CHAPTER II: METHODOLOGY

Research Design

The study is exploratory in nature and may be described as descriptive research because it sought to describe the relationships between a set of pre-existing variables, none of which were manipulated by the researcher (Rosnow & Rosenthal, 1996). The research was, therefore, non-experimental as it did not fulfill the three requirements of a control group, manipulation of any independent variable and random assignment (Rosnow & Rosenthal, 1996). As a result, the interaction of organisational commitment, job involvement, social support, prior exposure to trauma and sense of coherence, cannot be regarded as necessary and sufficient causes of susceptibility to compassion fatigue and burnout in South African trauma counsellors. As no attempt was made to infer causality the research hypotheses were based on principles of bi-directionality, whereby it was acknowledged that the variables co-vary and may have a mutual impact. It follows that the specific nature of the research design employed is correlational as the manner in which several variables covary, was quantified (Rosnow & Rosenthal, 1996).

In this case, the question of association between the independent and dependent variables was of which independent variables manifested as significant predictors of the variance in the scores obtained for the dependent variables. The relative degree to which the independent variables were associated with the variance explained in the dependent variables was also under scrutiny. As all variables were observed simultaneously and only through one observation, the design may be more specifically categorised as a cross-
sectional correlational design (Rosenthal & Rosnow, 1991). Finally, the research is quantitative in nature as the variables have been numerically quantified through the use of measurement instruments and were analysed according to the appropriate statistical methodology.

**Sampling Procedures and Data Gathering Process**

The non-probability, convenience sampling method was adopted, whereby interested trauma counsellors were requested to participate in the study (Fife-Schaw, 1995). One hundred and sixty counsellors were recruited in order to gain a viable scope of data and optimise representativeness of the sample. However, the final number of respondents was seventy-eight, indicating a participation rate of approximately 49%. Each counselling organisation had only approximately ten trauma counsellors, this necessitating an extensive recruitment effort, whereby a large group of counselling organisations were approached for access in the Johannesburg area. Of the 18 organisations approached, 13 agreed to participate in the research. It became evident from the recruitment process that the nature of organisations offering trauma counselling services in this area is diverse, including police trauma units, church trauma counselling sectors and secular counselling organisations. This appears to reflect the absence of a large, cohesive counselling body that is able to provide a unitary counselling approach for survivors of trauma.

Several steps were involved in the recruitment process. Firstly, the relevant organisational staff, these being the organisations’ directors, were approached for permission to engage in research within the organisation. Secondly, the research
objectives and processes were introduced by the researcher to the counselling staff, generally in administrative meetings where questionnaires were distributed and participation requested [Appendix III]. Questionnaires were collected within the space of a week to allow participants to complete them at their convenience. The data-gathering process continued for approximately two months.

**Ethical Considerations**

As the conduction of any social research or inquiry may be intrusive upon the lives of subjects, care was taken to ensure the ethicality of the study, thereby reducing any potential discomfort incurred by participants (Atwell, 1981). In order to ensure ethical conduction of procedures a proposal was submitted to the Committee for Research on Human Subjects [Appendix IV]. Following approval by this committee of ethics, a signed, informed letter of consent was obtained from the counselling organisations in which research was conducted [Appendix V]. The participants were not misinformed or deceived in any manner and, thus, no harmful effects of the study were anticipated. In addition, subjects were clearly informed of their right not to participate in the research and the nature and objectives of the study were clearly discussed in a cover letter attached to the questionnaire [Appendix VI]. This cover letter also included the contact details of the researcher, should the participants have any questions or uncertainties regarding the research. In order to ensure confidentiality, participants were not required to provide personal details pertaining to their identity. Furthermore, they were assured that neither their identities nor those of the participant organisations would be disclosed in the
research results. Finally, feedback was offered to the participant organisations and subjects, to be made available upon completion of the research.

**Measures**

A questionnaire comprised of the following scales was compiled to operationalise the observation of the independent and dependent variables. Each scale was preceded by instructions regarding its completion and the entire questionnaire required approximately twenty minutes to complete [See Appendix VI].

**Biographical Questionnaire:** In order to establish the demographic composition of the sample as well as to detect any sample bias that could emerge, a thorough biographical questionnaire was attached to the questionnaire. This investigated various demographic factors, including information such as age, gender, marital status and home language.

