

# Effects of Professional Compromise on Higher Education Employees

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**Abstract:- Health outcomes are associated with many work stressors in higher education staff. However, the professional compromise stressor, occurring when an individual's professional standards conflict with workplace requirements, has not been studied in the higher education context. This pilot study contributes to the understanding of professional compromise among higher education employees and its impact on their well-being. Hair cortisol of university staff was measured across two time points in an academic semester. The study found that cortisol level was associated with role clarity, work demands, and perceived stress. Furthermore, after controlling for perceived stress, professional compromise at the beginning of semester was a significant predictor of hair cortisol at the end of semester. This pilot study is the first to establish an effect between professional compromise and cortisol concentrations and the first to investigate cortisol as a stress biomarker in higher education staff. The cortisol levels are discussed relative to chronic stress. The implications for higher education managers, indicate professional compromise is a factor university must understand in attending to workplace wellness. Future directions for further research are outlined.**

**Keywords:- Higher Education, Academic Employees, Professional Compromise, Cortisol, Work-Related Stress, Burnout**

## 1. INTRODUCTION

Effects of professional compromise on higher education means employees can feel stressor effects when work demands conflict with their own professional standards (Curran & Prottas, 2017; Shams, 2019). In the context of occupational health, the term stressor refers to an aspect of the work environment that creates a demand for individuals to manage. Accordingly, the professional compromise stressor can be used to better understand the effects of demands on employees. Professional compromise is defined as the extent to which individuals believe they have to compromise their professional skills, judgement, and work standards in order to meet conflicting management objectives (Haynes, Wall, Bolden, Stride, & Rick, 1999). Professional compromise has been used to investigate

relationships between psychosocial work stressors and insomnia (Jansson & Linton 2006; Jansson-Fröjmark, Lundqvist, Lundqvist, & Linton, 2007), workplace coping styles (Fay, Bagotyriute, Urbach, West, & Dawson, 2017), and the use of creativity in organisations (Fay et al., 2017). These results suggest that employees who are compelled to compromise their professional standards may voluntarily disengage from both their occupational roles and organisations in order to cope with unpleasant emotions and perceived difficult management (Fay et al., 2017).

Interestingly, studies conducted within the gambling industry have reached the conclusion that workers who perceive their work as morally questionable are likely to disengage from the organisation (Lai, Chan, & Lam, 2013). This potential capacity of professional compromise to cause university employees to distance themselves from the organisation has important practical implications, as distancing from the organisation negatively affects job performance and facilitates turnover (Bayram, Gursakal, & Bilgel, 2010; de Beer et al. 2016; Walsh & Walsh, 2002). Burnout is another substantial negative consequence associated with professional compromise (Bruce, Conaglen, & Conaglen, 2005). In particular, professional compromise has been associated with the burnout dimensions of emotional exhaustion and depersonalisation, which suggests that when individuals are compelled to compromise their professional standards due to unrealistic work requirements they are likely to develop a negative, cynical attitude towards others (Bruce et al. 2005). The positive correlation between professional compromise and depersonalisation appears consistent with Fay et al.'s (2017) conclusions regarding voluntary detachment and distancing from the work role.

The present study used the job demands-control model (Karasek, 1979) to organise variables. The job demands-control model relates job-related characteristics such as work demands and perceived stress (Jones & Fletcher, 2003). In addition, moderating variables such as role clarity can potentially reduce adverse effects of stressors within this model (Lang, Thomas, Bliese, & Adler, 2007). For example, utilising the job demands-control model Lang et al. (2007) demonstrated that role clarity can counteract the negative effect of job demands on psychological and physical strains

and consequently job performance. Role clarity is defined as the extent to which individuals believe they have a distinct guidance about their roles and responsibilities associated with their job. Role ambiguity has recently been shown to have a strong negative relationship with work engagement for higher education professional staff and is of greater magnitude than both role conflict and role overload (Curran & Prottas, 2017).

