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# Professional quality of life as potential mediators of the association between anxiety and depression among Chinese healthcare clinicians

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**Professional quality of life as potential mediators of the association between anxiety and depression among Chinese healthcare clinicians**

**Abstract**

**Objective** – Building upon the tripartite model of anxiety and depression, the current study aims to examine mechanisms of comorbidity between anxiety and depression using the ProQOL (including the constructs of burnout, secondary traumatic stress and compassion satisfaction) in a sample of Chinese healthcare clinicians. **Method** - A randomised cross-sectional survey was distributed to 1620 participants who were recruited from eight state-owned hospitals in a city in southern China between January and May 2017. A total of 1562 questionnaires were returned (a response rate of 96.4%). After the cases with more than 10% missing variables and multivariate outliers being removed, 1,423 valid cases remained. Multiple mediator models were used for mediation analysis that was conducted using the PROCESS v3.1 macro for SPSS. **Results** - The indirect effects of anxiety upon depression through burnout (a1=.601 [95%CI: .552, .650], p < .001; b1 = .137 [95%CI: .101, .174], p < .001) and compassion satisfaction (a3= -.297 [95%CI: -.352, -.241], p < .001; b3 = -.069 [95%CI: -.100, -.039], p < .001) were significant, while there was no evidence that anxiety influenced depression by changing secondary traumatic stress. The indirect effects of depression upon anxiety through secondary traumatic stress (a2=.535 [95%CI: .483, .588], p < .001); b2 = .154 [95%CI: .120, .188], p < .001) was both positive and significant, while there was no evidence that depression influenced anxiety by changing burnout and compassion satisfaction. **Conclusions** - In the current sample, burnout and compassion satisfaction mediated the effect of anxiety upon depression and secondary traumatic stress mediated the effect of depression upon anxiety. The findings of the current study offer support to the tripartite model.

**Introduction**

Extensive research has indicated that anxiety and depression are highly correlated to, and are frequently comorbid with, one another [1, 2]. To understand what factors account for the high comorbidity, Clark and Watson [3] developed the tripartite model of anxiety and depression. Their proposed tripartite structure is comprised of negative affectivity, positive affectivity and physiological hyperarousal. Negative affectivity refers to the extent to which a person feels upset or unpleasantly engaged. Negative affectivity also suggests a sense of high emotional distress and involves a variety of affective states such as anger, guilt, fear, sadness, disgust and worry. Positive affectivity is concerned with a more positive interaction with the environment and expressions of energy and pleasurable engagement such as active, enthusiastic, cheerful, vigorous, and proud. Terms such as tired, fatigued, and sluggish reflect the absence of positive affectivity. Physiological hyperarousal is defined as elevated physiological autonomic arousal including sweating, mouth dryness, shortness of breath, and racing heart.

Clark and Watson [3] claimed that, on the one hand, anxiety and depression share an important component, negative affectivity, which is manifested as general affective distress and other common symptoms. On the other hand, anxiety and depression are discriminated by physiological hyperarousal that is specific to anxiety, and the low/absence of positive affectivity that is unique to depression. Clark and Watson's tripartite model suggests that a comprehensive description of the affective domains requires the evaluation of both the

common (namely, negative affectivity), and unique elements of anxiety (namely, physiological tension and hyperarousal) and depression (namely, the absent of positive affectivity).

Research has provided empirical support for the structure of the tripartite model in both adult and children population [1, 2, 4, 5, 6]. For example, Kalmbach et al.'s study of 67 women revealed that negative affectivities (e.g., rumination and worry) were correlated to concurrent general distress (that is a shared feature of depression and anxiety); but not anxious arousal or anhedonia (which are unique symptoms of anxiety and depression, respectively) [5]. Turner and Barrett's [7] investigation of the tripartite factors in children in grades of three, six, and nine in the USA suggested that the three constructs of negative affectivity, positive affectivity and physiological hyperarousal in the tripartite model were supported at all three grade levels.