**Prior Exposure to Trauma:** In order to determine the incidence of prior exposure to trauma, Norris’s (1990) trauma stress schedule, as adapted by Esprey (1996), was employed. This schedule, originally based on interview items, is a survey measure consisting of seven items that refer to commonly reported experiences of trauma, such as the experience of sexual assault. The instrument is measured on a dichotomous scale, whereby respondents simply indicate ‘yes’ or ‘no’, depending on whether they have been exposed to the traumatic experience indicated in the item. The date of the trauma is also requested in order to provide an indication of how recently the counsellor has been exposed. In order to further explore the levels of prior exposure to trauma in the sample,
an open-ended question was included to allow for the expression of any trauma not accounted for in the scale. As this is a life events scale, results may change over time, thereby rendering reliability estimates inapplicable. Prior trauma is calculated cumulatively, meaning that any ‘yes’ response in the survey qualifies a respondent as having experienced prior trauma.

**Compassion Fatigue and Burnout:** The compassion fatigue self-test constructed by Figley (1995) was employed to assess compassion fatigue and burnout. The scale is comprised of 40 items and requires approximately 5-10 minutes for administration. It is presented as a series of statements to which subjects respond based on the degree of applicability of the item to themselves. The scale is scored in a Likert-type manner from ‘rarely’ to ‘very often’, with attendant scores for these responses ranging from 1 to 5 respectively. The compassion fatigue self-test consists of two sub-scales, the first measuring the specific symptoms associated with burnout and comprising seventeen items, while the second measures symptoms associated with compassion fatigue and consists of 23 items. Rather than establishing the actual incidence of burnout and compassion fatigue, however, the instrument provides an indication of the respondents’ susceptibility to these syndromes. Hence, scores are interpreted as ranging from low risk to very high risk.

Alpha reliabilities for the original scale, as reported by Figley and Stamm (1996) are generally high and fall between .86 and .94. In this study, the Cronbach-alpha for the entire scale again indicated a high level of reliability, at $\alpha = .86$. When separate reliabilities for the compassion fatigue and burnout dimensions were investigated, however, the burnout dimension manifested a lower reliability of $\alpha = .66$. This may be owing to the sub-scale’s fewer items ($n = 17$) or may also have been an artifact of
missing values where several respondents omitted items. In contrast, the reliability of the compassion fatigue sub-scale remained high, at \( \alpha = .81 \) (\( n = 23 \)).

**Social Support:** The Crisis support questionnaire developed by Joseph, Andrews, Williams and Yule (1992) was employed because it addresses the aspects of social support relevant to this study. This scale determines the perceived availability of emotional and instrumental support and includes an item assessing whether respondents are satisfied with the support they have received, thereby providing a global measure. Additional items were included to investigate the support network of individuals, thereby indicating which sources of support are deemed most important to trauma counsellors (Esprey, 1996; Ortlepp, 1998). The wording of the scale was also minimally altered to specify the counselling context in order to ensure that respondents were not confused by the relevance of the scale. The scale, ultimately consisting of 13 items, presents as a series of statements to which subjects respond according to a 5-point response format depicted by ‘never’ to ‘always’. Internal reliabilities ranging from .69 to .85 have been reported for this instrument (Joseph et al., 1992; Ortlepp, 1998). A reliability analysis of the original seven items of this questionnaire yielded a Cronbach-alpha of .66, a finding which could again be related to the short length of the scale. However, this reliability lies within the range of previously reported reliabilities for this scale and was, thus, regarded as acceptable.

**Sense of Coherence:** In order to determine the level of SOC, Antonovsky’s (1987) shortened form of the ‘Orientation to Life’ (OLQ) questionnaire was employed. The rationale for this was to maintain the length of the questionnaire within acceptable time
limits. This form of the OLQ scale consists of 13 items, each phrased as a series of statements to which the respondent indicates the degree of applicability to him/herself. The scale functions on seven points and contains three sub-scales, namely, manageability, meaningfulness and comprehensibility. However, the sense of coherence construct is assessed as a global measure comprised of these three dimensions (Antonovsky, 1987). According to Antonovsky (1993), the internal reliability for the shortened instrument is lower than that of the original, owing to fewer items. However, the instrument is still regarded to be psychometrically sound, with the average Cronbach-alpha reported at .82 (Antonovsky, 1993). In this study, however, the alpha level yielded was slightly lower, at .78 for the shortened form.