The job demands-control model can be applied to a variety of workplaces. Accordingly, one common element that workers find consistently stressful is the perception of excessive work demands, making the concept of work demands an important variable to compare across studies (Fein, Skinner, Machin, 2017). Vijaya Anuradha, et al. (2020) confirm “In the prevailing educational setup, teachers continue to reel under the pressure of working under too many constraints imposed by too many bodies...” (p.378). Furthermore, work overload can be linked to a process of work intensification, whereby employees feel that they have too much work for one person to do, that they can rarely finish the work that needs to be done, and that they must work with a constant sense of urgency and intensity (Fein, et al., 2017; Haynes, et al, 1999).

Multiple types of work-related outcomes have been related to work overload, including negative relationships with job satisfaction and well-being, and positive relationships with role conflict, work-life interference and perceived work stress (Fein, et al., 2017, Haynes, et al, 1999), making work demands an important potential correlate with professional compromise. Understanding what factors operate on university staff stress levels has far reaching implications as Vijaya Anuradha, et al. (2020) state “ stress and burnout among ... university teachers ought to be a matter of grave concern for one and all... the stressors operating in the lives if university teachers but also the quality of the nation at large.”(p.379).

#### *Objectives of the Study*

This study had two aims.

- The first aim, consistent with the job demands-control model, was to explore whether university employees would associate professional compromise as a stressor through associations with role clarity, work demands, and perceived stress.
- The second aim was to investigate if professional compromise in academic employees would predict an objective physiological indication of stress across an academic semester. Specific factors examined were relationships professional compromise, other perceived work characteristics, subjective self-reported stress, and hair cortisol concentration levels across two time points within a semester of 13 weeks.

#### *Hypotheses of the Study*

Based on relationships in the existing literature, the following hypotheses were formulated:

- *Hypothesis 1*– Professional compromise will be positively associated with work demands.

- *Hypothesis 2* – Professional compromise will be negatively associated with role clarity.
- *Hypothesis 3* – Professional compromise will be positively associated with perceived stress.
- *Hypothesis 4* – Hair cortisol concentration at the beginning of semester will be significantly different to hair cortisol concentration at the end of semester.
- *Hypothesis 5* - After controlling for perceived stress, professional compromise at the beginning of semester will predict hair cortisol concentration at the end of semester.

#### *Methodology*

This pilot study was designed to assess the impact of professional compromise using a longitudinal design. The method used self-report and an objective physiological measure namely cortisol levels. The study was designed to collect university staff data at two points, one at the commencement of the semester (time 1) and one at the close of the semester during the determination of marks and the assembly of examiner’s reports (time 2). Data collection based on self-report included completion of the (Psychosocial Work Characteristics Measures (Haynes, et al. 1999); Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983); Positive and Negative Affect Scale (PANAS Watson, Clark, and Tellegen (1988); The Kessler Psychological Distress Scale (K10) (Kessler et al., 2003) and Demographic Items.

The objective physiological bio-metric marker used was cortisol level in hair. Cortisol is a stress hormone activated by the adrenal glands. Hair cortisol has been found to increase with psychological stressors, such as significant life events, as well as physical stressors, like perseverance exercise and shift work (Wester & Rossum, 2015). Wester and Rossum (2015) have noted studies indicate that hair cortisol levels ‘... may be increased in depression but decreased in general anxiety disorder (M1). The participants provided their own control as regards cortisol levels, being assessed at time 1, the beginning of the semester and then again at time 2. The environment prior to sample collection was controlled so the ‘lead-up’ to sampling was as similar as possible. Suitable rooms for testing to ensure privacy were provided on campus. There are many stressors in life and to minimise effects of ‘outside’ stressors such as traffic, food intake, etc the participants were put into a controlled environment for approximately 20 minutes immediately prior to sampling and were instructed:

*For the 30 minutes immediately prior to collection, the participant will not:  
brush or floss teeth  
eat or drink or chew gum  
apply lipstick or lip balm.*

Prior to the collection of biometric samples participants were provided with a computer to access the self-report questionnaires online. The survey took approximately 20 minutes and was completed before the biometric testing to enable ‘at rest’ cortisol data to be

obtained. A general call out for participants was circulated among all university staff

#### Participants

The participants included both administrative and academic staff from an Australian university. Being a full-time university employee was a requirement for participation. There were 41 female participants at the first time point. In addition, as is common in longitudinal studies, there was increased attrition from Time 1 to Time 2 amongst the participants, with 27 female participants completing the study measurements at both time points.