Similar to general population, anxiety and depression are frequently comorbid with one another in healthcare clinicians. Chambers and Campbell' study reported that in the UK, 19% and 10% general practitioners had anxiety and depression disorders, respectively [8]. Erdur et al.'s Turkish study found that the prevalence rates of anxiety and depression among doctors working in the emergency department were 15.1% and 14.6% respectively [9]. In relation to the concurrent relationship between anxiety and depression, Hegney et al. reported that anxiety and depression were strongly, positively correlated to one and other (r=.70) among 132 registered nurses in Australia [12]. Studies also report comparable prevalence of anxiety and depression in Chinese healthcare clinicians; for example, Shen et al. found that among 451 Chinese healthcare clinicians the rates of screening positive for anxiety and depression were 18.0% and 31.7%, respectively [10]. Li et al.'s study revealed that, among 412 Chinese

doctors and nurses in the emergency department, 6.34% (5.7% in doctors and 6.6% in nurses) had anxiety symptoms while 17.73% (14.5% in doctors and 18.8% in nurses) had depression symptoms [11].

To evaluate positive and negative aspects that may impact the mental health of healthcare clinicians, Stamm [13] proposed the concept of professional quality of life (ProQOL). ProQOL consists of positive and negative aspects of working with patients who experience primary trauma. The positive aspect is termed compassion satisfaction (CS), while the negative aspect is named compassion fatigue (CF), which includes secondary traumatic stress (STS) and burnout (BO). According to Stamm, BO is concerned with the negative affectivity such as exhaustion, frustration, anger, fear, sadness and worry. STS incorporates such negative feelings as fear, guilt and sadness [13]. In one of the few studies investigating the relationships among CS, CF, anxiety and depression in 132 registered nurses in Australia, Hegney et al. reported that BO and STS were positively correlated to anxiety and depression levels, which suggested that negative affectivities were shared by anxiety and depression. CS mean scores were only negatively correlated to depression mean scores [12], which indicated that low/absence of positive affectivity was unique to depression. The empirical evidence in the study offers support to the tripartite model within a healthcare context.

Apart from examining the correlations between anxiety and depression, researchers have also investigated the causal relationship between anxiety and depression predicted by the tripartite model. Employing structural equation modelling (SEM), Jacques and Mash [14] found paths from anxiety to depression and from depression to anxiety. In a later study, Dia et al. also suggested a bidirectional path from anxiety to depression and from depression to anxiety [2].

An extension of causal modelling was also used to investigate the mediating effects of positive and negative affectivities on the causal relationship between anxiety and depression. For instance, Nima et al.'s mediation analysis reported that stress partially mediated the positive effects of anxiety upon depression in their sample of 202 university students [15]. A later study conducted by Ebesutani et al., using samples of 10,891 grades of 2-12 students and 254 children and adolescents (Grades 2-12) clinically diagnosed with mental disorders, in the USA, reported loneliness was a significant mediator in the relationship between anxiety and depression in the context of the tripartite model [16].

Although research has established that anxiety may convey risk for depression, and vice versa, and the correlations between ProQOL, anxiety and depression; to our knowledge, no research has examined mechanisms of comorbidity between these two conditions through ProQOL in healthcare clinicians. To address this research gap and build upon the tripartite model and existing literature, the current study investigates the mediating effects of ProQOL on the relationship between anxiety and depression using a sample of Chinese healthcare clinicians. We hypothesise that

> H1: CS, STS and BO would mediate the positive effect of anxiety upon depression; and

> H2: CS, STS and BO would mediate the positive effect of depression upon anxiety.

**Methods**

*Participants*

A randomised cross-sectional survey (using a random number table) was distributed to 1620 participants who were recruited from eight state-owned hospitals in a city in southern China between January and May 2017 through the administration of the Health Bureau in the city. A total of 1562 questionnaires were returned with a response rate of 96.4%. The eight hospitals included four comprehensive, and four specialised hospitals (e.g., Chinese medicine, women and children, psychiatric and stomatology hospitals).

If a respondent had more than 10% missing data that case was removed, resulting in 1479 cases for analysis. A further four cases with demographic data missing were also removed. Fifty two multivariate outliers were detected using Mahalanobis distance test and subsequently removed, resulting in a valid sample of 1,423 participants. The missing data rate of the 1,423 cases was 0.36% with all variables having less than 1% of missing responses. Mean substitution was used to replace missing values. Table 1 shows the demographic characterisers of the participants.

INSERT TABLE 1 HERE

***Measures***

*Demographic characteristics*: Gender, age, marriage status, education, professional position in the hospital, professional title and annual income were included in the demographic questionnaire.

