

## CHAPTER 5

### RESULTS

This chapter presents the results of the research, focusing on the quantitative and qualitative results. The quantitative results are described in terms of the *first* specific aim of the research, namely to empirically evaluate job and family stress amongst firefighters in the South African context. The presentation of the quantitative results commences with the confirmation of the reliability and validity of the Experience of work and life circumstances and the Stress questionnaires for this specific sample. The descriptive statistics obtained by means of the Biographical questionnaire are analysed in the form of frequency tables reflecting the extent to which the job is experienced as stressful, as well as job stress factors. The descriptive statistics are further analysed by looking at the mean scores of the Experience of work and life circumstances questionnaire and the Stress questionnaire.

A further analysis of the quantitative results is done by inferential statistics and correlation statistics in terms of the Pearson correlation coefficients of the Experience of work and life circumstances and Stress questionnaires. The analysis of the quantitative results is concluded by a discussion of the covariances between the dimensions of job stress and family stress. The qualitative results are discussed in terms of the individual interview results. The chapter is concluded with a summary of the results and chapter summary.

#### 5.1 QUANTITATIVE RESULTS

The quantitative results are discussed in terms of the confirmation of the reliability and

validity of the Experience of work and life circumstances and the Stress questionnaires for this specific sample.

### **5.1.1 Confirmation of the reliability and validity of the Experience of work and life circumstances questionnaire**

The reliability and validity of the Experience of work and life circumstances questionnaire were determined by the computation of Cronbach Alpha Coefficients and Factor analysis, as indicated in Tables 5.1 and 5.2.

#### **5.1.1.1 Reliability of the Experience of work and life circumstances questionnaire**

##### **(a) Reporting of data**

Table 5.1 indicate that Cronbach Alpha Coefficients ranging from 0.72 to 0.92 were obtained.

<b>Table 5.1</b>	
<i>Reliability of the Experience of work and life circumstances questionnaire</i>	
Subscales	Cronbach Alpha Coefficients
Stress level	0.924357
Causes arising outside the work situation	0.820724
Organisational functioning	0.788884
Task characteristics	0.720202
Physical working conditions and job equipment	0.817293
Career matters	0.766636
Social matters	0.774206
Remuneration, fringe benefits and personnel policy	0.830195

**(b) Interpretation of data**

The coefficients were acceptable for most of the subscales, except for the task characteristics subscale, which was slightly lower than acceptable. This confirms the reliability of the Experience of work and life circumstances questionnaire.

**5.1.1.2 Validity of the Experience of work and life circumstances questionnaire****(a) Reporting of data**

Table 5.2 indicates the number of factors with eigenvalues greater than one retained by the MINEIGEN criterion, as well as the cumulative percentage of the proportion for each sub-scale of the questionnaire. A Varimax rotation is also computed. Values greater than 0.4 are used as cut-off points.

Subscales	Number of factors retained by the MINEIGEN criterion	Cumulative percentage of the proportion
Stress level	11	63.14
Causes arising outside the work situation	8	62.15
Organisational functioning	2	60.24
Task characteristics	5	56.22
Physical working conditions and job equipment	1	47.81
Career matters	2	51.63
Social matters	1	42.94
Remuneration, fringe benefits and personnel policy	2	52.05

**(b) Interpretation of data**

! Eleven factors with eigenvalues greater than one are retained for the subscale: *stress level*. The proportion is explained by the cumulation of 63.14 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **26**(0.82); **29**(0.75); **15**(0.73); **12**(0.68); **8**(0.55); **21**(0.50); **38**(0.49); **17**(0.43). This factor indicates that firefighters often feel aggressive in their work, in other words they want to hurt someone or break something, become angry and lose control of their tempers.
- Factor 2: Items **30**(0.68); **39**(0.65); **24**(0.64); **23**(0.48); **22**(0.46); **40**(0.43). This factor indicates that firefighters often feel afraid in their work without knowing whether they are afraid of a particular person and /or a situation.
- Factor 3: Items **3**(0.66); **1**(0.65); **25**(0.58); **2**(0.58); **24**(0.47); **4**(0.45). This factor indicates that firefighters often feel uncertain in their work, it is as if they are up against a wall and simply cannot make any progress.
- Factor 4: Items **16**(0.65); **17**(0.56); **20**(0.51); **23**(0.51); **9**(0.46); **18**(0.44). This factor indicates that firefighters often feel that no-one wants to support them in their work and that their particular work situation compares unfavourably with others.
- Factor 5: Items **35**(0.73); **33**(0.73); **34**(0.56); **11**(0.50). This factor indicates that firefighters often feel that they do not wish to participate in anything and have no real interest in their work activities.

- Factor 6: Items **27**(0.68); **14**(0.64); **32**(0.58). This factor indicates that firefighters often feel sad in their work and are often emotionally disturbed when involved in more tragic rescue operations.
- Factor 7: Items **6**(0.74); **5**(0.71). This factor indicates that firefighters often feel that their views clash with those of others and that they experience conflict in their work situation.
- Factor 8: Items **28**(0.58); **40**(0.53); **37**(0.51); **7**(0.44). This factor indicates that firefighters often feel overloaded with too much work and too many responsibilities.
- Factor 9: Items **19**(0.78); **10**(0.51). This factor indicates that firefighters often feel that they have broken some rule or other, and that they depend too much on the help of others in their work.
- Factor 10: Item **13**(0.80). This factor indicates that firefighters feel that they too often merely accept things as they are in their work.
- Factor 11: Item **36**(0.75). This factor indicates that firefighters often feel that they are wary of colleagues and/or supervisors.

! Eight factors with eigenvalues greater than one are retained for the subscale: *causes arising outside the work situation*. The proportion is explained by the cumulation of 62.15 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **9**(0.58); **11**(0.55); **10**(0.54); **8**(0.53); **15**(0.52); **14**(0.52); **5**(0.51); **6**(0.50); **20**(0.48); **7**(0.48); **18**(0.47); **4**(0.47); **17**(0.47); **13**(0.46); **19**(0.43); **21**(0.43). This factor indicates that firefighters often feel that their everyday financial obligations and the general economic situation in the country makes life

exceptionally difficult for them. This factor further indicates that firefighters often feel that the phase of life in which they find themselves, and the family crisis that are common during this phase have an adverse effect on their lives.

- Factor 2: Items **7**(0.60); **1**(0.58); **18**(0.45); **17**(0.42). This factor indicates that firefighters employed by the Metropolitan Municipality (Emergency Services) often feel dissatisfied with working clothes, working hours, conditions of employment, communication channels with respect to grievances and complaints, rules regarding transfers, termination of employment and other regulations involving personnel matters. This factor further indicates that firefighters often feel that the Metropolitan Municipality (Emergency Services) as a whole does not function satisfactorily, owing to the poor state of the municipality, the lack of confidence in employees and ineffective leadership styles.
- Factor 3: Items **14**(0.57); **6**(0.44); **15**(0.40); **21**(0.40). This factor indicates that firefighters often feel in their everyday life that social situations with friends and relatives are difficult to handle.
- Factor 4: Items **2**(0.54); **22**(0.44). This factor indicates that firefighters in the Emergency Services often feel dissatisfied with the physical working conditions and job equipment.
- Factor 5: Items **23**(0.53); **11**(0.41). This factor indicates that firefighters often feel in their everyday life that too few recreational facilities are made available to them.
- Factor 6: Items **2**(0.51); **8**(0.45). This factor indicates that firefighters often feel in their everyday life that family stress caused by, for

example, death, illness and strife, have an adverse effect on their lives.

- Factor 7: Items **12**(0.68); **1**(0.42). This factor indicates that firefighters often feel in their everyday life that rapidly changing technology poses a problem for them.
- Factor 8: Items **16**(0.50); **5**(0.48); **20**(0.47). This factor indicates that firefighters often feel in their everyday life that the state of their health does not allow them to do what they would like to.

! Two factors with eigenvalues greater than one are retained for the subscale: *organisational functioning*. The proportion is explained by the cumulation of 60.24 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **41**(0.78); **45**(0.72); **1**(0.70); **40**(0.69); **18**(0.57). This factor indicates that firefighters in the Emergency Services often feel that management does not believe that the firefighters are hardworking and reliable.
- Factor 2: Items **21**(0.86); **52**(0.86). This factor indicates that firefighters often feel in their everyday life that their own views differ from those of other people and that they are not able to talk to their supervisors whenever they want to.

! Five factors with eigenvalues greater than one are retained for the subscale: *task characteristics*. The proportion is explained by the cumulation of 56.22 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **8**(0.72); **5**(0.64); **3**(0.57); **27**(0.57); **6**(0.41). This factor indicates that firefighters often feel irritated in their work.
- Factor 2: Items **46**(0.84); **47**(0.77); **39**(0.45). This factor indicates that firefighters in the Emergency Services often feel unable to display initiative and to become involved in different tasks.
- Factor 3: Items **19**(0.71); **20**(0.70); **17**(0.56). This factor indicates that firefighters in the Emergency Services often feel that they cannot perform their tasks without conflict, or without straining their relationships with colleagues as a result of the nature of their work.
- Factor 4: Items **28**(0.68); **27**(0.60); **42**(0.60). This factor indicates that firefighters in the Emergency Services often feel that their tasks cannot be performed without continued and intense concentration, and that they lack sufficient knowledge and the necessary information to do their work.
- Factor 5: Items **4** (0.80); **6**(0.43); **3**(0.41). This factor indicates that firefighters in the Emergency Services often feel that they cannot perform their tasks without being on their feet for long periods, lifting heavy objects, or working in a bent or crouching or otherwise uncomfortable position.

! One factor with eigenvalues greater than one is retained for the subscale: *physical working conditions and job equipment*. The proportion is explained by the cumulation of 47.81 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **23**(0.74); **22**(0.71); **37**(0.70); **34**(70); **9**(69); **29**(68); **24**(62).  
This factor indicates that firefighters in the Emergency Services often feel that the job equipment at their disposal is not sufficient and that the physical working conditions are inadequate for the type of work that they do.

! Two factors with eigenvalues greater than one are retained for the subscale: *career matters*. The proportion is explained by the cumulation of 51.63 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **26**(0.79); **33**(0.76); **51**(0.71); **11**(0.70); **10**(0.49). This factor indicates that firefighters in the Emergency Services often feel that their abilities and skills are not developed and that they are not making progress in their careers.
- Factor 2: Items **48**(0.83); **12**(0.59); **43**(0.54). This factor indicates that firefighters in the Emergency Services often feel that their posts are essential and will be retained. This factor further indicates that firefighters often feel dissatisfied with their promotion.