Organisational Commitment: The shortened form of the Organisational Commitment questionnaire (OCQ) developed by Mowday, Steers and Porter (1979) was employed. While the original scale comprises 15 items, the shortened form only includes nine as it omits the negatively keyed items. The rationale for the use of the shortened form was to avoid inflated findings with regard to the relationship between organisational commitment and intention to leave as an overlap occurs between the items assessing continuance commitment and those assessing intention to leave (Cohen & Hudecek, 1993; Tett & Meyer, 1993). Furthermore, according to Angle and Lawson (1994), the nine item instrument provides an excellent measure of affective commitment specifically, this being the relevant form of commitment to this study. The OCQ presents subjects with a set of statements to which they respond on a 7-point Likert scale, this reflecting the degree to which the items apply to themselves. While the 15-item form of the OCQ has widely reported psychometric properties, reports of its internal consistency ranging
from .82 to .93, there are no reports regarding the short form specifically beyond that it is a sound psychometric measure (Leong et al., 1996; Mowday et al., 1979). In this case, the shortened form of the OCQ yielded an exceptionally high reliability, with $\alpha = .91$. Although acceptable, it is possible that this was an inflated reliability owing to the small number of items in the scale ($n = 9$).

**Job Involvement:** The Job Involvement scale formulated by Kanungo (1982) measures the degree to which an individual psychologically identifies with his/her job role. The scale is comprised of 15 items which pose statements regarding feelings about work. These are scored on a 6-point Likert-type rating scale ranging from 'strongly disagree' to 'strongly agree’. In order to contextualise the questioning on the counsellor's identification specifically with the counselling role, as opposed to work in general, the wording was altered minimally to provide a counselling focus. For instance, items referring to 'my present job', were reworded as 'my counselling job'. Kanungo (1982b) reports a Cronbach-alpha reliability of $\alpha = .87$ for this instrument. In this study, although the Cronbach-alpha was slightly lower, it remained high at a value of $\alpha = .83$.

**Intention to Leave:** Lyons (1971) constructed a 3-item scale investigating intention to leave or remain in an organisation, each item offering three alternatives indicating degree of agreement. The response format ranges from 'not at all likely' to 'extremely likely'. These items were incorporated in the current study, the wording being contextualised to the counselling organisation in a similar manner incorporated in the Job Involvement scale. Previous studies employing this scale have not reported the reliability scores
obtained. However, the scale yielded an especially low Cronbach-alpha of .51 in this study, which is attributed to the fact that it consists of only three items.

**Subjects**

The final sample (N = 78) consisted of trauma counsellors from the Johannesburg area. In reporting the biographical characteristics of the sample all percentages are rounded off to an approximation and the equivalent frequency of respondents is indicated in brackets.

As evident from table 2.1, the mean (M) age of the sample of counsellors was 46 years, the youngest counsellor being 20 years old and the oldest, 72 years old. Consequently, the age distribution of the sample appeared normal, with a range of 52 years. The mean (M) length of service reported by the sample was approximately four and a half years, with the shortest tenure in counselling service being two months and the longest being 26 years. With reference to marital status, the majority of the sample, at 56% (44), reported being married, 19% (15) reported being single, 12% (9) reported being divorced, nine percent (7) reported being involved in a steady relationship and four percent (3) reported being widowed. In terms of gender, at 86% (67), women comprised the overwhelming majority of the sample, the remaining 14% (11) being male. This clearly introduced gender bias, however, it is suggested that this reflected the fact that the trauma counselling role in the Johannesburg area is predominantly undertaken by women. The mean total (M) of hours spent counselling per week, as reported by the sample, was 10 hours, with the minimum counselling time engaged in being one hour a week and the maximum, 42 hours per week. In addition, of the 78 counsellors, 80% (62) counsel part-
time, this being on a voluntary basis, while the remaining 20% (19) counsel full-time, the
counselling job comprising their central means of employment. However, 46% (36) of
the sample stated that they had alternative employment besides their counselling job, as
opposed to the 52% (41) who were only involved in counselling, albeit part-time or full-
time.