*Anxiety and depression*: The Chinese version of the short Depression Anxiety Stress Scale (C-DASS21) was used to measure anxiety and depression symptoms within the past-month [17]. The 21-item DASS questionnaire consists of three subscales of depression, anxiety and

stress with 7 items in each subscale. The example items in the anxiety subscale included "I found it hard to wind down" and "I was aware of dryness of my month". The example items in the depression subscale included "I couldn't seem to experience any positive feeling at all" and "I found it difficult to work up the initiative to do things". A 4-point Likert scale was used, ranging from 0=Did not apply to me at all to 3=Applied to me very much, or most of the time. As suggested by the authors of the DASS, each 7-item scale was multiplied by two to calculate comparable scores with full 42-item DASS. The higher the score the more severe anxiety or depression. Cronbach's alpha for anxiety and depression in C-DASS21 were .81 and .86 respectively in Oei et al.'s study [18]. In the current research, Cronbach's alphas for anxiety and depression were .87 and .88, respectively.

*ProQOL*: the Chinese version of Stamm's 30-item Professional Quality of Life (ProQOL) scale was used to measured last-month BO, STS and CF (10 items for each subscale) [13]. A 5-point Likert scale was used, ranging from 1=Never to 5=Very often. The BO subscale included items such as "I am not as productive at work because I am losing sleep over the traumatic experiences of a person I have treated" and "I feel trapped by my job as a medical professional". The STS subscale included items such as "I am preoccupied with more than one person I treated" and "I jump or am startled by unexpected sounds". The CS subscale included items such as "I get satisfaction from being able to help people" and "I feel invigorated after working with those I help". Reverse-scored items were recoded. As suggested by the author of the scale, the raw scores were converted t-scores for analysis [13]. Thus, the reported scores were in a t-score format (except for means and SD). The higher the score the higher level of BO, STS and CS. The Cronbach's alphas of three subscales in Stamm's report were .75, .81 and .88 for BO, STS and CS, respectively [13]. In the present study, Cronbach's alphas for BO, STS and CS were .73, .79 and .86.

*Procedure*

Ethical approval for the current research was issued by the Human Research Ethics Committee of XXX University. Following the provision of an information sheet and signed informed consent, the participants completed the pen-and-paper survey at a time that was convenient for them. The completed questionnaires were collected by the administration of the Health Bureau.

*Statistical analysis*

Data analysis was performed using IBM's SPSS version 23. Correlation was performed to explore the associations between anxiety, depression and ProQOL. T-tests were used to investigate the differences of gender in all variables. The differences of age group, education, and income within all variables were explored using ANOVA. The parallel multiple mediator model allows multiple mediators to be examined and reports the individual effects of each mediator with the condition that no mediator causally influence another [19]. Multiple mediator models were used for mediation analysis and was conducted using the PROCESS v3.1 macro for SPSS [19]. Using 5,000 resamples to bootstrap 95% confidence intervals, PROCESS examines the mechanism, be it BO, STS and/or CS, by which anxiety/depression (X) influences depression/anxiety (Y) through the estimation of the indirect effects of X on Y. The indirect effect is significant if zero is not contained in the 95% confidence interval. According to Hayes, collinearity between multiple mediators increases both sampling variance and the width of confidence intervals in the mediation model [19]. Tolerance and variance inflation factor (VIF) were used to perform collinearity diagnostics. For all independent variables in the current study, tolerance values were all larger than the cut-off

point of .10 (>.27 for all IVs) and VIP values were all less than the cut-off point of 10 (<3.6 for all IVs), indicating multicollinearity assumption was not violated.

**Results**

*Descriptive data*

Means and SDs are displayed in Table 2. Intercorrelations between the variables were examined through the Pearson product-moment correlation coefficient (r) and are also shown in Table 2. BO and STS were strongly, positively correlated to anxiety and depression. CS, anxiety and depression were moderately, negatively correlated to one another.

INSERT TABLE 2 HERE

*Testing of hypotheses:*

*H1: CS, STS and BO would mediate the positive effect of anxiety upon depression*

To control the covariates in the mediation model, T-test and ANOVA were performed to determine which demographic factors of gender, age, education and income had statistical effects on the mediators and outcome variable (depression). There were significant age ($F_{(4,1418)}=2.96$, $p=.02$) and education ($F_{(4,1418)}= 3.05$, $P=.02$) differences in BO. There were age ($F=_{(4,1418)}=2.96$, $p=.02$), education ($F_{(4,1418)}=11.01$, $p<.001$), and income ($F_{(7, 1415)}=6.01$, $p<.001$) differences in STS. There were education ($F=_{(4,1418)}=3.05$, $p=.02$) and income ($F=_{(7,1415)}=4.28$, $p<.001$) in differences CS. Consequently, age, education and income were entered as covariates in the mediation model.