! One factor with eigenvalues greater than one is retained for the subscale: *social matters*. The proportion is explained by the cumulation of 42.94 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **50**(0.77); **53**(0.69); **15**(0.69); **30**(0.68); **31**(0.64); **44**(0.54); **14**(0.53). This factor indicates that firefighters in the Emergency Services often feel that they are not able to maintain good

relations with their supervisors and healthy social relationships with others.

! Two factors with eigenvalues greater than one are retained for the subscale: *remuneration, fringe benefits and personnel policy*. The proportion is explained by the cumulation of 52.05 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **49**(0.78); **16**(0.74); **35**(0.72); **2**(0.59); **36**(0.53). This factor indicates that firefighters in the Emergency Services often feel that the regulations regarding personnel matters are not satisfactory. The confirmation of the reliability and validity of the Stress questionnaire will be discussed in the following section.
- Factor 2: Items **32**(0.73); **7**(0.69); **38**(0.69); **25**(0.64); **13**(0.61); **36**(0.42). This factor indicates that firefighters in the Emergency Services often feel that their salaries are not adequate to motivate them to work hard at all times.

## SUMMARY

The Cronbach Alpha coefficients were acceptable for most of the subscales of the questionnaire, except for the task characteristics subscale, which was slightly lower than acceptable. This confirms the reliability of the Experience of work and life circumstances questionnaire. Eleven factors with eigenvalues greater than one were retained and 29 factors with eigenvalues less than one were rejected for the subscale: stress level. Eight factors with eigenvalues greater than one were retained and 15 factors with eigenvalues less than one were rejected for the subscale: causes arising outside the work situation. Two factors with eigenvalues greater than one were retained

and five factors with eigenvalues less than one were rejected for the subscale: organisational functioning. Five factors with eigenvalues greater than one were retained and nine factors with eigenvalues less than one were rejected for the subscale: task characteristics. One factor with eigenvalues greater than one was retained and six factors with eigenvalues less than one were rejected for the subscale: physical working conditions and job equipment. Two factors with eigenvalues greater than one were retained and six factors with eigenvalues less than one were rejected for the subscale: career matters. One factor with eigenvalues greater than one was retained and six factors with eigenvalues less than one were rejected for the subscale: social matters. Two factors with eigenvalues greater than one were retained and eight factors with eigenvalues less than one were rejected for the subscale: remuneration, fringe benefits and personnel policy. This confirms the validity of the subscales of the Experience of work and life circumstances questionnaire.

### **5.1.2 Confirmation of the reliability and validity of the Stress questionnaire**

The reliability and validity of the Stress questionnaire were determined by the computation of Cronbach Alpha Coefficients and Factor analysis, as indicated in Tables 5.3 and 5.4.

#### **5.1.2.1 Reliability of the Stress questionnaire**

##### **(a) Reporting of data**

Table 5.3 indicates that Alpha Coefficients ranging from 0.73 to 0.86 were obtained.

**Table 5.3**  
*Reliability of the Stress questionnaire*

Subscales	Cronbach Alpha Coefficients
Somatic	0.865142
Obsessive-compulsive	0.758909
Interpersonal sensitivity	0.786079
Depression	0.850323
Anxiety	0.737700

**(b) Interpretation of data**

The coefficients were acceptable for most of the subscales, with the exception of the anxiety subscale, which was slightly lower than acceptable. This confirms the reliability of the Stress questionnaire.

**5.1.2.2 Validity of the Stress questionnaire**

**(a) Reporting of data**

Table 5.4 indicates the number of factors with eigenvalues greater than one retained by the MINEIGEN criterion, as well as the cumulative percentage of the proportion for each subscale of the questionnaire. A Varimax rotation is also computed. Values greater than 0.4 are used as cut-off points.

**Table 5.4***Validity of the Stress questionnaire*

Subscales	Number of factors retained by the MINEIGEN criterion	Cumulative percentage of the proportion
Somatic	2	54.64
Obsessive-compulsive	2	54.91
Interpersonal sensitivity	2	63.13
Depression	2	50.45
Anxiety	2	53.73

**(b) Interpretation of data**

! Two factors with eigenvalues greater than one are retained for the subscale: *somatic*. The proportion is explained by the cumulation of 54.64 percent, which confirms the validity of this sub-scale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **39**(0.81); **43**(0.80); **45**(0.77); **40**(0.72); **32**(0.64); **36**(0.62); **19**(0.52). This factor indicates that firefighters often experience a numbness and weakness in certain parts of their bodies.
- Factor 2: Items **1**(0.75); **3**(0.66); **10**(0.66); **19**(0.53); **9**(0.48); **32**(0.44). This factor indicates that firefighters often experience headaches and dizziness.

! Two factors with eigenvalues greater than one are retained for the subscale: *obsessive-compulsive*. The proportion is explained by the cumulation of 54.91

percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **42**(0.82); **6**(0.79); **38**(0.76); **34**(0.65); **20**(0.59). This factor indicates that firefighters often struggle to concentrate on their work and find it difficult to remember things.
- Factor 2: Items **29**(0.80); **33**(0.79); **7**(0.59). This factor indicates that firefighters often experience that they are forced to do things slowly to ensure that they are correctly done. This factor further indicates that they must frequently check and re-check what they are doing.

! Two factors with eigenvalues greater than one are retained for the subscale: *interpersonal sensitivity*. The proportion is explained by the cumulation of 63.13 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1 Items **28**(0.79); **27**(0.76); **26**(0.75); **31**(0.74). This factor indicates that firefighters often experience that people are unfriendly or do not like them. It further indicates that they often feel that people do not understand them, or tend to be unsympathetic.
- Factor 2 Items **8**(0.86); **5**(0.79); **17**(0.74). This factor indicates that firefighters often feel easily agitated and critical towards other people.

! Two factors with eigenvalues greater than one are retained for the subscale: *depression*. The proportion is explained by the cumulation of 50.45 percent,

which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items: **41**(0.71); **18**(0.71); **21**(0.68); **13**(0.63); **23**(0.62); **24**(0.53); **22**(0.48); **15**(0.42); **4**(0.42). This factor indicates that firefighters often feel desperate about the future and that they blame themselves for things. This factor further indicates that they often feel lonely and that they are worried about things.
- Factor 2: Items **14**(0.85); **22**(0.63); **15**(0.55); **11**(0.54); **4**(0.45); **24**(0.43). This factor indicates that firefighters often feel despondent and cry easily.

! Two factors with eigenvalues greater than one are retained for the subscale: *anxiety*. The proportion is explained by the cumulation of 53.73 percent, which confirms the validity of this subscale of the questionnaire. The following factor structures are identified:

- Factor 1: Items **2**(0.80); **12**(0.80); **16**(0.66); **30**(0.47). This factor indicates that firefighters often feel nervous and that they are afraid without any reason.
- Factor 2: Items **37**(0.80); **44**(0.65); **25**(0.56); **30**(0.47). This factor indicates that firefighters often avoid certain places or activities because it make them afraid and they often feel tense or ready for action.

## SUMMARY

The Cronbach Alpha coefficients were acceptable for most of the subscales of the

questionnaire, with the exception of the anxiety subscale, which was slightly lower than acceptable. This confirms the reliability of the Stress questionnaire. Two factors with eigenvalues greater than one were retained and nine factors with eigenvalues less than one were rejected for the subscale: somatic. Two factors with eigenvalues greater than one were retained and six factors with eigenvalues less than one were rejected for the subscale: obsessive-compulsive. Two factors with eigenvalues greater than one were retained five factors with eigenvalues less than one were rejected for the subscale: interpersonal sensitivity. Two factors with eigenvalues greater than one were retained and nine factors with eigenvalues less than one were rejected for the subscale: depression. Two factors with eigenvalues greater than one were retained and five factors with eigenvalues less than one were rejected for the subscale: anxiety. This confirms the validity of the subscales of the Stress questionnaire.

The descriptive statistics will now be critically analysed.

### **5.1.3 Descriptive statistics**

The descriptive statistics of the Biographical questionnaire are analysed in terms of frequencies, and the Experience of work and life circumstances and the Stress questionnaires are analysed in terms of means.

#### **5.1.3.1 Experience of job stress**

##### **(a) Reporting of data**

Table 5.5 provides a description of the responses of the firefighters with regard to the following question asked in the Biographical questionnaire: *Are you subjected to extraordinary stressful situations due to the nature of your work?* The respondents

answered by indicating 'YES' or 'NO'.

**Table 5.5**  
*Experience of job stress*

Experience of job stress	Frequency	Percentage	Cumulative frequency	Cumulative percentage
Yes	150	67.87	150	67.87
No	71	32.13	221	100.00

**(b) Interpretation of data**

The above results show that the majority of firefighters indicated that they are subjected to extraordinary stressful situations due to the nature of their work. A frequency of 20 was not indicated. Similar literature findings were experienced. Firefighters and police officers tend to perceive the whole world as being full of trauma, because they always deal with the traumatic side of life (Peltzer, 2001). This cognitive perception leads to the exaggerated generalisation that trauma is just as much part of their leisure activities as it is of their time at work (Aterburn, 2001). The continuous expectation of threatening trauma penetrates the interpersonal life of the firefighter and influences relationships with significant others. This often causes firefighters to be overprotective their families, which contributes to family stress (Lemanski & Samuels, 2003; Regehr, Johanis, Dimitropoulos, Bartram & Hope, 2003).

**5.1.3.2 Job stress factors**

**(a) Reporting of data**

Table 5.6 provides an analysis of the responses of the firefighters with regard to the second part of the question in section 5.1.3.1 of the Biographical questionnaire,

namely: *If YES, motivate your answer.* Their motivations are categorised as follows:

**Table 5.6**  
*Job stress factors*

Job stress factors	Frequency	Percentage	Cumulative frequency	Cumulative percentage
Causes outside the work situation	7	5.51	7	5.51
Organisational functioning	17	13.39	24	18.90
Task characteristics	23	18.11	47	37.01
Physical working conditions and job equipment	70	55.12	117	92.13
Career matters	3	2.36	120	94.49
Social matters	2	1.57	122	96.06
Remuneration, fringe benefits and personnel policy	5	3.94	127	100

## (b) Interpretation of data

The above results indicate that the physical working conditions and job equipment are considered by the firefighters as the main causes of extraordinary stressful situations. Social matters are considered by the firefighters as the lowest contributors to extraordinarily stressful situations. A frequency of 42 was not indicated and 71 firefighters reported that they experience no job stress as indicated in Table 5.5. Confirming research has been conducted to link the working conditions in a specific position to the physical and mental well-being of the incumbent (Sutherland and Cooper, 1990). Research findings have indicated that poor mental health can be linked to unpleasant working conditions, which include having to work very fast, the rendering of many physical outputs, and extreme working hours (Pike, 2003).