With regard to the type of counselling duties in which the counsellors are involved, 26%
(20) reported engaging only in face to face counselling of individual clients, another 10%
(8) reported that they engage only in telephonic counselling, while 62% (48) stated that
they routinely engage in a combination of individual, group and telephonic counselling
duties. In terms of the educational stratification of the sample, 30% (23) had a
matriculation certificate as their highest qualification, 15% (12) had an undergraduate
diploma, 21% (16) had a bachelor's degree and 33% (26) had a post-graduate
qualification. Finally, 80% (62) of the sample was English speaking (62) while the
remaining language groups included five percent (4) Afrikaans speakers, one percent (1)
Xhosa speakers, one percent (1) Italian and four percent (3) Zulu speakers.
Table 2.1 Sample Demographics (N = 78)

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AGE (M)</strong></td>
<td>46 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LENGTH OF SERVICE (M)</strong></td>
<td>4.5 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MARITAL STATUS</strong></td>
<td>Married 56% (44)</td>
<td>Single 19% (15)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Divorced 12% (9)</td>
<td>Relationship 9% (7)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Widowed 4% (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GENDER</strong></td>
<td>Male 14% (11)</td>
<td>Female 86% (67)</td>
<td></td>
</tr>
<tr>
<td><strong>COUNSELLOR HOURS</strong></td>
<td>Part-time 80% (62)</td>
<td>Full-time 20% (15)</td>
<td></td>
</tr>
<tr>
<td><strong>ALTERNATIVE EMPLOYMENT</strong></td>
<td>Yes 46% (36)</td>
<td>No 53% (41)</td>
<td></td>
</tr>
<tr>
<td><strong>COUNSELLING DUTIES</strong></td>
<td>Face-to-Face 26% (20)</td>
<td>Group 0% (0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Telephonic 10% (8)</td>
<td>Combined 62% (48)</td>
<td></td>
</tr>
<tr>
<td><strong>EDUCATIONAL LEVEL</strong></td>
<td>Matric 30% (23)</td>
<td>Degree 21% (16)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Certificate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Undergraduate 15% (12)</td>
<td>Postgraduate Degree 33% (26)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diploma</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HOME LANGUAGE</strong></td>
<td>English 80% (62)</td>
<td>Sotho 4% (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Afrikaans 5% (4)</td>
<td>Xhosa 1% (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setswana 1% (1)</td>
<td>Italian 1% (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zulu 4% (3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As evident in table 2.2, the mean (M) score for compassion fatigue in the sample was 37, indicating that the sample fell into the high risk category for compassion fatigue, as described by Figley and Stamm (1996). The minimum score for compassion fatigue was 23, indicating extremely low risk and the highest was 64, indicating counsellors at an extremely high risk (range of 41) (Rosenthal & Rosnow, 1991). With regard to burnout, the mean (M) score for the sample was 30 which, according to Figley and Stamm (1996) indicated that the sample was bordering on high risk of burnout. In this case the minimum burnout score was 17, being extremely low risk, and the maximum 48, being extremely high risk (range of 31) (Rosenthal & Rosnow, 1991). Finally, a majority of the sample had been exposed to previous trauma, this occurring at 73% (57) while 27% (21) had not. A breakdown of the different types of trauma to which the respondents had been exposed is provided in table 2.2 in conjunction with the percentages and frequency of respondents exposed in each category. The categories of trauma include from experiences of injury and assault as well as death of loved ones and natural disasters.

---

1 See Appendix VII for table including full descriptive statistics for variables under study.
Table 2.2 Demographics for Compassion Fatigue, Burnout and Prior Trauma

<table>
<thead>
<tr>
<th>Exposure to Trauma</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMPASSION FATIGUE (M)</strong></td>
<td>37</td>
<td></td>
</tr>
<tr>
<td><strong>BURNOUT (M)</strong></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td><strong>PREVIOUS TRAUMA</strong></td>
<td>73%</td>
<td></td>
</tr>
<tr>
<td><strong>TYPE OF TRAUMATIC EXPERIENCE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Has anyone ever taken something from you by force or threat of force, such as in a robbery, mugging or hold-up?</td>
<td>33% (26)</td>
<td>67% (52)</td>
</tr>
<tr>
<td>2. Has anyone ever beaten you up or attacked you?</td>
<td>21% (16)</td>
<td>80% (62)</td>
</tr>
<tr>
<td>3. Has anyone ever made you have sex by using force or threatening to harm you?</td>
<td>8% (6)</td>
<td>92% (72)</td>
</tr>
<tr>
<td>4. Have you ever been in a motor accident serious enough to cause injury to one or more passengers?</td>
<td>22% (17)</td>
<td>77% (60)</td>
</tr>
<tr>
<td>5. Has a loved one ever died of an accident, homicide, or suicide?</td>
<td>23% (18)</td>
<td>77% (60)</td>
</tr>
<tr>
<td>6. Have you ever suffered injury or property damage because of a fire, severe weather, or a natural or manmade disaster?</td>
<td>21% (16)</td>
<td>80% (62)</td>
</tr>
<tr>
<td>7. Have you ever been forced to evacuate from your home?</td>
<td>10% (8)</td>
<td>90% (70)</td>
</tr>
<tr>
<td>8. Other</td>
<td>42% (33)</td>
<td>58% (45)</td>
</tr>
</tbody>
</table>