Participant age was measured by year categories of 20-30, 31-40, 41-50, 51-60, 61-70, and 71-80. The median age at Time 1 was 41-50 years with 22 percent of responses within this range. Similarly, the median age of the 27 participants at Time 2 was 41-50 years with 22 percent of responses within this range. Of the 41 university employees participating in the study at Time 1, seven (17%) participants were academic employees and 34 (83%) were professional managers. At Time 2, 5 (18%) of the 27 participants were academic employees and 22 (82%) were professional managers. The similarity of job classification percentages between the two time points again suggests that participant attrition was random. Suitable rooms for testing to ensure privacy will be identified. Just prior to the collection of biometric samples during the session, participants will be provided with computer or tablet to access the self-report questionnaires online. The survey will take approximately 20 minutes and will be completed before the biometric testing to enable 'at rest' data to be obtained.

#### Materials

- *Role Clarity.*

The role clarity scale (Haynes et al., 1999) consisted of the stem question "How true are the following of your job?" and five separate statements comprising five items (e.g., "I know what my responsibilities are"). Responses were offered on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*a great deal*) with higher scores indicating greater role clarity. In this study the scale demonstrated good reliability with  $\alpha = .88$ .

- *Work Demands.*

The work demands scale (Haynes et al., 1999) presented the stem question "How often do you find yourself meeting the following problems in carrying out your job?" and six statements comprising six items (e.g., "I do not have enough time to carry out my work"). Responses were given on a 5-point Likert scale, ranging from 1 (*not at all*) to 5 (*a great deal*) with higher scores indicating greater work overload. The scale demonstrated good reliability, with  $\alpha = .88$ .

- *Professional Compromise.*

The investigators adapted the original Haynes et al. (1999) scale by changing the item referents to university specific referents, and by adding three new items. This university-specific version of the scale consisted of seven items with the stem "In your opinion, how often do staff at

(name of the university) meet the following problems in carrying out their work?" This stem was followed by the seven item statements comprising challenges specific to university employees. Within the seven items, two were the original Haynes et al.'s (1999) items: "Being unable to achieve quality in one's work because there are staff shortages" and "Having to do an acceptable minimum level of work rather than doing the best quality work possible."

The investigators modified two items by changing health care sector referents with those suited to the higher education context. The original item "Having to make trade-offs between quality of patient care and cost savings" was modified to read "Having to make trade-offs between quality of education and demands of the university."

In addition, the original item "Lack of clarity/agreement about the different responsibilities of doctors and nurses" was modified to read "Feeling a lack of clarity/agreement about the different responsibilities for graduates from programs." In addition, the investigators developed three new items for the purpose of the study that were specifically tailored to the university environment. The three new items were: "Feeling trapped between the demands of a profession and the demands of the university," "Compromising professional ethics and/or codes as the result of pressure to progress and retain students," and "Feeling expectations to present an over-inflated image of educational products for external professional accreditation." The response scale was a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*a great deal*). Higher scores indicated greater professional compromise. This scale displayed good reliability at  $\alpha = .83$ .

- *Perceived Stress.*

The investigators measured overall stress using six items from the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), which included items such as: "In the past month, how often have you been upset because of something that happened unexpectedly?" Participants had to choose between five responses: *never*, *almost never*, *sometimes*, *fairly often*, or *very often*. The answers were scored from one to five with higher scores indicating more perceived stress. The scale's reliability was  $\alpha = .85$ .