### 5.1.3.3 Mean scores for the Experience of work and life circumstances questionnaire

#### (a) Reporting of data

Table 5.7 illustrate the mean scores of the variables of the Experience of work and life circumstances questionnaire.

**Table 5.7**

*Mean scores of the Experience of work and life circumstances questionnaire*

Variable	N	Mean	Standard deviation	Sum	Minimum	Maximum
Level	232	83.09914	21.36396	19279	42.00000	158.00000
COW	232	53.42672	12.18486	12395	26.00000	86.00000
Field 1	232	16.97414	6.67873	3938	2.00000	34
Field 2	232	44.93966	8.36897	10426	14.00000	66
Field 3	232	18.13793	7.05746	4208	3.00000	34.00000
Field 4	232	22.43966	6.64080	5206	6.00000	38

Field 5	232	23.02155	5.90285	5341	6.00000	34
Field 6	232	24.65948	7.98269	5721	3.00000	50
CIW	232	150.17241	32.819	34840	51	245
Stress total 1	232	286.69828	34.77378	66514	127.00000	400

*Note.*

Level	=	Stress level
COW	=	Causes arising outside the work situation
Field 1	=	Organisational functioning
Field 2	=	Task characteristics
Field 3	=	Physical working conditions and job equipment
Field 4	=	Career matters
Field 5	=	Social matters
Field 6	=	Remuneration, fringe benefits and personnel policy
CIW	=	Causes originating within the work situation
Stress total 1	=	Stress total for the Experience of work and life circumstances questionnaire

**(b) Interpretation of data**

The mean score of 53.42 of the variable COW (causes arising outside the work situation) indicates that the firefighters experienced family stress. A standard deviation of 12.18 was obtained. Similar literature findings were experienced in terms of marital dysfunction and divorce, limited time with family, problems with children, and lifestyle factors such as the abuse of alcohol, excessive smoking and lack of exercise (Roberts & Levenson, 2001). Further issues include the long shifts, which interfere with their sex lives, loss of friends (not firefighters), suicide of colleagues or family members, lower social status, anger and frustration at home or in the family, emotional, intellectual and physical exhaustion, wives being alone at night and not being available to help the family when needed (He, Zhao & Archbold, 2002; Shakespeare-Finch et al, 2002).

The mean score of 44.93 and the standard deviation of 8.36 of the Field 2 variable indicates that firefighters experienced task characteristics as the main cause of stress originating within the work situation. The mean scores for the Field 1 and Field 3

variables were 16.97 and 18.13 respectively and the corresponding standard deviations were 6.67 and 7.05. It can be concluded that organisational functioning and physical working conditions and job equipment caused the least stress for firefighters within the work situation. The mean scores of 22.43, 23.02 and 24.65 for the Field 4, Field 5 and Field 6 variables indicate that firefighters experience career and social matters as well as remuneration, fringe benefits and personnel policy as moderate causes of stress originating within the work situation. Standard deviations of 6.64, 5.90 and 7.98 were obtained. Confirming literature findings were experienced. Task characteristics that causes stress are accountability for decisions taken under pressure, death of people, terrible sensory experiences, serious fires in which people are trapped, accidents in which many people are injured, the danger of injuries to and illness of firefighters, and slow response time. Firefighters witness how people are injured because of accidents or physical violence, or even die as a result thereof. The perception amongst firefighters might exist that they and other people are very vulnerable (Waters, 2002).

#### **5.1.3.4 Mean scores for the Stress questionnaire**

**(a) Reporting of data**

Table 5.8 illustrate the mean scores of the variables of the Stress questionnaire.

<b>Table 5.8</b>						
<i>Mean scores of the Stress questionnaire</i>						
Variable	N	Mean	Standard deviation	Sum	Minimum	Maximum
Mean SQ 1	232	1.74916	0.54844	405.80534	1	3.5
Mean SQ 2	232	2.00659	0.5398	465.52976	1	3.375
Mean SQ 3	232	1.95072	0.54684	452.56667	1	3.71429
Mean SQ 4	232	1.82786	0.53285	424.06277	1	4
Mean SQ 5	232	1.88397	0.52229	437.08095	1	3.33333
Stress total 2	232	296.11658	35.49318	68699	132.09091	415.40747

*Note.*

Mean SQ 1	=	Mean of somatic component of Stress questionnaire
Mean SQ 2	=	Mean of obsessive-compulsive component of Stress questionnaire
Mean SQ 3	=	Mean of interpersonal sensitivity component of Stress questionnaire
Mean SQ 4	=	Mean of depression component of Stress questionnaire
Mean SQ 5	=	Mean of anxiety component of Stress questionnaire
Stress total 2	=	Stress total for the Stress questionnaire

**(b) Interpretation of data**

Table 5.8 indicates that the highest mean score of 2.00 was obtained for the variable SQ2, with a standard deviation of 0.53. The lowest mean score of 1.74 was obtained for the variable SQ 1, with a standard deviation of 0.54. The behaviour of the firefighters was depicted as mostly obsessive-compulsive and, to a lesser extent somatic. The mean scores of 1.95, 1.82 and 1.88 were obtained for the variables SQ3, SQ4 and SQ5, and the standard deviations were 0.54, 0.53 and 0.52 respectively. Interpersonal sensitivity, depression and anxiety were experienced by the firefighters at almost equal levels. Similar literature findings were experienced. For example, firefighters may think that their bodies remain dirty after working with protective clothing despite repeated

washing. Furthermore, firefighters may recheck that they did check the firefighting equipment (Garcia, 2003; Phebe, Pfefferbaum, Nixon & Dickson, 2000; Young, 2001).

The inferential statistics will be discussed in the following section.

#### **5.1.4 Inferential statistics**

The variables of the Biographical questionnaire and the Experience of work and life circumstances questionnaire are analysed in terms of ANOVA calculations, as indicated in Tables 5.9 - 5.28. According to the first hypothesis there are no significant correlations between the biographical characteristics (*inter alia*: age, gender, marital status, job experience, qualifications) and the experiencing of work and life stress (*inter alia*: causes arising outside the work situation, organisational functioning, task characteristics, physical working conditions and job equipment, career and social matters, and remuneration, fringe benefits and personnel policy).

##### **5.1.4.1 Stress level: age**

###### **(a) Reporting of data**

The variables that are scrutinised in Table 5.9 are the levels of stress that the firefighters experience in their job, and their age.

Age	N	Mean	Standard deviation	Pr > F
18 - 25	32	81.1875	19.929614	0.0598
26 - 30	56	86.2321429	24.3228221	
31 - 40	119	83.1932773	21.0561305	
41 - 54	27	73.037037	12.5467786	

**(b) Interpretation of data**

A mean score of 86.23 indicates that the firefighters in the age category of 26 - 30 years experience more job stress than those in the other age categories. A standard deviation of 24.32 was obtained. A *P*-value of 0.0598 indicates a significant relation between the level of job stress experienced and age of firefighters.

**5.1.4.2 Causes arising outside the work situation: age**

**(a) Reporting of data**

The variables that are scrutinised in Table 5.10 are the causes of stress arising outside the work situation and the age of the firefighters.

Age	N	Mean	Standard deviation	Pr > F
18 - 25	32	52.59375	14.3141243	0.1378
26 - 30	56	53.9107143	11.4531088	
31 - 40	119	53.7310924	11.9842393	
41 - 54	27	47.8518519	12.0406482	

**(b) Interpretation of data**

A mean score of 53.91 indicates that the firefighters in the age category of 26 - 30 years obtained a somewhat higher score than those in other categories on family stress due to causes arising outside the work situation. A standard deviation of 11.45 was obtained. However, a *P*-value of 0.1378 indicates an insignificant relation between the causes arising outside the work situation and the ages of firefighters.

**5.1.4.3 Causes originating within the work situation: age****(a) Reporting of data**

The variables that are scrutinised in Table 5.11 are the causes originating within the work situation and the age of the firefighters.

Age	N	Mean	Standard deviation	Pr > F
18 - 25	30	149.933333	31.191216	0.1648
26 - 30	53	143.396226	37.3545073	
31 - 40	117	151.384615	32.0328081	
41 - 54	27	160.62963	28.1153505	

**(b) Interpretation of data**

A mean score of 160.62 indicates that the firefighters in the age category of 41 - 54 years obtained a somewhat higher score than the firefighters in the other age categories

on job stress due to causes originating within the work situation. A standard deviation of 28.11 was obtained. However, a *P*-value of 0.1648 indicates an insignificant relation between the causes originating within the work situation and the ages of firefighters.

#### 5.1.4.4 Stress total: age

##### (a) Reporting of data

The variables that are scrutinised in Table 5.12 are the stress totals for all the variables of the Experience of work and life circumstances questionnaire and the ages of the firefighters.

Age	N	Mean	Standard deviation	Pr > F
18 - 25	30	286.5	25.4527961	0.7601
26 - 30	53	284.849057	40.356296	
31 - 40	117	288.846154	35.6918361	
41 - 54	27	281.518519	30.5014128	

##### (b) Interpretation of data

A mean score of 288.84 indicates that the firefighters in the age category of 31 - 40 years obtained a somewhat higher score on job stress. A standard deviation of 35.69 was obtained. However, a *P*-value of 0.7601 indicates an insignificant relation between job stress and the ages of firefighters.

#### 5.1.4.5 Stress level: gender

**(a) Reporting of data**

The variables that are scrutinised in Table 5.13 are the levels of stress that firefighters experience in their job and their gender.

Gender	N	Mean	Standard deviation	Pr > F
Male	224	82.7232143	21.3349163	0.7495
Female	11	80.6363636	16.0079526	

**(b) Interpretation of data**

The above information indicates that the male firefighters (mean score of 82.72) obtained a somewhat higher score on job stress than the female firefighters (mean score of 80.63). Standard deviations were 21.33 and 16.00 respectively. However, a *P*-value of 0.7495 indicates an insignificant relation between job stress and the gender of firefighters.

**5.1.4.6 Causes arising outside the work situation: gender****(a) Reporting of data**

The variables that are scrutinised in Table 5.14 are the causes arising outside the work situation and the gender of the firefighters.