2 Several respondents had experienced more than one type of trauma, however, the presence of any prior trauma was considered to qualify the candidate cumulatively as a 'yes' response. Fifty-seven participants had, thus, experienced prior trauma.
Analysis of Data

Sample descriptives
Statistical analyses were conducted on the SPSS statistical package. The data set was first organised, whereby the scale items were reverse scored where necessary and all scales were totaled. As the majority of the biographical variables were categorical, for instance marital status and gender, these were numerically coded for analysis. Descriptive statistics were derived for the sample with regard to demographic information, whereby the mean, range, minimum and maximum scores were provided for each variable (SPSS, 1998). This allowed for the calculation of the mean incidence of compassion fatigue and burnout in the sample. In addition, frequency analyses provided both the cumulative and valid percentages of responses for each item in a scale or for each biographical category, thereby indicating the number of respondents belonging in each biographical category and providing a demographic profile of the sample.

In order to explore the relationships between all the variables in the study, bivariate Pearson-product moment correlations were conducted to indicate the degree to which all variables were related. According to Edwards (1984) the Pearson correlation co-efficient (r) provides a measure of the strength of a linear relationship between two quantitative variables of interval measure, thereby being appropriate to many of the variables in this data. Of further utility in this case is that the computation of the square of the correlation coefficient (r²) between two variables also provides an indication of the proportion of variance shared by those variables (Rosenthal & Rosnow, 1991). The shared variance refers to the “proportion of variance among Y scores that is attributable to variation in the
X scores, and the proportion of the variance among X scores that is attributable to variation in the Y scores" (Rosenthal & Rosnow, 1991, p. 279). Various assumptions regarding the data were established to be true, these being the absence of outliers between the variables and the linearity of the association, thereby rendering the application of this technique to the current data, a valid one (Edwards, 1985; SPSS, 1998b).

While these preliminary correlations provided an estimation of the potential association between two variables, however, further investigation of the relationships between the variables in question was required. This is because the bivariate correlations simply provided a measure of association without removing or controlling for the possible effects of the remaining variables which may have influenced the correlation (SPSS, 1998a). Therefore, further analyses were necessary to ascertain whether the observed correlations between variables may have occurred as a consequence of confounds caused by the remaining variables.

The statistical analyses employed to further investigate the manner in which these variables operate and to address the research questions were multiple, linear regressions. In order for these analyses to yield robust results, however, it was necessary that the data comply with several assumptions. Firstly, this involved normal distribution of the residuals as well as linearity (Howell, 1992). Secondly, it was necessary that the residuals have equal variance and be independent observations. These assumptions were established to be true prior to the acceptance of the regression results yielded (Howell, 1992). Thus, having discussed the preliminary exploration of the data, the statistical
methodology employed in addressing each research question and corollary, shall be discussed in detail.

**Research Question 1:** What is the combined impact of compassion fatigue and burnout on intention to leave in South African trauma counsellors?

Multiple linear regression was the statistical analysis employed in order to determine the combined impact of compassion fatigue and burnout on intention to leave. This is because “linear regression estimates the coefficients of the linear equation involving one or more independent variables that predict the value of the dependent variable” (SPSS, 1998a, p. 269). As it was the manner in which both compassion fatigue and burnout, as independent variables, predict intention to leave (the dependent variable) that was investigated by this research question, multiple regression was rendered an appropriate analysis to derive the requisite information. In this case the method, whereby all variables are entered simultaneously into the regression equation was employed, as there were only two independent variables under investigation.

