2019), the continuous data of the GHQ-12 – rather than the dichotomised data – were used for all further analysis. Both continuous and dichotomised GHQ-12 data have been found to be valid in the past (Lundin et al., 2016). A two-way ANOVA (Professional status x Gender) was used to establish potential differences in GHQ-12 scores on Professional status and Gender. Furthermore, a one-way ANOVA was used to examine differences in GHQ-12 scores among the instrumental groups (i.e., *Strings*, *Wind instruments*, *Other*). Spearman's rank correlation coefficients were then used to explore the direction and strength of potential relationships between Depression/anxiety, Resilience, Age, Experience, Practice hours (total and solitary), and physical health and health promoting behaviours (General physical health, Chronic pain, Sleep quality, and Eating habits). Finally, a multiple regression analysis was performed with Depression/anxiety as the dependent variable.

Results

A total of 64 participants (17.44% response rate) completed at least 80% of the survey questions and were thus included in the study. These included 36 music students and 28 music professionals. Students had a mean age of 22.92 years (SD = 3.43; $M_{\text{Experience}}$ = 13.14 years, SD_{Exp} = 3.71), whereas professionals had a mean age of 33.75 years (SD = 13.70; M_{Exp}

= 23.96 years, SD_{Exp} = 11.76). The distribution between male (46.9%) and female musicians (51.6%) was almost equal, with one participant identifying as neither male nor female. The majority of participants belonged to the *Strings* (49.6%), with other participants belonging to the *Wind instruments* (20.3%), and *Other* (32.8%) groups. Demographics, as well as prevalence rates of symptoms of Depression/anxiety and Resilience scores are illustrated in Table 1.

-- INSERT TABLE 1 AROUND HERE --

Prevalence of Depression/anxiety

In total, 51.6% of participants scored above the cut-off score of the GHQ-12, indicating symptoms of Depression/anxiety, 95% CI [38.7, 64.2]. Music students had a prevalence rate of 61.1%, 95% CI [43.5, 76.9]; whereas the prevalence rate in music professionals was 39.3%, 95% CI [21.5, 59.4]. Female musicians had a prevalence rate of 57.6%, 95% CI [39.2, 74.5]; compared to 44.8% in male musicians, 95% CI [25.5, 62.6]. The two-way ANOVA (Professional status x Gender) on the continuous GHQ-12 scores indicated that the differences in Depression/anxiety for both Professional status, $F(1, 59) = 6.262$, $p = .015$; and Gender, $F(1, 59) = 4.255$, $p = .044$, were significant. The interaction between Professional status and Gender was not significant, $F(1, 59) = 0.319$, $p = .575$. Furthermore, the one-way ANOVA (*Strings*, *Wind instruments*, *Other*) showed that there were no significant differences in GHQ-12 scores among the different instrument groups, $F(2, 61) = 1.750$; $p = .182$. As a consequence, type of instrument was excluded as a variable in further analysis.

Correlates and Regression Analysis

Correlation coefficients are summarized in Table 2. Significant, yet moderate, negative relationships were found between Depression/anxiety and Experience, General physical health, Eating habits, and Sleep quality. The strongest negative relationship was

found between Resilience and Depression/anxiety. No significant correlations could be found between Depression/anxiety and Age, Chronic pain, and Total or Solitary practice time. Therefore, the latter variables were excluded from the consequent regression analysis.

-- INSERT TABLE 2 AROUND HERE --

A multiple regression analysis was then performed, with Depression/anxiety as dependent variable (see Table 3). A commonly adopted rule of thumb for multiple regression analysis is a minimum of at least 15 to 20 participants for each predictor included in the regression. As such, we limited the total number of predictors in our analysis to four. The predictors entered into the regression included Gender, coded as a dummy variable, as well as the significant Depression/anxiety correlates Experience and General physical health. Given the limited number of predictors that could be included in the regression, Eating habits and Sleep quality were excluded as these correlated significantly with and were considered conceptually underlying to General physical health[1]. Although significant differences in Depression/anxiety were present between music students and professionals, Professional status was also excluded from the regression due to multicollinearity issues, as this was strongly related to Experience. Resilience was added as the final potential predictor of Depression/anxiety. The multiple regression analysis revealed that the model provided a significant predictor of Depression/anxiety, explaining 42.4% of the total variance; $F(4,49) = 10.76$; $p < .001$. Looking at the individual predictors, both Resilience (Beta = -.489; $p < .001$) and General physical health (Beta = -.280; $p = .015$) contributed significantly to the regression model.

-- INSERT TABLE 3 AROUND HERE --

Discussion

[1] A separate regression analysis was conducted with Eating habits and Sleep quality as additional predictive factors. No additional significant predictors were found. Therefore, only the regression analysis excluding Eating habits and Sleep quality is reported here.