Gender	N	Mean	Standard deviation	Pr > F
Male	224	53.0535714	12.2242421	0.7105

Gender	N	Mean	Standard deviation	Pr > F
Female	11	51.6363636	14.8342356	

**(b) Interpretation of data**

The above information shows that the male firefighters (mean score of 53.05) obtained a somewhat higher score than the female firefighters (mean score of 51.63) on family stress due to causes arising outside the work situation. The standard deviations obtained were 12.22 and 14.83 respectively. However, a *P*-value of 0.7105 indicates an insignificant relation between the causes arising outside the work situation and the gender of firefighters.

**5.1.4.7 Causes originating within the work situation: gender**

**(a) Reporting of data**

The variables that are scrutinised in Table 5.15 are the causes originating within the work situation and the gender of the firefighters.

**Table 5.15**  
*Causes originating within the work situation*

Gender	N	Mean	Standard deviation	Pr > F
Male	218	150.559633	31.9115804	0.4651
Female	10	142.9	41.9641381	

**(b) Interpretation of data**

According to the above information, male firefighters (mean score of 150.55) obtained

a somewhat higher score than the female firefighters (mean score of 142.90) on job stress due to causes originating within the work situation. The standard deviations obtained were 31.91 and 41.96 respectively. However, a *P*-value of 0.4651 indicates an insignificant relation between the causes originating within the work situation and the gender of firefighters.

#### 5.1.4.8 Stress total: gender

##### (a) Reporting of data

The variables that are scrutinised in Table 5.16 are the stress totals for all the variables of the Experience of work and life circumstances questionnaire and the gender of the firefighters.

Gender	N	Mean	Standard deviation	Pr > F
Male	218	287.082569	35.0144482	0.4747
Female	10	279	32.0173564	

##### (b) Interpretation of data

The above information indicates that the male firefighters (mean score of 287.08) obtained a somewhat higher score on job stress than the female firefighters (mean score of 279.00). Standard deviations obtained were of 35.01 and 32.01 respectively. However, a *P*-value of 0.4747 indicates an insignificant relation between job stress and the gender of firefighters.

#### 5.1.4.9 Stress level: marital status

##### (a) Reporting of data

The variables scrutinised in Table 5.17 relate to the levels of job stress experienced by firefighters, and to their marital status.

Marital status	N	Mean	Standard deviation	Pr > F
Married	152	84.9802632	21.7601222	0.0293
Unmarried	63	78.5555556	18.9692262	
Divorced	20	74.65	20.4071066	

##### (b) Interpretation of data

A mean score of 84.98 indicates that the married firefighters experience more job stress than those in the other categories. A standard deviation of 21.76 was obtained. A *P*-value of 0.0293 indicates a significant relation between job stress and the marital status of firefighters.

#### 5.1.4.10 Causes arising outside the work situation: marital status

##### (a) Reporting of data

The variables that are scrutinised in Table 5.18 are the causes arising outside the work situation and the marital status of the firefighters.

**Table 5.18**  
*Causes arising outside the work situation*

Marital status	N	Mean	Standard deviation	Pr > F
Married	152	54.7302632	12.3449163	0.0039
Unmarried	63	50.3650794	11.3483004	
Divorced	20	46.8	12.2971969	

**(b) Interpretation of data**

A mean score of 54.73 indicates that the married firefighters experience more family stress due to causes arising outside the work situation than the firefighters in other categories. A standard deviation of 12.34 was obtained. A *P*-value of 0.0039 indicates a significant relation between family stress and the marital status of firefighters.

**5.1.4.11 Causes originating within the work situation: marital status**

**(a) Reporting of data**

The variables that are scrutinised in Table 5.19 are the causes originating within the work situation and the marital status of the firefighters.

**Table 5.19**  
*Causes originating within the work situation*

Marital status	N	Mean	Standard deviation	Pr > F
Married	149	149.456376	31.7820881	0.3289

Marital status	N	Mean	Standard deviation	Pr > F
Unmarried	59	156.050847	33.5396953	
Divorced	20	145.8	37.2764918	

**(b) Interpretation of data**

A mean score of 156.05 indicates that the unmarried firefighters obtained a somewhat higher score on job stress due to causes originating within the work situation than the firefighters in the other categories. A standard deviation of 33.53 was obtained. However, a *P*-value of 0.3289 indicates an insignificant relation between the marital status of firefighters and causes originating within the work situation.

**5.1.4.12 Stress total: marital status**

**(a) Reporting of data**

The variables that are scrutinised in Table 5.20 are the stress total for all the variables of the Experience of work and life circumstances questionnaire and the marital status of the firefighters.

**Table 5.20**  
*Stress total*

Marital status	N	Mean	Standard deviation	Pr > F
Married	149	289.516779	34.1165736	0.0278
Unmarried	59	287.288136	32.044716	
Divorced	20	267.25	45.0483658	

**(b) Interpretation of data**

A mean score of 289.51 indicates that the married firefighters experience more job stress than those in the other categories. A standard deviation of 34.11 was obtained. A *P*-value of 0.0278 indicates a significant relation between job stress and the marital status of firefighters.

#### 5.1.4.13 Stress level: years' experience in occupation

##### (a) Reporting of data

The variables that are scrutinised in Table 5.21 are the levels of job stress experienced by firefighters and their years of experience in the occupation.

Years experience in occupation	N	Mean	Standard deviation	Pr > F
Less than 2 years	30	74.6666667	17.1973	0.1575
2 - 5 years	34	84.4705882	21.6476401	
6 - 10 years	36	84.3055556	18.7963818	
More than 10 years	131	83.8473282	22.0525503	

##### (b) Interpretation of data

The above information indicates that the firefighters with 2 - 10 years' experience in their occupation (mean scores of 84.47 and 84.30), obtained a somewhat higher score on job stress than the firefighters in the other categories. Standard deviations of 21.64 and 18.79 were obtained respectively. However, a *P*-value of 0.1575 indicates an

insignificant relation between job stress and the years' experience in this occupation.

#### 5.1.4.14 Causes arising outside the work situation: years' experience in occupation

##### (a) Reporting of data

The variables that are scrutinised in Table 5.22 are the causes arising outside the work situation and the years' experience in the firefighting occupation.

Years experience in occupation	N	Mean	Standard deviation	Pr > F
Less than 2 years	30	49.5333333	12.8082229	0.1189
2 - 5 years	34	56.0588235	12.9543281	
6 - 10 years	36	51.0555556	9.2518552	
More than 10 years	131	53.8625954	12.8289117	

##### (b) Interpretation of data

The above information indicates that the firefighters with 2 - 5 years experience in their occupation (mean score of 56.05) obtained a somewhat higher score on family stress due to causes arising outside the work situation than those in the other categories. A standard deviation of 12.95 was obtained. However, a *P*-value of 0.1189 indicates an insignificant relation between the causes arising outside the work situation and the years' experience in the firefighting occupation.

#### 5.1.4.15 Causes originating within the work situation: years' experience in occupation

**(a) Reporting of data**

The variables that are scrutinised in Table 5.23 are the causes originating within the work situation and the years' experience in the firefighting occupation.

Years experience in occupation	N	Mean	Standard deviation	Pr > F
Less than 2 years	26	164.884615	33.8329152	0.0427
2 - 5 years	33	155.242424	30.642118	
6 - 10 years	36	144.916667	36.7807209	
More than 10 years	129	146.96124	31.4859599	

**(b) Interpretation of data**

The above information indicates that the firefighters with less than 2 years experience in their occupation (mean score of 164.88) experience more job stress due to causes originating within the work situation than the firefighters in the other categories. A standard deviation of 33.83 was obtained. A *P*-value of 0.0427 indicates a significant relation between the causes originating within the work situation and the years' experience in the firefighting occupation.

**5.1.4.16 Stress total: years' experience in occupation****(a) Reporting of data**

The variables that are scrutinised in Table 5.24 are the stress totals for all the variables of the Experience of work and life circumstances questionnaire and the years'

experience in the firefighting occupation.

Years experience in occupation	N	Mean	Standard deviation	Pr > F
Less than 2 years	26	293.615385	24.7193478	0.2024
2 - 5 years	33	295.30303	27.094147	
6 - 10 years	36	280.277778	35.0392524	
More than 10 years	129	285.170543	37.1670898	

**(b) Interpretation of data**

The above information indicates that the firefighters with 2 - 5 years' experience in their occupation (mean score of 295.30) obtained a somewhat higher score on job stress than those in the other categories. A standard deviation of 27.09 was obtained. However, a *P*-value of 0.2024 indicates an insignificant relation between job stress and the years' experience in the firefighting occupation.

**5.1.4.17 Stress level: qualifications**

**(a) Reporting of data**

The variables that are scrutinised in Table 5.25 are the levels of stress experienced by firefighters in their job, as well as their qualifications.

**Table 5.25***Stress level*

Qualifications	N	Mean	Standard deviation	Pr > F
Grade 10 - 11	41	84.2926829	23.1011297	0.7834
Grade 12 + 1- 2 years	101	81.5247525	21.471653	
Grade 12 + 3 years	81	82.2716049	20.3715564	

**(b) Interpretation of data**

A mean score of 84.29 indicates that the firefighters in the category Grade 10 - 11 obtained a somewhat higher score on job stress than those in the other age categories. A standard deviation of 23.10 was obtained. However, a *P*-value of 0.7834 indicates an insignificant relation between the job stress and qualifications of firefighters.

**5.1.4.18 Causes arising outside the work situation: qualifications****(a) Reporting of data**

The variables that are scrutinised in Table 5.26 are the causes of stress arising outside the work situation, and the qualifications of the firefighters.

**Table 5.26***Causes arising outside the work situation*

Qualifications	N	Mean	Standard deviation	Pr > F
Grade 10 - 11	41	54.9268293	13.3367729	0.2313
Grade 12 + 1- 2 years	101	51.3960396	12.2279019	
Grade 12 + 3 years	81	53.6790123	11.8372581	

**(b) Interpretation of data**

The mean score of 54.92 indicates that the firefighters in the category Grade 10 - 11 obtained a somewhat higher score on family stress due to causes arising outside the work situation than those in the other age categories. A standard deviation of 13.33 was obtained. However, a *P*-value of 0.2313 indicates an insignificant relation between the causes arising outside the work situation and qualifications of firefighters.

**5.1.4.19 Causes originating within the work situation: qualifications****(a) Reporting of data**

The variables that are scrutinised in Table 5.27 are the causes originating within the work situation and the qualifications of the firefighters.