Firstly, the regression provided a measure of $R$ for all the independent variables combined, this being the correlation between the observed values of the dependent variable and the predicted values, as determined by the independent variables (Howell, 1992). Of the greatest relevance to this research question, however, was the fact that a regression analysis also yields a measure of $R^2$ which indicates the amount of variance explained in the dependent variable by the independent variables (Howell, 1992). This allowed for the specific research question to be answered via this analysis as the proportion of variance in intention to leave, as explained by burnout and compassion
fatigue combined, was provided. Similarly, the $F$ statistic, provided in an ANOVA table, provides a test of the coefficients of each independent variable in relation to the dependent variable, determining that at least one of them was not equal to zero (SPSS, 1998b). This established whether the entire regression was significant and yielded a statistically generalisable model for the prediction of the dependent variable (SPSS, 1998b).

**Research Question 2:** What is the combined impact of organisational commitment, sense of coherence, social support, job involvement and prior exposure to trauma on compassion fatigue?

Multiple, linear regression was also employed to address the second broad research question, owing to the appropriateness of the procedure in determining the predictive power of a combination of independent variables with regard to the dependent variable (Edwards, 1984). In this case, however, in order to address the third research question with regard to the relative, predictive capacity of the independent variables the stepwise-stepwise method of entering the independent variables was employed. This method, in allowing only the relevant variables to be included in the regression equation, also indicates which variables emerge as correlates as well as their combined impact. The rationale for employing this method is further elaborated upon with reference to the third research question. In order to indicate the amount of variance explained in the dependent variables by this combination of independent variables, the regression provided the $R^2$ and also indicated whether the regression yielded a predictive linear model which was statistically significant. Thus, it was possible to determine the amount of variance in compassion fatigue explained by the combination of the independent variables,
organisational commitment, sense of coherence, social support and job involvement. In addition, multiple regression was also an appropriate analysis as it allowed for the inclusion of categorical variables which were numerically coded as dummy variables, for instance prior exposure to trauma and educational level (Hardy, 1993). Numerical coding was applied in all cases where categorical variables were analysed.

**Research Question 3:** What is the relative predictive strength of organisational commitment, sense of coherence, social support, prior exposure to trauma and job involvement on susceptibility to compassion fatigue?

The regression analysis conducted to address the second research question also provided the information required to investigate the many facets of the third research question. Of relevance to addressing this research question was the use of the stepwise-stepwise procedure to enter the independent variables into the regression equation (SPSS, 1998a). The stepwise-stepwise method of entering incorporates both the forward and backward stepwise methods of establishing which independent variables are significant predictors of the dependent variable, according to significance criteria (Howell, 1992). Firstly, the independent variables are added one variable at a time to the linear equation, beginning with those that have the most significant correlation with the dependent variable (Howell, 1992). This constitutes the forward stepwise procedure. However, once each new variable is entered, a backward stepwise regression is conducted, whereby the variables already entered into the equation are retested for removal. This is because their correlation with the dependent variable, in the presence of the remaining entered variables, may no longer be significant if their effects are a function of the new variables entered (Edwards, 1984). Therefore, the stepwise-stepwise method is a conservative measure which avoids the
potential inclusion of variables into the linear equation which may not be significant predictors of the dependent variable. Predictive models employing the stepwise-stepwise procedure thus avoid 'overfitting', whereby non-significant variables may be included as predictors in the linear model. Where this occurs, the model's predictive capacity is compromised and may not generalise across situations (Howell, 1992). Consequently, the stepwise-stepwise method of variable selection was selected for the regression analysis conducted in this study in order to determine the best model of fit for the variables in question, according to conservative criteria.

The utility of the stepwise regression in addressing research question three was two-fold. Firstly, in determining the optimum model of fit for the prediction of the dependent variable, this analysis derived the regression coefficients (β) for each significant independent variable. These indicated which independent variables were significant predictors, simultaneously determining what the optimal predictive combination of the variables organisational commitment, sense of coherence, social support, job involvement and prior exposure to trauma was in relation to compassion fatigue (Edwards, 1985). Secondly, the relative predictive capacity of each independent variable was established as it was possible to determine the proportion of the variance explained (R²) by each predictive variable. This is because the multiple regression analysis also yields partial correlations which provide an indication of the linear relationship between the independent variables and the dependent variable, controlling and removing the effects of the remaining significant independent variables (Edwards, 1984). This was important in addressing the third research question as it established the predictive role of each independent variable, independently of the remaining significant predictors.
Finally, the collinearity diagnostics were also provided as these indicated whether the regression result could be an artifact of a significant relationship between the independent variables (SPSS, 1998b). From this estimation of the presence or absence of multicollinearity, it was determined whether the results of the regression equation could be accepted as genuine.