- *Hair cortisol concentration.*

To assess hair cortisol concentration, 10-15 strands of hair were collected from the crown of each participants head at each testing time and the hair cortisol concentration of the samples was analysed for cortisol levels. Hair specimens collected as a part of this project were stored securely as per University of Southern Queensland's Research Data Management policy. All samples were handled and destroyed according to the ethics protocol as outlined in the project ethics application. The cortisol concentration was measured in ng/g hair.

- *Procedure*

This research was conducted in compliance with the requirements of the University's Human Research Ethic Committee (H16REA136). To recruit the study participants,



human resources staff sent a university wide announcement to all employees, describing the research program on employee stress and requesting volunteers who were suffering from chronic workplace stress. There were two data collection sessions of approximately 40 minutes duration, with both of the sessions held at the university. Most data collection sessions were held at the same time in the morning with fasting participants. This kept a level of constancy in assessing the participants cortisol levels. Upon arrival the participants were asked to complete an online health survey, after which hair cortisol samples were taken either by trained registered nurses or student nurses under the supervision of a registered nurse.

## II. RESULTS

All of the psychometric variables demonstrated approximately normal distributions. However, the hair cortisol concentration variables displayed high kurtosis values. Therefore, using a common transformation option the investigators decided to transform the hair cortisol variables using a logarithmic (log 10) transformation to correct the issue of non-normality (Field, 2009). This resulted in data of approximately normal distribution. The results displayed for the hair cortisol variables in all tables and results are based on this transformation. Due to the small sample size and approximations to normal distributions, non-parametric tests were used.

Table 1 presents descriptive statistics and relationships between variables at Time 1 using Spearman rank-order correlations. There was one missing value for the age variable and two missing values for the cortisol variable that were substituted with mean scores. This resulted in a table of 41 responses. In the table, there was a significant negative correlation between participant age and staff status, which revealed that academic staff were older than managerial staff ( $r_s = -.35, p = .03$ ). There also was a significant positive correlation between staff category (academic vs professional staff) and hair cortisol concentration, signifying that professional staff were more likely to have a higher level of hair cortisol concentration ( $r_s = .31, p = .04$ ). There was significant negative correlation between professional compromise and role clarity ( $r_s = -.34, p = .03$ ). Professional compromise was also significantly positively correlated with work demands ( $r_s = .57, p < .01$ ) and perceived stress ( $r_s = .36, p = .02$ ). Role clarity was significantly negatively correlated with work demands ( $r_s = -.52, p = .00$ ) and perceived stress ( $r_s = -.42, p = .01$ ). Finally, perceived stress was significantly positively correlated with work demands ( $r_s = .47, p = .00$ ).

Two missing values for professional compromise at Time 2 were identified and replaced with mean values. As presented in Table 2, at Time 2 there was a significant positive correlation between participant age and hair cortisol concentration, meaning that older staff were more likely to have higher cortisol levels ( $r_s = .47, p = .03$ ). Table 2 also displayed a significant positive correlation between staff categorisation and professional compromise, meaning that professional staff were more likely to report a higher level of

professional compromise than academic employees ( $r_s = .42, p = .02$ ).

## III. ANALYSIS

Hypothesis 1 predicted that professional compromise would be positively correlated with work demands. As shown in Table 1, Spearman's rho indicated the presence of a strong positive correlation between professional compromise and work demands, both measured at Time 1,  $r_s = .57, p < .00$ . As suggested by Hypothesis 2, there was also a moderate negative correlation between professional compromise and role clarity, both measured at Time 1,  $r_s = -.34, p = .03$ . Finally, Hypothesis 3 predicted that professional compromise would be positively correlated with stress. As shown in Table 1, Spearman's rho indicated the presence of a moderate positive correlation between professional compromise and stress, both measured at Time 1,  $r_s = .36, p = .02$ .