Qualifications	N	Mean	Standard deviation	Pr > F
Grade 10 - 11	41	155.536585	30.8018648	0.1925
Grade 12 + 1- 2 years	97	152.247423	34.6268895	
Grade 12 + 3 years	79	145.21519	30.9452249	

**(b) Interpretation of data**

The mean score of 155.53 indicates that the firefighters in the category Grade 10 - 11 obtained a somewhat higher score on family stress due to causes originating within the

work situation than those in the other age categories. A standard deviation of 30.80 was obtained. However, a *P*-value of 0.1925 indicates an insignificant relation between the causes originating within the work situation and qualifications of firefighters.

#### 5.1.4.20 Stress total: qualifications

##### (a) Reporting of data

The variables that are scrutinised in Table 5.28 are the stress totals for all the variables of the Experience of work and life circumstances questionnaire and the qualifications of the firefighters.

Qualifications	N	Mean	Standard deviation	Pr > F
Grade 10 - 11	41	294.756098	36.609958	0.1334
Grade 12 + 1- 2 years	97	286.773196	35.0902127	
Grade 12 + 3 years	79	281.189873	34.3582469	

##### (b) Interpretation of data

The mean score of 294.75 indicates that the firefighters in the category Grade 10 - 11 obtained a somewhat higher score on job stress than the firefighters in the other age categories. A standard deviation of 36.60 was obtained. However, a *P*-value of 0.1334 indicates an insignificant relation between the job stress and qualifications of firefighters.

The first hypothesis is confirmed namely that there are certain significant correlations

between the biographical characteristics (*inter alia*: age, gender, marital status, job experience, qualifications) and the extent to which work and life stress is experienced (*inter alia*: causes arising outside the work situation, organisational functioning, task characteristics, physical working conditions and job equipment, career and social matters, and remuneration, fringe benefits and personnel policy).

The correlation statistics are analysed in the following section.

### **5.1.5 Correlation statistics**

The Pearson correlation coefficients of the Experience of work and life circumstances questionnaire and the Stress questionnaire are analysed in terms of the results as depicted in Tables 5.29 - 5.31.

#### **5.1.5.1 Pearson correlation coefficients of the Experience of work and life circumstances questionnaire**

Tables 5.29 provides the correlation matrix of the subscales of the Experience of work and life circumstances questionnaire. The second hypothesis stated is that there is no correlation between the subscales of the experience of work and life circumstances questionnaire (*inter alia*: causes arising outside the work situation, organisational functioning, task characteristics, physical working conditions and job equipment, career and social matters, and remuneration, fringe benefits and personnel policy).

**(a) Reporting of data****Table 5.29**

*Pearson Correlation Coefficients of the Experience of work and life circumstances questionnaire*  
*Prob > |r| under H<sub>0</sub>: Rho=0*

	Level	COW	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	CIW	Stresstotal 1
Level	1.00000 <.0001	0.67321 <.0001	-0.32720 <.0001	-0.16350 0.0126	-0.29275 <.0001	-0.28344 <.0001	-0.43564 <.0001	-0.23219 0.0004	-0.36341 <.0001	0.50728 <.0001
COW	0.67321 <.0001	1.00000	-0.37276 <.0001	-0.14039 0.0326	-0.35393 <.0001	-0.28769 <.0001	-0.40140 <.0001	-0.30417 <.0001	-0.39216 <.0001	0.39389 <.0001
Field 1	-0.32720 <.0001	-0.37276 <.0001	1.00000	0.41503 <.0001	0.63673 <.0001	0.74186 <.0001	0.62416 <.0001	0.66809 <.0001	0.87114 <.0001	0.49053 <.0001
Field 2	-0.16350 0.0126	-0.14039 0.0326	0.41503 <.0001	1.00000	0.34440 <.0001	0.49362 <.0001	0.55508 <.0001	0.25940 <.0001	0.67634 <.0001	0.48868 <.0001
Field 3	-0.29275 <.0001	-0.35393 <.0001	0.63673 <.0001	0.34440 <.0001	1.00000	0.49508 <.0001	0.43211 <.0001	0.55025 <.0001	0.74418 <.0001	0.39847 <.0001
Field 4	-0.28344 <.0001	-0.28769 <.0001	0.74186 <.0001	0.49362 <.0001	0.49508 <.0001	1.00000	0.57070 <.0001	0.61432 <.0001	0.83773 <.0001	0.51569 <.0001
Field 5	-0.43564 <.0001	-0.40140 <.0001	0.62416 <.0001	0.55508 <.0001	0.43211 <.0001	0.57070 <.0001	1.00000	0.40273 <.0001	0.75479 <.0001	0.30406 <.0001
Field 6	-0.23219 0.0004	-0.30417 <.0001	0.66809 <.0001	0.25940 <.0001	0.55025 <.0001	0.61432 <.0001	0.40273 <.0001	1.00000	0.76041 <.0001	0.46843 <.0001
CIW	-0.36341 <.0001	-0.39216 <.0001	0.87114 <.0001	0.67634 <.0001	0.74418 <.0001	0.83773 <.0001	0.75479 <.0001	0.76041 <.0001	1.00000	0.58310 <.0001
Stress total 1	0.50728 <.0001	0.39389 <.0001	0.49053 <.0001	0.48868 <.0001	0.39847 <.0001	0.51569 <.0001	0.30406 <.0001	0.46843 <.0001	0.58310 <.0001	1.00000

*Note.*

Level	=	Stress level
COW	=	Causes arising outside the work situation
Field 1	=	Organisational functioning
Field 2	=	Task characteristics
Field 3	=	Physical working conditions and job equipment
Field 4	=	Career matters
Field 5	=	Social matters
Field 6	=	Remuneration, fringe benefits and personnel policy
CIW	=	Causes originating within the work situation
Stress total 1	=	Stress total for the Experience of work and life circumstances questionnaire

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### (b) Interpretation of data

The following significant Pearson Correlation Coefficients of the Experience of work and life circumstances questionnaire are depicted in Table 5.29:

- The results ( $P$ -value of 0.74186) indicate that there is a positive correlation between career matters and organisational functioning, which implies that firefighters consider their upward mobility in their careers in relation to their functions in the emergency services (fire service). Similar literature findings were experienced. Insufficient training can lead to unnecessary mistakes and incorrect decisions (Beaton et al, 2001).
- The results ( $P$ -value of 0.87114) indicate that there is a positive correlation between the causes of stress originating within the work situation and organisational functioning, which implies that the latter contributes to the job stress experienced by firefighters. Confirming literature findings were experienced. Organisational stressors include poor administrative support, lack of leadership skills, policy and procedures, job schedules, excessive paperwork and red tape, delegation of functions, evaluation system and measurement of effectivity, responsibility versus authority, continuous focus on problems, and a lack of positive feedback (Beaton et al, 2001).

- The results ( $P$ -value of 0.74418) indicate that there is a positive correlation between the causes of stress originating within the work situation and physical working conditions and equipment, which implies that the latter contributes to the job stress experienced by firefighters. Similar literature findings were experienced. Having to work with insufficient equipment due to the economic climate in South Africa, may also cause job stress. Firefighters at a certain fire station on the East Rand indicated that they were afraid to respond to an emergency call using some of their ambulances, because some of the equipment was no longer in a working condition (Du Toit & Botes, 1996).
- The results ( $P$ -value of 0.83773) indicate that there is a positive correlation between the causes of stress originating within the work situation and career matters, which implies that firefighters feel that they lack sufficient opportunities for career promotion and development. Confirming literature findings were experienced. Career matters are characterised by limited career and promotion opportunities, insufficient training, and failure to optimally utilise the abilities and potential of firefighters (Beaton et al, 2001).
- The results ( $P$ -value of 0.75479) indicate that there is a positive correlation between the causes of stress originating within the work situation and social matters, which implies that relationships between firefighters and their colleagues, supervisors and management are stressful. Similar literature findings were experienced. Prolonged periods spent in the company of the same group of colleagues may cause irritability with each other (Seedat et al, 2003). Firefighters therefore need to make sure that they interact and link with people outside the work context and build on effective support structures (Pike, 2003).

- The results ( $P$ -value of 0.76041) indicate that there is a positive correlation between the causes of stress originating within the work situation and remuneration, fringe benefits and personnel policy, which implies that firefighters feel that their salaries are poor and their fringe benefits are inadequate, and that different personnel policies are applicable in different areas of the metropolitan municipality. Confirming literature findings were experienced. Most firefighters identities are associated with the type of work they do and if a firefighters work is considered by significant other as inferior, it effect the firefighters self-image (Pike, 2003). Differences exist with regard to salary structures, fringe benefits and personnel policy (Fontana, 1994).

### 5.1.5.2 Pearson correlation coefficients the Stress questionnaire

Tables 5.30 provides the correlation matrix of the subscales of the Stress questionnaire. The third hypothesis stated is that there is no correlation between the subscales of the Stress questionnaire (*inter alia*: somatication, obsessive-compulsive behaviour, interpersonal sensitivity, depression and anxiety).

#### (a) Reporting of data

**Table 5.30**  
*Pearson Correlation Coefficients of the Stress questionnaire*  
*Prob > |r| under H0: Rho=0*

	Mean SQ 1	Mean SQ 2	Mean SQ 3	Mean SQ 4	Mean SQ 5	Stress total 2
Mean SQ 1	1.00000	0.68141 <.0001	0.60989 <.0001	0.65946 <.0001	0.65309 <.0001	0.26091 <.0001
Mean SQ 2	0.68141 <.0001	1.00000	0.62440 <.0001	0.70281 <.0001	0.64423 <.0001	0.30902 <.0001
Mean SQ 3	0.60989	0.62440	1.00000	0.72989	0.65085	0.23957

	<.0001	<.0001		<.0001	<.0001	0.0002
Mean SQ 4	0.65946 <.0001	0.70281 <.0001	0.72989 <.0001	1.00000	0.78442 <.0001	0.32887 <.0001
Mean SQ 5	0.65309 <.0001	0.64423 <.0001	0.65085 <.0001	0.78442 <.0001	1.00000	0.32793 <.0001
Stress total 2	0.26091 <.0001	0.30902 <.0001	0.23957 0.0002	0.32887 <.0001	0.32793 <.0001	1.00000

*Note.*

Mean SQ 1	=	Mean of somatic component of Stress questionnaire
Mean SQ 2	=	Mean of obsessive-compulsive component of Stress questionnaire
Mean SQ 3	=	Mean of interpersonal sensitivity component of Stress questionnaire
Mean SQ 4	=	Mean of depression component of Stress questionnaire
Mean SQ 5	=	Mean of anxiety component of Stress questionnaire
Stress total 2	=	Stress total for the Stress questionnaire

## (b) Interpretation of data

The following significant Pearson Correlation Coefficients of the Stress questionnaire are depicted in Table 5.30:

- The results ( $P$ -value of 0.70281) indicate that there is a positive correlation between depression and obsessive-compulsive behaviour, which implies that firefighters that experience depression tend to behave in an obsessive-compulsive manner. Similar literature findings were experienced. Obsessions can be potent and persistent enough to interfere with daily life and can engender significant depression (Nevid et al, 2005).
- The results ( $P$ -value of 0.72989) indicate that there is a positive correlation between depression and interpersonal sensitivity, which implies that firefighters that experience depression tend to be very sensitive regarding personal matters. Confirming literature findings were experienced. Dependent firefighters are focussed on interpersonal issues, they need others' approval to maintain a sense

of well-being. Depression is triggered in dependent firefighters when they perceive disruptions in their relationships with others, interpersonal loss, abandonment, or social rejection (O'Neill et al, 2004).