**Research Question 4: What is the combined impact of organisational commitment, sense of coherence, social support, job involvement and prior exposure to trauma on burnout?**

In keeping with the approach adopted toward research questions two, a multiple, linear regression was also employed to address the fourth research question. Similarly, the stepwise-stepwise method of entering variables was also employed in order to derive the information required to address the fifth research question. However, in this case, the dependent variable was burnout. In order to indicate the amount of variance explained in burnout by this combination of independent variables, the regression provided the $R^2$ and also indicated whether a statistically significant, predictive, linear model emerged. Thus, it was possible to determine the amount of variance in the scores derived for burnout which was explained by the combination of the independent variables organisational commitment, sense of coherence, social support, job involvement and prior exposure to trauma.
Research Question 5: What is the relative predictive strength of organisational commitment, sense of coherence, social support, prior exposure to trauma and job involvement on susceptibility to burnout?

The same procedure employed for research question three, was applicable to the fifth research question as the only difference in the information sought was that the dependent variable was burnout, as opposed to compassion fatigue. Hence, the regression analysis conducted for the fourth research question provided the information required to investigate the remaining factors embodied in research question five. The stepwise-stepwise procedure was employed to enter the independent variables into the regression equation. This was for the same reasons proposed in research question three as well as to ensure consistency between analyses, thereby allowing for the comparison of results. Hence, in keeping with the methodology previously employed, the regression coefficients derived from this regression provided the best model of fit, whereby the most predictive independent variables for burnout were selected. In addition, the relative predictive capacity of each independent variable was established via an interpretation of the partial correlations derived for the significant independent variables. Finally, the collinearity diagnostics were also interpreted for this regression equation.

The Effects of Biographical Variables

The role of the biographical variables were only investigated in the study in the following cases. Firstly, it was investigated whether these variables altered the predictive regression models which emerged as significant in the study (p. 109; 113). Secondly, where significant correlations emerged between the dependent variables and any biographical variables in the initial correlation matrix, these were discussed and included in further analyses.
However, as the only statistically significant regression models manifested in the study with reference to the third and fifth research questions, biographical corollaries were only explored for these questions. As the regression for the first research question did not emerge as significant, the impact of the biographics on this relationship was not explored. In addition, no significant correlations manifested between intention to leave and the biographical variables, thus, it was not considered appropriate to investigate this further (See p. 114 for further discussion).

**Corollary 1: Do any of the biographical variables alter the relationship between organisational commitment, sense of coherence, social support, prior exposure to trauma and job involvement on susceptibility to compassion fatigue?**

In order to determine whether any of the biographical variables were having a significant effect on the observed predictive relationship between the independent variables and compassion fatigue, a further multiple regression was conducted employing the stepwise-stepwise method. The biographical variables included were, firstly, those of interval measure which manifested significant correlations with compassion fatigue in the preliminary correlation matrix. These included, age, length of service and hours spent counselling per week. Secondly, the nominal and ordinal variables which had fairly even groupings and could render a meaningful result, were also included as numerically coded dummy variables. These included educational level and counselling duties. In addition, this regression also included only those independent variables that emerged as significant predictors of compassion fatigue from the initial regression conducted for research question three. The purpose was to establish whether the emergence and coupling of any significant biographical predictors of compassion fatigue could alter the relationship of these variables with compassion fatigue (SPSS, 1998a).
**Corollary 2:** Do any of the biographical variables alter the relationship between organisational commitment, sense of coherence, social support, prior exposure to trauma and job involvement on susceptibility to burnout?

A second regression to determine the impact of the biographical variables was conducted with burnout as the dependent variable. This regression included only the significant predictors of burnout, as derived in the preliminary regression analysis in research question five, coupled with the same biographical variables employed in corollary one. Similarly, the procedures adopted for the first corollary were adopted for the second corollary. Hence, this approach provided an indication of whether the preliminary independent variables would remain significant predictors or whether their effects would be subsumed when coupled with the biographical variables.