The findings demonstrate that the prevalence of symptoms of mental health issues (i.e., Depression/anxiety) was relatively high among the participants of the present study, varying between 39.3% for professional musicians and 61.1% for music students. Overall, these prevalence rates seem to be in line with – or somewhat higher than – previous studies examining musicians' mental health. For example, studies with professional musicians have reported symptoms of depression varying between 20% (Barbar et al., 2014) and 32% (Kenny et al., 2014). The results also support previous work indicating that the prevalence of mental health issues in musicians tends to be higher compared to the general population (Vaag, Bjørngaard, et al., 2016; van Fenema & van Geel, 2014); with prevalence rates in the general population (as measured by the GHQ-12) typically varying between 10% and 20% (Hoeymans, Garssen, Westert, & Verhaak, 2004; Lundin et al., 2016). Furthermore, a gender difference was present in the current study, with female musicians reporting higher prevalence rates of mental health issues. This is consistent with previous research, both in musicians (e.g., Kenny et al., 2014) and in the general population (e.g., Hoeymans et al., 2004). However, no significant differences were found among musicians playing different types of instruments (cf. Vaag, Bjørngaard, et al., 2016).

One key finding of the present study was the large apparent difference in mental health issues between music students and professional musicians. In a study with music students, Wristen (2013) previously found that 12% of students met the *DSM-IV* diagnostic criteria for depression. However, a total 58% of students in her study reported some symptoms of depression, which, whilst remaining under the clinical threshold, still impacted their functioning (Wristen, 2013); an approach which is more consistent with the purpose of the GHQ-12. Moreover, a recent study with dance students found that 42% of students experienced one or more mental health issues over the course of one year (van Winden, van Rijn, Savelsbergh, Oudejans, & Stubbe, in press). Overall, these findings are consistent with

meta-analysis research demonstrating that the prevalence of mental health issues is significantly higher in higher education students compared to the general population (Ibrahim, Kelly, Adams, & Glazebrook, 2013). It remains unclear, however, how this difference can be explained. Potentially, higher education is accompanied by a number of additional psychological (e.g., academic concerns, professional uncertainty) and psychosocial demands (e.g., separation from home, new friend groups), which might place students at an increased risk for mental health issues. It has also been proposed that such differences reflect a cohort effect as prevalence of mental health issues might be increasing over time (Hunt & Eisenberg, 2010), although little evidence has been found to support this notion (Ibrahim et al., 2013). Further research is clearly needed to structurally examine differences in the prevalence and determinants of mental health issues in music students and professionals.

Symptoms of depression/anxiety were negatively associated with psychological resilience. This is consistent with a meta-analysis finding that resilience has an important protective role for optimal mental health (Hu et al., 2015). Furthermore, symptoms of depression/anxiety were also negatively associated with general physical health. This finding provides support for the argument that musicians need health-promoting behaviours, not only to safeguard their physical health but also their mental health (Araújo et al., 2017). Contrary to earlier work, however, no association was found between mental health issues and chronic pain (Kenny & Ackermann, 2015). Finally, mental health was also not directly related to total or solitary practice time.

The findings of the present study seem to support the call for the development and testing of resilience-building interventions for musicians (Araújo et al., 2017; Wiggins, 2011). Although resilience development research has remained absent within music psychology, insights from other performance domains might provide guidance for such interventions. Drawing on sport psychology, Fletcher and Sarkar (2016) proposed that

resilience development is a complex and multifaceted endeavour, which should focus on three central pillars; i.e., (a) developing a challenge mindset, (b) strengthening psychological skills, and (c) providing a facilitative environment. A challenge mindset reflects individuals' "awareness of any negative thoughts that make them more vulnerable to the negative effects of stress […] and realizing and accepting that they have a choice about how they react to and think about events" (Fletcher & Sarkar, 2016, p. 145). Such a challenge mindset might be promoted by teaching musicians basic cognitive-behavioral (Osborne et al., 2014) or acceptance and commitment training techniques (Juncos & de Paiva e Pona, 2018).

In addition to a challenge mindset, psychological or mental skills might also play an important role in strengthening resilience. Research has demonstrated that such psychological skills (e.g., goal-setting, imagery, relaxation techniques) play a crucial role in helping musicians navigate significant career challenges (MacNamara et al., 2008), as well as reducing music performance anxiety (e.g., Clark & Williamon, 2011; Hatfield, 2016). Furthermore, psychological skills might also contribute to improved practice efficiency (Bakker, Kouwenhoven, Schuijer, & Oudejans, 2016; Clark & Williamon, 2011). Although our study found no direct relationship with practice time, more efficient practice has been found to be an important enabler for musicians' physical and mental health (Perkins et al., 2017). Finally, the close environment also plays an important role in resilience development (Fletcher & Sarkar, 2016). Indeed, Siddins et al. (2016) already examined the role of educators in promoting resilience development in visual artists. Music organizations (e.g., conservatories, orchestras) might therefore invest in creating a facilitative environment, which reduces stigma, increases mental health literacy, and encourages help-seeking behaviors (Wiggins, 2011), as well as stimulates physical health-promoting behaviors (Pecen et al., 2016).