- The results ( $P$ -value of 0.78442) indicate that there is a positive correlation between anxiety and depression, which implies that firefighters that experience anxiety tends to be also depressed. Similar literature findings were experienced. Anxiety, which is very often the result of changes in brain chemistry, may take the form of psychomotor agitation, tremor, tenseness, irritability, and incapacity to experience a sense of comfort and peacefulness (Elliot et al, 2004). Firefighters in depression generate thoughts of a foreboding nature. Anticipation of the unknown also adds to the state of anxiety, compounding the symptoms of depression (Fishkin, 1992; Monnier et al, 2000).

### 5.1.5.3 Pearson correlation coefficients the Experience of work and life circumstances and Stress questionnaire

Tables 5.31 provides a comparison of the correlation matrix of the subscales of the Experience of work and life circumstances and Stress questionnaire.

#### (a) Reporting of data

**Table 5.31**  
*Pearson Correlation Coefficients of the Experience of work and life circumstances and Stress questionnaire*  
*Prob > |r| under  $H_0$ :  $Rho=0$*

	Level	COW	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	CIW	Stres total 1
Mean SQ 1	0.50714 <.0001	0.41417 <.0001	-0.23322 0.0003	-0.06125 0.3530	-0.17799 0.0066	-0.23640 0.0003	-0.29119 <.0001	-0.24400 0.0002	-0.26091 <.0001	0.21045 0.0013
Mean SQ 2	0.51417	0.43184	-0.17641	-0.11779	-0.13659	-0.15685	-0.29027	-0.17053	-0.22074	0.25888

	<.0001	<.0001	0.0071	0.0734	0.0376	0.0168	<.0001	0.0093	0.0007	<.0001
Mean SQ 3	0.61257 <.0001	0.45714 <.0001	-0.36889 <.0001	-0.13074 0.0467	-0.24416 0.0002	-0.32002 <.0001	-0.45404 <.0001	-0.25240 0.0001	-0.36872 <.0001	0.18853 0.0040
Mean SQ 4	0.60787 <.0001	0.50528 <.0001	-0.25676 <.0001	-0.12772 0.0520	-0.13924 0.0340	-0.27656 <.0001	-0.38900 <.0001	-0.20722 0.0015	-0.29109 <.0001	0.27578 <.0001
Mean SQ 5	0.52934 <.0001	0.35769 <.0001	-0.14439 0.0279	-0.05245 0.4265	-0.12437 0.0586	-0.17680 0.0069	-0.27672 <.0001	-0.11794 0.0730	-0.18374 0.0050	0.27714 <.0001
Stress total 2	0.53901 <.0001	0.41876 <.0001	0.46264 <.0001	0.47133 <.0001	0.37789 <.0001	0.48751 <.0001	0.27208 <.0001	0.44384 <.0001	0.55114 <.0001	0.99804 <.0001

*Note.*

Level	=	Stress level
COW	=	Causes arising outside the work situation
Field 1	=	Organisational functioning
Field 2	=	Task characteristics
Field 3	=	Physical working conditions and job equipment
Field 4	=	Career matters
Field 5	=	Social matters
Field 6	=	Remuneration, fringe benefits and personnel policy
CIW	=	Causes originating within the work situation
Stress total 1	=	Stress total for the Experience of work and life circumstances questionnaire
Mean SQ 1	=	Mean of somatic component of Stress questionnaire
Mean SQ 2	=	Mean of obsessive-compulsive component of Stress questionnaire
Mean SQ 3	=	Mean of interpersonal sensitivity component of Stress questionnaire
Mean SQ 4	=	Mean of depression component of Stress questionnaire
Mean SQ 5	=	Mean of anxiety component of Stress questionnaire
Stress total 2	=	Stress total for the Stress questionnaire

**(b) Interpretation of data**

The correlations, as indicated above, confirm that firefighters do experience job stress due to a number of causes originating within the work situation. The results indicate negative correlations between the causes arising outside the work situation and those originating within the work situation. This phenomenon can be explained by the fact that an increase in job stressors will not necessarily contribute to an increase in family stressors. The questionnaires measure stressors and not stress and the experience thereof. The possibility exist that a transfer effect may occur. An increase in job stress may influence the stress reactions rather than the stressors of the family This transfer effect is qualitatively explored in section 5.2.

The second hypothesis namely that there are certain correlations between the subscales of the Experience of work and life circumstances questionnaire (*inter alia*: causes arising outside the work situation, organisational functioning, task characteristics, physical working conditions and job equipment, career and social matters, and remuneration, fringe benefits and personnel policy), and the third hypothesis, namely that there are certain correlations between the subscales of the Stress questionnaire (*inter alia*: somatication, obsessive-compulsive behaviour, interpersonal sensitivity, depression and anxiety), are confirmed.

The covariances of the dimensions of job and family stress will be discussed in the following section.

#### **5.1.6 Covariances of the dimensions of job and family stress**

The covariances of the dimensions of job and family stress are depicted in Figure 5.1 on page 228. The model is recursive. A standardised regression weight of 0.50 is considered to be a significant value.

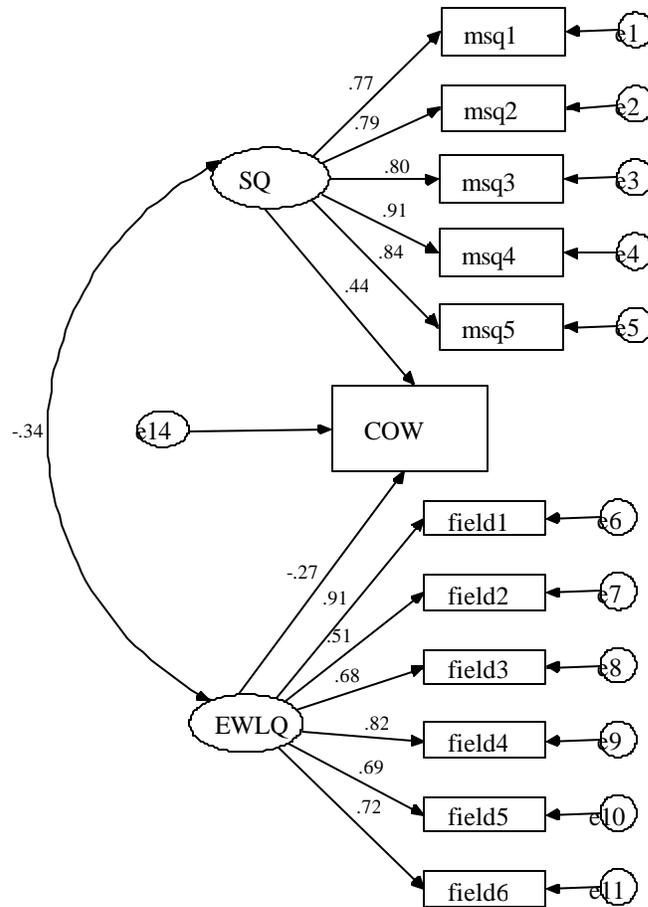


Figure 5.1: Covariances of the dimensions of job and family stress

The fourth hypothesis is stated, namely that there are no significant covariances between the dimensions of job and family stress. The following covariances can be identified:

- A standardised regression weight of 0.77 was obtained on the somatic variable (msq1), which implies covariances between the somatic (e1) and the obsessive-compulsive (e2), as well as depression (e4) dimensions of job stress.
- A standardised regression weight of 0.79 was obtained on the obsessive-compulsive variable (msq2), which implies no covariance between the obsessive-compulsive (e2) dimension of job stress and other variables.
- A standardised regression weight of 0.80 was obtained on the interpersonal sensitivity variable (msq3), which implies a covariance between the interpersonal sensitivity (e3) and the task characteristics (e6) dimensions of job stress.
- A standardised regression weight of 0.91 was obtained on the depression variable (msq4), which implies covariances between the depression (e4) and the anxiety (e5), as well as physical working conditions and job equipment (e8) dimensions of job stress.
- A standardised regression weight of 0.84 was obtained on the anxiety variable (msq5), which implies a covariance between the anxiety (e5) and COW (causes of stress arising outside the work situation) (e14) dimensions of job and family stress.

- A standardised regression weight of 0.91 was obtained on the task characteristics variable (field1), which implies a covariance between the task characteristics (e6) and organisational functioning (e7) dimensions of job stress.
- A standardised regression weight of 0.51 was obtained on the organisational functioning variable (field2), which implies covariances between the organisational functioning (e7) and career and social matters (e9 and e10), as well as the remuneration, fringe benefits and personnel policy (e11) dimensions of job stress.
- A standardised regression weight of 0.68 was obtained on the physical working conditions and job equipment variable (field3), which implies covariances between the physical working conditions and job equipment (e8) and career matters (e9), as well as COW (causes of stress arising outside the work situation) (e14) dimensions of job and family stress.
- A standardised regression weight of 0.82 was obtained on the career matters variable (field4), which implies a covariance between the career matters (e9) and COW (causes of stress arising outside the work situation) (e14) dimensions of job and family stress.
- A standardised regression weight of 0.69 was obtained on the social matters variable (field5), which implies a covariance between the social matters (e10) and remuneration, fringe benefits and personnel policy (e11) dimensions of job stress.