- *Hair cortisol concentration changes.*

Hair cortisol level captures the last few weeks of cortisol secretion (Siniscalchi, McFarlane, Kauter, Quaranta, & Rogers, 2013; Stalder, Steudte, Miller, Skoluda, Dettenborn, & Kirschbaum, 2012). Based on this evidence, the hair cortisol levels at the end of semester would reflect changes of cortisol secretion accumulated during the previous weeks (Siniscalchi, et al., 2013; Stalder, et al., 2012). Hypothesis 4 predicted that hair cortisol concentration at Time 1 would be significantly different to hair cortisol concentration at Time 2. To test the hypothesis, a paired sample *t* test with bootstrapping was utilised to compare measured means of hair cortisol at both time points. The mean difference of -0.35, 95% CI [-0.57, -0.12] between mean hair cortisol at Time 1 ( $M = 2.01, SD = 0.54$ ) and mean hair cortisol at Time 2 ( $M = 2.34, SD = 0.33$ ) was statistically significant,  $t(26) = -3.17, p = .00$ . Cohen's *d* for this test was 0.74, which can be described as a moderately large effect size. This indicates that the hair cortisol concentration was on average significantly higher by the end of semester, supporting Hypothesis 4.

- *Hierarchical multiple regression analysis.*

Hypothesis 5 predicted that professional compromise would account for a significant proportion of the variance in hair cortisol concentration at the end of semester, beyond the change in cortisol already accounted for by perceived stress. A hierarchical multiple regression analysis was performed to test this prediction. The relatively high tolerance for both predictors in the final regression model (VIF = 1.09 for each predictor) indicated that multi-collinearity would not interfere with interpretation of the outcome.

On step 1 of the hierarchical multiple regression analysis, perceived stress at Time 1 accounted for a non-significant 5.7% of the variance in hair cortisol at Time 2,  $R^2 = .06, F(1,25) = 1.51, p = .23$ . On step 2, professional compromise at Time 1 was added to the regression equation and accounted for an additional 14.5% of the variance in hair cortisol. This increase in  $R^2$  change was statistically significant,  $\Delta R^2 = .15, \Delta F(1, 24) = 4.37, p < .05$ . In

combination, both predictor variables explained 20.2% of the variance in hair cortisol at Time 2 ( $R^2 = .20$ , adjusted  $R^2 = .14$ ,  $F(2, 24) = 3.05$ ,  $p = .07$ ). However, it was noted that the overall regression model was not significant due to the low statistical power. Unstandardised and standardised regression coefficients and squared semi-partial (or 'part') correlation ( $sr^2$ ) are reported for each predictor on each step of the hierarchical multiple regression analysis in Table 3. Table 3 demonstrates in the final regression model only professional compromise was a significant predictor for hair cortisol at the end of semester ( $sr^2 = -.38$ ).

To address the issue of insufficient power, a post hoc power analysis was conducted using G\*Power 3.1.9.2. (Faul, Erdfelder, Lang, & Buchner, 2007). The alpha level of .05 and the total sample size of 27 was entered, the relationships between the predictors and outcome variable was estimated at medium effect, and two predictors were specified for linear regression. The calculated power was only .62, which is short of a desirable power level of about .80 (Cohen, 1988). This means that the hierarchical multiple regression was underpowered and therefore produced an insignificant results for the total model (Field, 2009).

#### IV. DISCUSSION

This study examined professional compromise among university employees. Although previous studies have presented evidence of the significant negative effect on personal well-being associated with professional compromise, there is a lack of research on this topic. No research is reported that has assessed the impact of professional compromise on employees in universities. There is also a research gap concerning study design, in that no research has assessed the impact of professional compromise using a longitudinal design coupled with objective physiological measure such as cortisol level. The present study was designed to address these deficiencies in the literature.

Based on the results the investigators concluded that the modified 7-item professional compromise scale used in this pilot study demonstrated good reliability and good concurrent validity based on associations with role clarity, work overload, general life stress, and hair cortisol. The mean for professional compromise was 2.57 at Time 1 and 2.67 at Time 2. While the mean at Time 2 was higher than the mean for Time 1, this difference was evaluated as statistically not significant, yielding the conclusion that the test-retest reliability of the scale is good because professional compromise was not expected to change significantly during the semester.