A statistical diagram of the model tested for H1 is presented in Figure 1. Direct and indirect effects for each model are reported in Table 3. In terms of the model predicting depression, the total effect of anxiety on depression was significant, $F(4, 1418) = 817.19$, $p<.001$. The total amount of variance accounted for by the overall model was 69.74%. Meanwhile, the total direct effect of anxiety on depression was significant, $F(7, 1418) = 954.97$, $p<.001$. The total amount of variance accounted for by the overall direct effect model was 73.05%.

The indirect effects of anxiety on depression through BO were both positive and significant, meaning that, in the sample, greater anxiety was associated with greater BO ($a1=.601$ [95%CI: .552, .650], $p < .001$), which in turn was associated with greater depression ($b1 = .137$ [95%CI: .101, .174], $p < .001$). In other words, anxiety increased BO, which in turn resulted in greater depression. The indirect effects of anxiety on depression through CS were also significant. However, both a3 and b3 were negative, the mediation effect became positive. Anxiety was associated with lower CS ($a3= -.297$ [95%CI: -.352, -.241], $p < .001$), which in turn was associated with high depression ($b3 = -.069$ [95%CI: -.100, -.039], $p < .001$). In other words, anxiety reduced CS, which in turn resulted in greater depression. Independent of these two mechanisms, there was no evidence that anxiety influenced depression by changing STS. H1 was partially supported.

INSERT FIGURE 1 HERE

INSERT TABLE 3 HERE

*H2: CS, STS and BO would mediate the positive effect of depression upon anxiety*

Similar to the process for testing H1, T-test and ANOVA were performed to determine covariates for H2. There was a gender difference in anxiety (p=.05, 95%CI [-2.25, -.01]). As a result, gender, age, education and income were entered as covariates in the mediation model.

A statistical diagram of the model tested for H2 is presented in Figure 2. Direct and indirect effects for each model are reported in Table 3. In terms of the model predicting depression, the total effect of depression on anxiety was significant, $F(5, 1417) = 659.63$, p<.001. The total amount of variance accounted for by the overall model was 69.95%. Meanwhile, the total direct effect of anxiety on depression was significant, $F(8,1414) = 459.49$, p<.001. The total amount of variance accounted for by the overall direct effect model was 72.22%.

The indirect effects of depression on anxiety through STS was both positive and significant, meaning that, in the sample, greater depression was associated with greater STS ($a2=.535$ [95%CI: .483, .588], $p < .001$), which in turn was associated with greater anxiety ($b2 = .154$ [95%CI: .120, .188], $p < .001$). In other words, depression increased STS, which in turn resulted in greater anxiety. Independent of this mechanism, there was no evidence that depression influenced anxiety by changing BO and CS. H2 was partially supported.

INSERT FIGURE 2 HERE

INSERT TABLE 4 HERE

**Discussion**

The present study examined mechanisms of comorbidity between anxiety and depression through ProQOL in a large random sample of healthcare clinicians in China. Specifically, the mediating effects of ProQOL on the positive relationship between anxiety and depression. It was hypothesised that CS, STS and BO would mediate the positive effects of anxiety upon depression; and CS, STS and BO would mediate the positive effects of depression upon anxiety. The findings of the present research showed that BO and CS mediated the positive effect of anxiety upon depression, meaning that, anxiety increased BO and reduced CS, which in turn resulted in greater depression. The current study also found that STS mediated the effect of depression upon anxiety, meaning that depression increased STS, which in turn resulted in greater anxiety.

As the first study to explore the mechanisms of comorbidity between anxiety and depression through ProQOL in a healthcare setting, this study is also the first to provide evidence for the tripartite model of anxiety and depression using a sample of Chinese healthcare clinicians. The findings support the tripartite model that anxiety and depression share negative affectivity [3]. The negative affectivities in the current study are manifested in BO and STS. The negativity affectivity in BO in healthcare settings includes feeling emotionally fatigued, worrying about the quality and efficacy of the clinical care one provides, decreased productivity and confidence, and disrupted interpersonal relationships [13, 20]. The negative affectivity within low CS includes signs such as lowered pleasure responses and reduced sense of achievement in work, and negative feelings towards colleagues and patients [21]. The negative affectivity in STS in healthcare settings includes worrying about patient situations when trying not to, avoiding situations that remind the healthcare clinician of his or her work with traumatised patients, and feelings of jumpiness or sleeping disturbances [22; 23].