- A standardised regression weight of 0.72 was obtained on the remuneration, fringe benefits and personnel policy variable (field6), which implies no covariance between the remuneration, fringe benefits and personnel policy (e11) dimension of job stress and other variables.
- A standardised regression weight of 0.44 was obtained on the Stress questionnaire (SQ), which implies no covariance between the Stress questionnaire and COW (causes of stress arising outside the work situation) (e14) dimensions of job and family stress.
- A standardised regression weight of -0.27 was obtained on the Experience of work and life circumstances questionnaire (EWLQ), which implies no covariance between the Experience of work and life circumstances questionnaire and COW (causes of stress arising outside the work situation) (e14) dimensions of job and family stress.
- A standardised regression weight of -0.34 was obtained on the Stress questionnaire (SQ) and the Experience of work and life circumstances questionnaire (EWLQ), which implies no covariance between the Stress questionnaire and Experience of work and life circumstances questionnaire dimensions of job and family stress.

The hypothesis that there is significant covariances between the dimensions of job and family stress was confirmed.

#### **5.1.6.1 Summary of RMSEA values**

##### **(a) Reporting of data**

The RMSEA values are reported in Table 5.32. A RMSEA value of  $< 0.05$  is an indication of the ‘goodness of fit’ between the models.

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.099	0.083	0.116	0
Independence model	0.325	0.312	0.339	0

**(b) Interpretation of data**

The RMSEA value of the default model is 0.099. The degree of confidence (90%) ranges between 0.083 and 0.116. The results do not confirm the ‘goodness of fit’ between the postulated model and the default model.

The qualitative results will be described in the following section.

## **5.2 QUALITATIVE RESULTS**

The qualitative results are described in terms how job and family stress impact on each other amongst firefighters in the South African context. The interview results are presented in the following section.

### **5.2.1 Interview results**

The interview results are presented via themes and subthemes, all of which are supported by both verbal and non-verbal evidence from the transcribed text of the

interviews. The following themes and their related subthemes manifested in the interviews (refer to Appendix C):

<b>Theme 1:</b>	<b>Job stress</b>
Subtheme 1.1	Task characteristics
Subtheme 1.2	Organisational functioning
Subtheme 1.3	Physical working conditions and equipment
Subtheme 1.4	Social matters
Subtheme 1.5	Career matters
Subtheme 1.6	Remuneration, fringe benefits and personnel policy
<b>Theme 2:</b>	<b>Family stress</b>
Subtheme 2.1	Marital dysfunction and divorce
Subtheme 2.2	Limited time with family
Subtheme 2.3	Problems with children
Subtheme 2.4	Lifestyle factors: alcohol abuse and lack of exercise
Subtheme 2.5	Suicide
Subtheme 2.6	Anger and frustration aimed at family members
Subtheme 2.7	Physical and emotional exhaustion
Subtheme 2.8	Marital partner being alone
Subtheme 2.9	Not being available to help the family when needed
Subtheme 2.10	Depression
Subtheme 2.11	Physical, affective and cognitive stress symptoms
Subtheme 2.12	Shift work
Subtheme 2.13	Emotional distance from family
Subtheme 2.14	Financial problems
Subtheme 2.15	Anxiety

The themes and subthemes will now be discussed.

### 5.2.1.1 Theme 1: Job stress

#### (a) Subtheme 1.1 Task characteristics

Job stress occurred as a result of the following task characteristics:

- Exposure to human loss (Respondents 0118; 0199)
- Interpersonal tension (Respondent 074)
- Accountability for decisions taken under pressure (Respondents 074; 0118)
- Death of children (Respondents 002; 074; 096; 0199)
- Death of any person (Respondents 002; 0118; 0236)
- Terrible sensory experiences (Respondents 002; 0118)
- Serious fires in which people are trapped (Respondent 0118)
- Accidents in which many people die or are injured (Respondents 074; 0118; 0236)
- Underloading (Respondent 096)
- Traumatic incidents (Respondents 0118; 0199; 0236)

In terms of task characteristics the results indicate that the death of people, but specifically of children, seem to be the main source of job stress amongst firefighters for this specific subtheme. This point is illustrated by the verbatim comment of Respondent 096:

*Nee, net kinders. Dit is nie lekker om dit te sien nie. Wanneer het die Blou Bulle die Curriebeker gewen? Ek dink dit was twee jaar gelede. Daardie Saterdag het ek*

*oortyd gewerk. Die pa, die ma en die kind (8 maande oud) moes ons uit die kar uithaal. Dit is nie lekker om te sien nie. Dit is iets wat bly. Jy sal al die ander goed vergeet, maar dit sal jy onthou.*

Further evidence is contained in the verbatim comment of Respondent 0118:

As a firefighter my main task is to fight fires as well as to rescue. An example being, if there is a factory fire I use foam and water to distinguish the fire. The most important one is the rescue part of it. It is sometimes traumatising because when you get to the scene you will find that the person is crushed or being trapped in a vehicle. The first thing you're supposed to do is you are going to be threatened seeing a person's brains damaged and then you are supposed to help that person. Basically that is the job what I am doing as a firefighter, as well as rescuing people from dams as well as in a pit toilet. I once rescued a child in a pit toilet.

Rescue operations that involve accidents in which people are injured produce high levels of emotional stress for firefighters. Firefighters are exposed to trauma continually. The exposure to human loss, terrible sights and noises as well as accountability for decisions taken under pressure, contribute to a feeling of anxiety amongst firefighters. It must be noted that serious fires in which people are trapped seem to be the lowest source of job stress for firefighters for this specific subtheme. The hypothesis can be formulated that firefighters tend to become more concerned about and protective of their families when they are involved in stressful work situations involving loss of life, especially the lives of children. A further hypothesis can be formulated that firefighters may experience less job stress in serious fires that are related to their task characteristics and training than in situations that are not directly related to serious fires, for instance rescue operations.

**(b) Subtheme 1.2 Organisational functioning**

Job stress occurred as a result of the following organisational functioning:

- Lack of leadership skills (Respondent 049)
- Policy and procedures (Respondent 049)
- Job schedules (Respondent 096)
- Delegation of functions (Respondent 074)
- Responsibility versus authority (Respondent 074)
- Uncertainty and unsafety due to organisational changes (Respondents 002; 096; 0118; 0164; 0199)
- Poor management decisions (Respondents 074; 096)
- Lack of management support and interest in firefighting affairs (Respondent 096)
- Discrimination (Respondent 0118)
- Affirmative action (Respondent 0164)

The results in terms of organisational functioning indicates that firefighters experience job stress due to poor management decisions and lack of support and interest in firefighting affairs. Job stress is further intensified by the lack of management skills and a shortage of personnel, which results in job schedule overloads. The delegation of functions and responsibility versus authority is also a source of job stress for firefighters. This point is illustrated by the verbatim comment of Respondent 074:

*Hoe werk dit dan? Mône, oormône as die offisier af is, wie gaan die skof hardloop vir die dag? Met ander woorde jou laagste outjie, jou 'blougat', die ou wat nou net in die diens ingekom het kan vir jou sê ek hardloop die stasie vir vandag. Dit kan nie so werk nie. Hulle moet hul 'mind' opmaak. As die offisier nie daar is nie is jy*

*goed genoeg om die skof te hardloop of om alles te doen wanneer dit hulle pas. Daar is nog 'n bietjie dubbelsinnigheid daaroor.*

Further evidence is contained in the verbatim comment of Respondent 096:

*Die masjiene breek en ander stasies kom vat van die masjiene, want hulle gee nie om vir die plek nie. Al waaroor hulle 'worry' is hy mag nie toemaak nie. Vra ek vir hulle: 'Waarvoor?' dan sê hulle: 'Dis 'n politieke situasie'. Ek wil nie betrokke wees by sulke goed nie. Ek wil werk. Vandat die stasie hier is, kry ons omtrent nooit oproepe nie. Toe ons op Phillip Nel was, was hier baie brande.*

*As jy vra vir verlof, word dit geweier, omdat daar nie genoeg mense is nie. Dan sê jy: 'Dit is nie jou probleem nie, dit is die raad se probleem'. Hulle belowe 150 mense, maar as jy sien is daar net 6. Vyf/ses jaar gelede het elkeen sy eie werk gedoen, nou doen een ou almal se werk. Dit is nie lekker nie.*

*My hele ding van die brandweer is dat bestuur hierbo het nie saak nie. Wie doen eintlik die werk? Die ouens op die vloer. Dit voel vir ons almal so. Hulle voel die topstruktuur voel niks vir die ouens op die vloer nie. Hulle gaan net aan. Ek het gesê na my mening, gee ek die plek nog so 'n jaar en 'n half dan sal hy tot niet gaan. Nee, die hele brandweer. Dan vou hy. Dit lyk nie of dit beter gaan nie. Ek weet nou nog nie hoekom het hulle saamgesmelt nie.*

The main source of job stress for firefighters for this specific subtheme seem to be the uncertainty and unsafety that have resulted from organisational changes in the fire service. Dissimilar findings were experienced in terms of the positive correlation between career matters and organisational functioning, which implies that firefighters

consider their upward mobility in their careers in relation to their functions in the emergency services (fire service). The hypothesis can be formulated that the amalgamation of the fire services of the former municipalities of Akasia, Centurion and Pretoria may contribute to feelings of uncertainty and unsafety about their ability to care for their families. Discrimination against certain firefighters and affirmative action further exacerbate the situation.