No previous studies have measured professional compromise using a longitudinal design, and this design component is an important element of the present study. Furthermore, it can be speculated that because professional compromise is a measure of perceived work characteristics, the magnitude of its perception is to some extent defined by the individual's appraisal of the overall, typical work situation. Such appraisals could include an appraisal of work

across a semester and could be based on an interaction of individual traits with relatively stable job characteristics (Howard, Cunningham, & Rechnitzer, 1986; Wirtz, Siegrist, Rimmele, & Ehlert, 2008). Thus, the magnitude of the perception of professional compromise for a particular individual within a certain environment is likely to remain relatively stable in the short term. This conclusion aligns with the theory that the majority of individuals perceive professional compromise as a relatively stable stressor (Fay et al., 2017; Jansson-Fröjmark et al., 2007) and is consistent with the findings of this study.

In this study, it was found that professional compromise was strongly correlated with work demands. This correlation has a strong logical base. Professional compromise and work demands are both classified as work related stressors, and professional compromise is linked to work demands by the need to adapt to professional compromise. Therefore, the strong correlation between these two constructs is reasonable and predictable. It was found that professional compromise was negatively correlated with role clarity. Previous studies on role clarity have repeatedly proven that this work characteristic stably moderates negative effect of various work stressors on psychological strain (Bliese & Castro 2000; Lang, Thomas, Bliese, & Adler, 2007; Stewart & Barling 1996). Thus, in accord with other research it is suggested that role clarity increases individuals' sense of control over their work environment (Bliese & Castro 2000).

Finally, a moderate positive correlation was found between professional compromise and stress. This makes sense because individuals who are obliged to make trade-offs between professional standards and job demands may experience disturbing and intrusive thoughts and rumination due to perceiving work situations as uncontrollable and unchangeable (Jansson-Fröjmark et al. 2007). In previous studies, perceiving a work situation as uncontrollable and unchangeable has been associated with distress, frustration, low job satisfaction and turnover (Fay et al. 2017). Secondly, the stress may arise due to professional compromise containing a social-evaluative threat and a fear of social disapproval. Wirtz et al. (2013) argued that social-evaluative threat is a substantial psychosocial stressor, which may result in numerous psychological and physiological negative consequences, such as excessive worries, exhausting rumination and elevated blood pressure amongst other symptoms.

In addition, it has been established that work-related stress may be associated with both enhanced and suppressed physiological reactivity, and consequently, with both increased or decreased hair cortisol concentrations (Danhof-Pont, van Veen, & Zitman, 2011; Wirtz et al. 2013). According to previous findings, the stressors are most likely to activate physiological reactivity and result in elevated cortisol if they involve a social-evaluative threat and/or low controllability (Dickerson & Kemeny 2004). However, this extrapolation appears to be applicable only to healthy individuals with *normal* physiological reactions. The individuals with diagnosed disorders such as clinical

burnout or depression, have proven to exhibit different physiological reactions to stress; specifically, they might have inhibited physiological reactivity (de Beer et al. 2016; Kalra, Klein, Karaskov, Woodland, Einarson, & Koren, 2005; Marchand, Juster, Durand, & Lupien, 2014; Oosterholt, Maes, Van der Linden, Verbraak, & Kompier, 2015; Wirtz et al. 2013).

This study theorised that professional compromise might also be associated with increased cortisol secretion and consequently with higher levels of hair cortisol concentration by the end of a semester, as professional compromise fits the criteria of social-evaluative threat and low controllability.