Apart from these shared negative affectivities, this study also lends support to the tripartite model that anxiety and depression have unique components. Our study found that BO was a mediator for the effect of anxiety upon depression, but not for depression upon anxiety, which indicates that BO is a mediator unique to anxiety. Besides the aforementioned emotional and mental exhaustion, BO can also cause physical exhaustion, resulting in neurasthenia-like symptoms which is characterised by weakness of the nervous system, fatigue, headache, and irritability [24]. These symptoms are consistent with the unique component of physiological hyperarousal in anxiety as identified by the tripartite model. Furthermore, our study reported that CS was a mediator of the effect of anxiety upon depression, but not a mediator of the effect of depression upon anxiety, which suggests the low or absence of positive affectivity (CS) is unique to depression. This finding is again consistent with the tripartite model.

Moreover, our findings suggest that high levels of work stress and burnout have impacts on the level of depression and anxiety symptoms experienced by healthcare professionals in China. Burnout is a contributor to some healthcare practitioners premature departure from the workplace; with a significant costs for administration to replace trained healthcare clinicians. Those who are experiencing burnout but do not leave the profession may experience diminished productivity and lowered morale [25]. Improving organisational management in Chinese hospitals should be considered so as to reduce healthcare workers' burnout.

There are several limitations in the current study. First, physiological hyperarousal was not directly measured in the study, which warrants future studies to use direct measures of

physiological arousal. Second, the generalizability of this study may be limited to similar populations. Third, the sample was skewed toward female respondents with nearly 80 percent female participants. More than 60% of participants being nurses may contribute to the gender imbalance. In China, there is a serious shortage of male nurses; by the end of 2016, only 2.1% of registered nurses in China were male [26].

In conclusion, despite the limitations, the present study adds to the current literature on depression, anxiety, and ProQOL. This study is the first, to our knowledge, to examine ProQOL and the mediating roles in the relationship between depression and anxiety using Clark and Watson's theoretical framework [3] in the Chinese healthcare system. In the current sample, BO and CS mediated the positive effect of anxiety upon depression and STS mediated the effect of depression upon anxiety. The findings provide new insight into the comorbidity between anxiety and depression in healthcare clinicians, in particular the role of the work-related risk factors of negative affectivity, low/lack of positive affectivity, and physiological arousal in the development of anxiety and depression. If replicated, these results suggest interventions to decrease the rate BO and STS, and maintain CS, may be effective in limiting the development of healthcare practitioner comorbid depression and anxiety with likely benefits to the practitioner and their patients.

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Table 1. The demographic characterisers of the participants

| Demographic factors | | N | % |
|---|---|---|---|
| Gender | Male | 325 | 22.8 |
| | Female | 1098 | 77.2 |
| | Total | 1423 | 100 |
| Age | 20-29 | 561 | 39.4 |
| | 30-39 | 492 | 34.6 |
| | 40-49 | 268 | 18.8 |
| | 50-59 | 76 | 5.3 |
| | 60-69 | 26 | 1.8 |
| | Total | 1423 | 100 |
| Marriage status | Single | 423 | 29.7 |
| | Married/ Defector | 966 | 66.3 |
| | Divorced/Separated/ Widowed | 34 | 2.4 |
| | Total | 1423 | 100 |
| Education | Lower than undergraduate | 404 | 28.4 |
| | Undergraduate | 857 | 60.2 |
| | Masters | 144 | 10.1 |
| | Medical doctorate | 15 | 1.1 |
| | Other doctorate | 3 | 0.2 |
| | Total | 1423 | 100 |
| Professional position in the hospital | Doctor | 459 | 32.3 |
| | Nurse | 861 | 60.5 |
| | Pharmacist | 73 | 5.1 |
| | Intern | 30 | 2.1 |
| | Total | 1423 | 100 |
| Professional title | Senior professional post | 41 | 2.9 |
| | Associate senior professional post | 154 | 10.8 |
| | Intermedium professional post | 411 | 28.9 |
| | Junior professional post | 817 | 57.4 |
| | Total | 1423 | 100 |
| Annual income | Less than ¥50,000 | 305 | 21.4 |
| | ¥50,001-¥100,000 | 610 | 42.9 |
| | ¥100,001-¥150,000 | 269 | 18.9 |
| | ¥150,001-¥200,000 | 153 | 10.8 |
| | ¥200,001-¥300,000 | 41 | 2.9 |
| | ¥300,001-¥400,000 | 9 | 0.6 |
| | ¥400,001-¥500,000 | 29 | 2.0 |
| | Higher than ¥500,001 | 7 | 0.5 |