A number of limitations should be recognized when discussing the results of the present study. First, the study adopted only a relatively small sample size. As such, our ability to draw broad statistical generalizations might be limited. Furthermore, our small sample size also limits the number of variables we could include in the regression analysis. We recognize that a wide range of additional factors (e.g., history of adverse life events, coping repertoire, social support, alcohol and substance use, etc.) might all influence musicians' resilience and mental health, and thus warrant further investigation. The omission of a control group can also be considered a limitation of the present study. In future research, the inclusion of carefully age-matched and relevant control groups (e.g., regular higher education students) would allow for a more detailed examination of potential music, education, or cohort specific determinants of mental health issues in musicians.

Another limitation relates to the use of the CD-RISC-10 as a measure for resilience. Although the CD-RISC-10 is widely used and one of the more psychometrically sound resilience measures available (Windle et al., 2011), some authors have criticized the scale for overly focusing on resilient qualities at the individual level, without adequate attention for environmental resilience factors (Sarkar & Fletcher, 2013). The CD-RISC was also developed for specific use in the general population. Some scholars have argued that resilience can vary among different contexts, depending on specific characteristics and demands of those contexts (Fletcher & Sarkar, 2013). In music, for example, some scholars have suggested that a certain level of psychological vulnerability – which has often been considered the antithesis of resilience (Masten, 2014) – might actually be required for creativity (Silvia & Kaufman, 2010) and musical agency (Wiggins, 2011). As such, future research would benefit from the development of a music-specific scale to gain a more contextualized understanding of musicians' resilience. Finally, we recognize that we are limited in our choice to only include one measure of mental health. Considering the

relationships found in the present study, future research might benefit from the inclusion of additional measures, which are sensitive to a broader range of specific mental disorders (e.g., music performance anxiety, major depression, bipolar disorder, generalized anxiety disorders, burnout, etc.).

Conclusion

This study examined the relationship between mental health issues (i.e., depression/anxiety) and resilience within classical musicians. The results highlight that the prevalence of mental health issues is relatively high among these musicians. Symptoms of Depression/anxiety seemed especially common in music students, with prevalence rates as high as 61%. Furthermore, it seems both resilience and physical health might serve as protective factors against these mental health issues. Based on these preliminary results, future theoretical and applied work should further explore the mental health of music students, as well as the protective role of psychological resilience in classical musicians.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was part of the Raak-Publiek project titled ‘Training for Excellence’, funded by SIA [grant number SVB/RAAK.PUB04.027].

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Table 1

Demographics, Resilience, and Depression/anxiety prevalence rates

	Total	**Students**	**Professionals**
N	64	36	28
Age (SD)	27.66 (10.78)	22.92 (3.43)	33.75 (13.70)
Gender (%)			
Male	30 (46.9%)	19 (52.8%)	11 (39.3%)
Female	33 (51.6%)	16 (45.7%)	17 (60.7%)
N/A	1 (1.6%)	1 (2.8%)	-
Instrument (%)			
Strings	30 (46.9%)	11 (30.6%)	19 (67.9%)
Wind instruments	13 (20.3%)	6 (16.7%)	7 (25%)
Other	21 (32.8%)	19 (52.8%)	2 (7.1%)
Experience (SD)	17.88 (9.81)	13.14 (3.71)	23.96 (11.76)
Practice hours per week (SD)	27.9 (11.1)	26.9 (10.9)	29.7 (11.5)
Solitary practice hours per week (SD)	18.8 (9.0)	19.1 (9.6)	18.3 (8.3)
% Prevalence Depression/anxiety (95% CI)	51.6% [38.7-64.2]	61.1% [43.5-76.9]	38.5% [21.5-62.6]
Resilience scores (SD)	36.9 (5.4)	35.0 (5.2)	38.9 (5.0)

530 Table 2

531 *Spearman's rank correlation coefficients*

	1	2	3	4	5	6	7	8	9	10
1. Age	1	.72***	.14	-.01	.30*	.09	-.11	-.23	.26	-.10
2. Experience		1	.09	.04	.15	.16	.04	-.18	.40**	-.26*
3. Health			1	.25*	.31*	-.10	-.06	-.01	.28*	-.38**
4. Sleep				1	.43***	-.11	-.10	-.08	.19	-.31*
5. Eating					1	-.13	-.10	-.14	.32*	-.33**
6. Pain						1	-.04	-.28*	-.01	.06
7. Total practice hours							1	.59***	-.08	.16
8. Solitary practice hours								1	-.04	.12
9. Resilience									1	-.65***
10. Depression/anxiety										1

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

532

533 Table 3

534 *Multiple regression analysis results*

	B	SE B	b	*p*	*t*	R^2_{adj}	*p*
Overall model						.424	.001
Gender	-.359	.654	-.059	.585	-0.550		
Experience	-.034	.038	-.100	.374	-0.897		
Health	-.983	.390	**-.280**	.015	-2.524		
Resilience	-.276	.064	**-.484**	.001	-4.283		

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