Prolonged chronic stress exposure, which is characteristic of burnout, may exhaust and alter stress reactivity capacity, thus inhibiting physiological response and resulting in lower cortisol levels (Melamed et al. 1999; Oosterholt et al. 2015; Wirtz et al. 2008). Therefore, depending on whether a person is experiencing chronic burnout, reduced cortisol levels could be associated with work-related stress. Specifically, elevated cortisol might indicate increased psychophysiological arousal to aversive stimuli. However, reduced cortisol levels might reflect inhibited response to stressors, signalling the presence of a pre-existing condition such as burnout (Wirtz et al. 2013). In this study, although the overall regression model was not significant, after accounting for perceived stress, the professional compromise variable was found to be a significant predictor of hair cortisol concentration level, but in the negative direction, which is consistent with the condition of pre-existing burnout as referenced above. This result can be aligned with existing theory because lower physiological reactivity is associated with burnout (Oosterholt et al. 2015). Although there was no burnout assessment conducted prior to the data collection, participants who chose to be involved in the study included some employees who were also participating in a university training program that provided information on enhancing well-being. The semester in which the study ran was the second half of the teaching year. These factors suggests that the sample may have included individuals who were experiencing some elements of burnout. If the participants were experiencing burnout, this would account for the fact that professional compromise was negatively related to cortisol because the bodies of individuals with burnout adapt to stress by *lowering* secretions of cortisol (Danhof-Pont et al. 2011; Oosterholt et al. 2015). It is also possible that if the sample had been divided into *healthy* group and *burnout* group, the results would vary between the groups. This pattern of variation, which did not occur in this study has previously been found in studies of chronic stress when pre-existing burnout is used as a control in analyses (Oosterholt et al. 2015).

## V. IMPLICATIONS OF THE STUDY

This study is the only one found in the literature to assess effect on professional compromise using longitudinal data and discover a predictive link between professional compromise and hair cortisol concentration, which is a link that invites further scrutiny. The outcomes of the pilot, showing that lowered cortisol was associated with higher professional compromise, is aligned with Bruce et al.'s (2005) and Fay et al.'s (2017) studies, in which professional compromise was linked to withdrawal, disengagement, distancing from organisation and depersonalisation. The present research offered a physiological foundation for this link for the first time. When combined with professional compromise, role ambiguity may prevent employees from fulfilling their duties due to the vagueness of their defined tasks. This presents a confluence of conditions for universities to address in the workplace.

In the case of professional compromise, the individual is forced to make a voluntary decision to neglect parts of their duties and professional standards to meet other job requirements, which might result in feelings of guilt and excessive rumination. In accord with this explanation, previous studies have determined that work stressors involving social-evaluative threat and low controllability, such as role uncertainty, have been associated with temporary elevation of salivary cortisol levels (Dickerson & Kemeny 2004; Wirtz et al. 2013), and professional compromise appears to fit both criteria of social-evaluative threat and low controllability. For example, compromising professional standards may possibly lead to the appearance of incompetence and consequential loss of social esteem. It also refers to the ambiguous expectation of superiors, such as when one must service as many students as possible but still maintain the highest levels of quality. Such conflicting expectations combined with anticipation of negative consequences represent a condition that employees cannot easily control and is worthy of further research.

### • Limitations

The main limitations of this study is that as a pilot it has a small sample size, the fact that all participants were women, and that cortisol was measured only in the mornings. As a result, the overall predictive robustness, requires caution in the interpretation of statistical significance. Variations in the perception of professional compromise could have occurred between different genders, age groups and job classifications that were not represented in the study. However, the size and composition of the sample did not provide an opportunity to investigate these variations. However, it is extremely difficult and time intensive to take and analyse cortisol samples, and cortisol measured at multiple time points requires significant resources. In addition, it remains unclear whether the lower hair cortisol concentration associated with professional compromise was influenced by the inclusion within the sample of individuals with burnout or other pre-existing conditions.



- *Directions for Future Research*

The study suggests that professional compromise merits further investigation, particularly its link to burnout. The professional compromise scale was successfully adapted for measurement amongst university employees with the addition of three new items, and it displayed good reliability and validity. The linkage previously discovered between professional compromise and burnout conditions received support in this study. Thus, it is highly recommended that burnout inventories be included in future professional compromise studies and to any future work stress studies concerning cortisol. Employees experiencing burnout may need to be considered as a separate group apart from employees not experiencing burnout.