Note: Annual income was in RMB. 1RMB=0.14USD roughly at the time of data collection.

Table 2. Intercorrelations

| Variable | 1 | 2 | 3 | 4 | 5 | M | SD |
|---|---|---|---|---|---|---|---|
| 1. Anxiety | 1 | .835** | .541** | .525** | -.262** | 11.19 | 8.98 |
| 2. Depression | | 1 | .593** | .473** | -.350** | 9.48 | 8.64 |
| 3. Burnout | | | 1 | .558** | -.514** | 27.67 | 5.25 |
| 4. Secondary Traumatic Stress | | | | 1 | -.003 | 27.57 | 5.97 |
| 5. Compassion Satisfaction | | | | | 1 | 33.05 | 4.89 |

** P<.01 (2-tailed). Theoretically, anxiety and depress scores range from 0 to 42; and BO, STS and CS scores range from 0 to 50. In the current study, both anxiety and depression scores ranged from 0 to 42; BO ranged from 13 to 45; STS ranged from 11 to 48; and CS ranged from 13 to 47.

Table 3. Path coefficients, indirect effects, and 95%CI predicting depression (N=1,423)

| Path | Coeff. | BootLLCI | BootULCI | SE | t |
|---|---|---|---|---|---|
| Direct effect (c') | .701 | .668 | .735 | .017 | 41.662*** |
| a1 | .601 | .552 | .650 | .025 | 24.25*** |
| a2 | .579 | .530 | .627 | .025 | 23.28*** |
| a3 | -.297 | -.352 | -.241 | .028 | -10.23*** |
| b1 | .137 | .101 | .174 | .019 | 7.32*** |
| b2 | .004 | -.037 | .029 | .168 | .08 |
| b3 | -.069 | -.100 | -.039 | .015 | -4.40*** |
| Indirect effect | **.101** | **.079** | **.123** | .011 | |
| a1b1 | **.083** | **.059** | **.106** | .012 | |
| a2b2 | -.003 | -.022 | .016 | .010 | |
| a3b3 | **.021** | **.011** | **.031** | .005 | |

***p<.001; confidence intervals based on 5000 resamples; significant indirect effects
in bold

Table 4. Path coefficients, indirect effects, and 95%CI predicting anxiety (N=1,423)

| Path | Coeff. | BootLLCI | BootULCI | SE | t |
|---|---|---|---|---|---|
| Direct effect (c') | .784 | .747 | .821 | .018 | 41.676*** |
| a1 | .686 | .637 | .735 | .025 | 27.654*** |
| a2 | .535 | .483 | .588 | .027 | 20.084*** |
| a3 | -.415 | -.471 | -.359 | .029 | -14.512*** |
| b1 | .002 | -.037 | .042 | .020 | .012 |
| b2 | .154 | .120 | .188 | .017 | 8.909*** |
| b3 | .007 | .025 | -.039 | .016 | .044 |
| Indirect effect | **.081** | **.056** | **.107** | .013 | |
| a1b1 | .002 | -.027 | .032 | .015 | |
| a2b2 | **.083** | **.063** | **.104** | .010 | |
| a3b3 | -.003 | -.018 | .012 | .007 | |