Another potential aspect for future research is the differences in perception of professional compromise and its ability to impact individuals. For example, in Jansson-Fröjmark et al.'s (2007) study, older individuals reported smaller perceived professional compromise but appeared to experience the effects to a greater extent. It may be assumed that some personal differences in the perception and appraisal of this stressor, such as positive and negative affect, perfectionism, or over commitment may moderate its negative effect on employees. Inclusion and assessment of such variables in future research could assist in understanding why some individuals appear to be affected more than others.

In respect to population, this study drew attention to the inherent work stress experienced by university employees. It was found that on average, participant's hair cortisol levels increased by a moderately large amount over the span of a semester. This increase in levels of hair cortisol concentration is an objectively measured indicator of the physiological reaction to the stress perceived by employees as the semester progressed. This study offers university managers awareness of and an opportunity to act to avoid negative consequences of this stress experienced by staff.

## VI. CONCLUSION

The results suggest that working conditions that lead an employee to compromise professional values can be found in university settings and may detrimentally impact employees' personal and professional functioning. Providing working conditions that reduce the experiencing of professional compromise may benefit employers in the long term, in terms of efficiency, engagement, and avoidance of turnover.

The adapted professional compromise scale utilised in this study demonstrated good internal consistency-based reliability and concurrent validity, and may therefore be recommended for use in future studies, but further modification will be required to produce a universal scale applicable to a wider variety of occupations. Recommendations for future research arising out of this pilot study include generalisation of the study findings by including other groups in higher education, ensuring more balanced gender samples, and an examination of the effects

of personal characteristics on perceptions of professional compromise.

This study has contributed to the limited body of literature available on professional compromise and cortisol and broadened the understanding of this work stressor. Although measured hair cortisol concentration levels significantly increased over the semester, professional compromise was associated with lower levels of hair cortisol for those individuals who reported higher perceived stress. This finding indicates that pre-existing burnout was the likely condition of the participants. Thus, this pilot study provides a platform for future investigation of burnout and professional compromise in higher education employees, using the adjusted scale for professional compromise.

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Table 1  
Descriptive Statistics and Spearman Correlations for Variables at Time 1

Variables	Mean	SD	1	2	3	4	5	6	7
1. Age	3.02	1.29	1.00						
2. Staff	1.83	0.38	-.35*	1.00					
3. Professional compromise 1	2.57	0.62	.01	.30	1.00				
4. Work overload	2.61	0.85	-.15	.32	.57**	1.00			
5. Role clarity	2.27	0.75	-.15	.16	-.34*	-.52**	1.00		
6. Stress	2.96	0.72	-.13	-.14	.36*	.47**	-.42**	1.00	
7. Hair cortisol 1	1.98	0.48	.06	.31*	-.13	-.02	.17	.12	1.00

Note. N = 41; \*p < .05, \*\*p < .01; Age = 1 (20-30), 2 (31-40), 3 (41-50), 4 (51-60), 5 (61-70), 6 (71-80); Staff = 1 (academic), 2 (professional manager)

Table 2  
Descriptive Statistics and Spearman Correlations for Variables at Time 2

Variables	Mean	SD	1	2	3	4
1. Age	2.93	1.30	1.00			
2. Staff	1.81	.40	-.33	1.00		
3. Professional compromise 2	2.67	.74	.09	.42*	1.00	
4. Hair cortisol 2	2.35	.33	.47*	-.25	-.07	1.00

Note. N = 27; \*p < .05; Age (years) = 1 (20-30), 2 (31-40), 3 (41-50), 4 (51-60), 5 (61-70), 6 (71-80); Staff = 1 (academic), 2 (professional manager).

Table 3. Hierarchical Multiple Regression Predicting Hair Cortisol Concentration at Time 2

Variable	B [95% CI]	β	t	sr <sup>2</sup>
Step 1				
Stress	0.10 [-0.04, 0.24]	.24	1.23	.24
Step 2				
Stress	0.15 [0.01, 0.31]*	.36	1.86	.34
Professional Compromise	-0.19 [-0.36, -0.03]*	-.40	-2.09*	-.38

Note. N = 27; \*p < .05, \*\*p < .01; Bootstrapped Bias Corrected 95% Confidence Intervals using 10,000 samples.