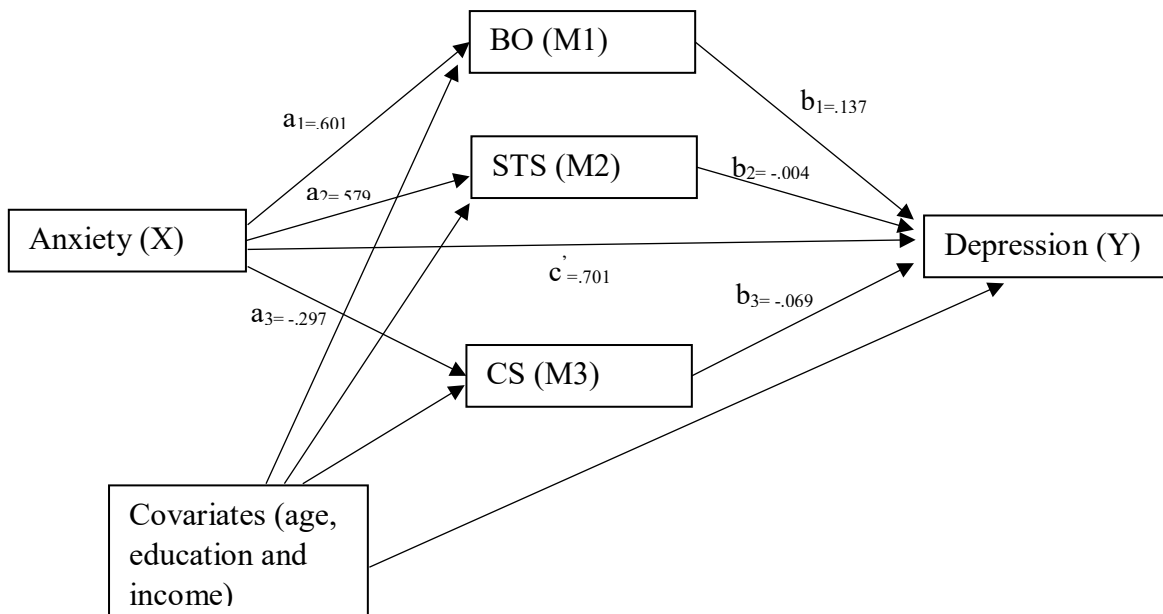***$p<.001$; confidence intervals based on 5000 resamples; significant indirect effects in bold

Figure 1. A statistical diagram of assessing the effect of anxiety on depression through three ProQOL mediators
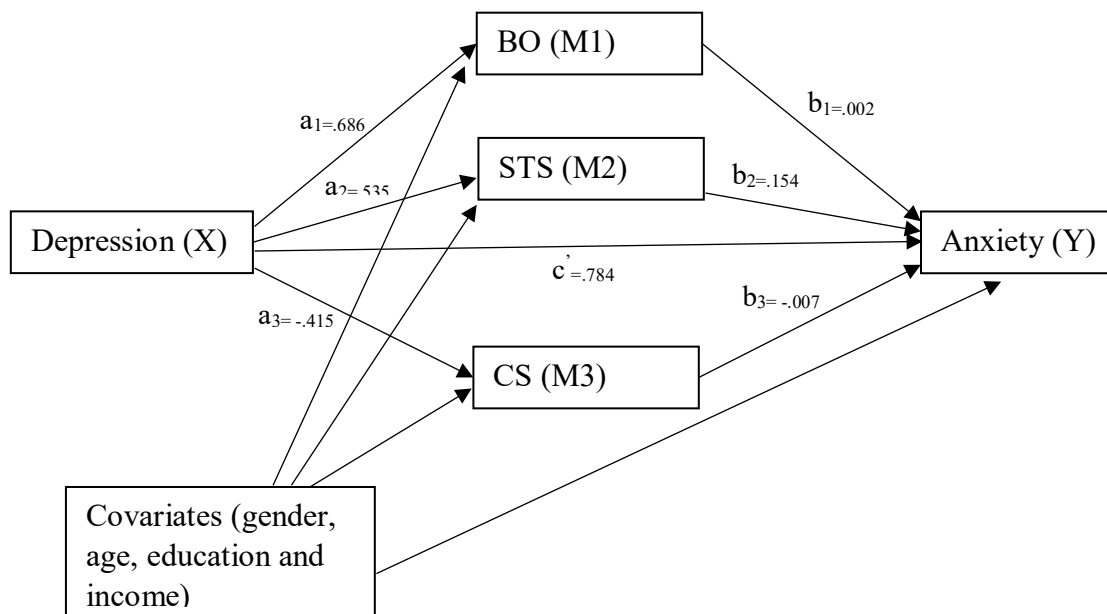
Figure 2. A statistical diagram of assessing the effect of depression on anxiety through three ProQOL mediators