**(c) Subtheme 1.3 Physical working conditions and job equipment**

Job stress occurred as a result of the following physical working conditions and inadequate job equipment:

- Insufficient equipment and physical resources (Respondents 0164; 0236)
- New technology (Respondent 074)

The results indicate that firefighters seem to experience the highest source of job stress in this specific subtheme due to insufficient equipment and physical resources. Similar findings were experienced in terms of the positive correlation between the causes of stress originating within the work situation and physical working conditions and equipment, which implies that the latter contributes to the job stress experienced by firefighters. The present situation is characterised by the fact that fire stations in more affluent areas have more equipment and physical resources at their disposal than the smaller fire stations. This point is illustrated by the verbatim comment of Respondent 074:

*Op GaRankuwa baklei ons vir alles, daar is nie eers telefone nie. Alles wat ons daar het, het ons voor baklei, en dan is dit ou goed. Daardie nuwe stasie wat nuut van die*

*grond af opgebou word, moet die nuwe goed kry. Nou deel al die ander stasies se ou goed uit sodat hulle nuwes kan kry. Dit werk mos nou ook nie so nie. Dit maak 'n mens die duiwel in. Daar was niks op daardie stasie nie. Jy probeer bou en breek en jy probeer die plek opbou en dan maak hulle jou so negatief. Daar is soveel toerusting gewees tussen GaRankuwa, Mabopane and Themba; nuwe toerusting wat nog nooit gebruik is nie. Toe vat hulle dit weg na Centurion toe. Nou sukkel ons met ou goed en hulle gebruik die nuwe goed. Ons neem topstruktuur kwalik daaroor.*

Further evidence is contained in the verbatim comment of Respondent 0164:

*Daar is nie toerusting om mee te werk nie. Maar as dit nie hier is nie, doen ek nie my 'job' nie. Ek gaan in daardie houding deesdae in. Al wat vir jou gesê word is daar is nie geld nie.*

These comments highlight the fact that it is difficult to obtain new technology for the smaller fire stations. The hypothesis can be formulated that firefighters may experience frustration because they cannot execute their duties effectively due to a lack of equipment and physical resources, which may lead to their perception of themselves as being inadequate. Feelings of failure experienced by firefighters may be transferred to their families. A further hypothesis can be formulated that firefighters stationed at smaller fire stations that are poorly equipped may experience envy and humiliation.

**(d) Subtheme 1.4 Social matters**

Job stress occurred as a result of the following social matters:

- Negative attitudes of colleagues (Respondent 049)

- Poor relationship with supervisors (Respondents 049; 0114; 0164)
- Contact with offensive patients and drug abusers (Respondent 074)
- Long or unsocial working hours (Respondent 0236)
- Conflict with colleagues (Respondents 002; 0118; 0164)
- Pressure to conform to group (Respondents 0164)
- Media on the scene (Respondent 0236)
- Lack of social support from colleagues (Respondent 0118)

The results in terms of social matters indicate that poor working relationships between firefighters seem to be the main source of job stress amongst firefighters for this specific subtheme. Poor relationships with supervisors, management and colleagues also contribute to job stress. This point is illustrated by the verbatim comment of Respondent 049:

But if things just happen around where you are, you don't feel you are welcome or you are comfortable. Because, just somebody say this and this, from Whites, we got the notice last week, and I have been with them since last week, and then I don't know. So now I feel maybe I am not part and parcel of the particular group.

Further evidence is contained in the verbatim comment of Respondent 0114:

My District Commander sometimes shouts at me. Why didn't I do 1, 2, 3? Sometimes I didn't know the work. He didn't show me. I had to ask other people what must I do? Or when he call me to come here then I wonder: What is happening now? What is wrong now? What did I do now? When I got home I told my fiancé I would prefer to step down. So he told me, No, everywhere it

is just like that'.

Job stress is further intensified by the conflict and negative attitudes that exist between colleagues. Confirming findings were experienced in terms of the positive correlation between the causes of stress originating within the work situation and social matters, which implies that relationships between firefighters and their colleagues, supervisors and management are stressful. This conflict can sometimes be attributed to racial tension between the firefighters. Contact with offensive and drug-abuse patients, unsocial working hours and the media on the scene are also social factors generating job stress. The pressure to conform to the firefighter's group and the lack of support from colleagues are important social factors to consider in addressing job stress. The hypothesis can be formulated that firefighters who experience interpersonal conflict at work may also experience interpersonal anxiety, which may contribute to hostile behaviour towards the family.

**(e) Subtheme 1.5 Career matters**

Job stress occurred as a result of the following career matters:

- Limited career and promotion opportunities (Respondents 002; 074; 096)
- Insufficient training (Respondent 0114)

The results in terms of career matters indicate that limited career and promotion opportunities seem to be the main source of job stress amongst firefighters for this specific subtheme. This point is illustrated by the verbatim comment of Respondent 074:

*Nee, met die regstellende aksies en al daardie goed, is daar nie 'n manier nie. Hulle stel 'n nie-blanke aan met minimum kwalifikasies, nie eers wat die posvlak nodig het om 'n offisier te word nie, sit in 'n waarnemende pos. Maar jy wat al donkiejare die werk gedoen het en vir 'n jaar en ses maande al waargeneem het as 'n offisier, jy kry nie 'n kans nie. Maar hulle stel daardie persoon met minimum kwalifikasies en minimum jare diens aan in verhouding met waar jy 'n stuk of 12/13 jare diens het en daardie ou het 2/3 jaar diens. Hoe moet jy nou voel as een wat al 13 of 14 jaar in diens is, wat al 'n skof gehardloop het as 'n leier en as 'n waarnemende offisier. Nou stel hulle haar aan bo jou, al is dit nou net waarnemend. Jy moet nou onder haar werk. Jy moet haar besluite kan uitvoer, jy moet kan luister vir haar. Hoe gaan jy vir daardie persoon kan luister? Die eerste goeie brand hardloop sy weg en jy sit met die gebakte pere. Dit is soos ons voel. Jare diens is goeie ondervinding. Dit is nie noodwendig nodig om die papiere te hê nie, want daardie jare ondervinding maak daardie papiere niks werd, want jare diens kan jy nie wegvat van 'n persoon nie. Dit is sulke goed wat 'n mens die duiwel in maak.*

Similar findings were experienced in terms of the positive correlation between the causes of stress originating within the work situation and career matters, which implies that firefighters feel that they lack sufficient opportunities for career promotion and development. The hypothesis can be formulated that firefighters may feel that their salaries and benefits will not increase if they are not promoted, which affects the financial support of their family. The insufficient training of firefighters to act in senior positions also surfaced as a job stressor. Evidence thereof is contained in the verbatim comment of Respondent 0114:

They appointed me as an acting officer. They just put me and I didn't know about this work, but when they appointed me they ask me you will do this job because

you've got the experience, you've got 30 years' experience. I appreciated that and I was happy when they gave me this job, but then I started to do paper work which I know and some other things I didn't know. So I have to go to somebody else to tell me what I must do. Where I am working there is no computer and no telephone. I am the only person there. When there is something that I don't know, I must come here or call them with the radio. They didn't teach me. Sometimes when I go home I sit down and remember everything and stress is coming to me.

**(f) Subtheme 1.6 Remuneration, fringe benefits and personnel policy**

Job stress as a result of remuneration, fringe benefits and personnel policy manifested as follows:

- Poor status, poor salary and low expectations (Respondents 002; 049; 096)
- Differences in salary structures, fringe benefits and personnel policies (Respondent 074)

The results in terms of remuneration, fringe benefits and personnel policy indicates that poor status, poor salary and low expectations seem to be the main source of job stress amongst firefighters for this specific subtheme. This point is illustrated by the verbatim comment of Respondent 049:

You are only compensated for the more work that you are doing, like we supplement our salary with overtime. With overtime you have less off days. It is not the way that a person can supplement his remuneration. As least maybe if the notches are correctly placed and maybe it will be better.

Further evidence is contained in the verbatim comment of Respondent 0236:

The salary is not enough.

The differences in salary structures, fringe benefits and personnel policies of the former municipalities of Akasia, Centurion and Pretoria are also experienced by firefighters as a job stressor. Confirming findings were experienced in terms of the positive correlation between the causes of stress originating within the work situation and remuneration, fringe benefits and personnel policy, which implies that firefighters feel that their salaries are poor and their fringe benefits are inadequate, and that different personnel policies are applicable in different areas of the metropolitan municipality. The hypothesis can be formulated that firefighters who work overtime to supplement their poor salaries may have less time to spend with their families, which contributes to family stress. A further hypothesis can be formulated that if firefighters have to work overtime to supplement their poor salaries, they may become resentful towards the organisation and management, which could result in a negative attitude towards their work.

### **5.2.1.2 Theme 2: Family stress**

#### **(a) Subtheme 2.1 Marital dysfunction and divorce**

Family stress as a result of marital dysfunction and divorce manifested as follows:

- Marital dysfunction (Respondents 049; 096)
- Divorce (Respondents 002; 0118; 0199)

The results are illustrated by the divorce of three firefighters. Two of the firefighters indicated that personal problems had led to the divorce, whereas the third indicated that job stress had been directly responsible for the divorce. The marital dysfunction experienced by the firefighters can be contributed to job stress. This point is illustrated by the verbatim comment of Respondent 096:

*Ons lewe amper verby mekaar. As ek baie oproepe gehad het, dan gaan sit ek by my vrou en vertel haar wat gebeur het. Dit was lekker om dit te doen en dit was sleg gewees om dit te doen. As ons die dag niks gedoen het nie is ek die volgende dag moeër. Dan is ek lus om niks te doen nie. Dit is wanneer my vrou kwaad raak omdat ek nie dit of dat saam met haar wil doen nie. Dan kom die moeilikheid.*

Further evidence is contained in the verbatim comment of Respondent 0118:

The other problem is, sometimes back, my wife and I was separated for 10 years. I left her with the kids and I went away. Then when I came this side I found another woman and it went on and on and on. So then I bought a house with her. In the process of our marriage she decided to divorce me. Then the divorce went on.

The hypothesis can be formulated that the interpersonal and emotional withdrawal of firefighters as a result of experiencing traumatic incidents may contribute to the disintegration of their marriages and subsequent divorce.

**(b) Subtheme 2.2 Limited time with family**

Family stress as a result of limited time with the family manifested as follows:

- Limited time with family (Respondents 049; 074; 0164)

The results are characterised by the limited time that firefighters seem to have to spend with their families. The hours of the shifts require them to leave home early in the morning and return late in the evenings. This point is illustrated by the verbatim comment of Respondent 049:

Yes, it is. Because I leave at five in the morning and arrive at nine in the evening. I only see my family when I am off. I work six days and I am off 3 days. It is having an impact. Because I used to leave home at half past six to work for seven o'clock and then knock off at seven and at 07:30 I am at home. They were used to that for the past 13 years that I have been in the service.

Further evidence is contained in the verbatim comment of Respondent 0164:

*Ja, ek is baie weg van die huis af.*

The hypothesis can be formulated that firefighters who have limited time to spend with their families due to work obligations may feel that they are neglecting their families. This may cause firefighters to feel guilty about their family, because they are unable to change their current work situation.

**(c) Subtheme 2.3 Problems with children**

Family stress as a result of problems with children manifested as follows:

- Problems with children (Respondents 074; 0118)

The results are characterised by problems which the firefighters seems to experience with their children. This point is illustrated by the verbatim comment of Respondent 074:

*Dit vang 'n ou, selfs vir die kinders. Die vrou kan miskien nog vrede maak daarmee, en probeer aanpas, maar vir die kinders is dit moeilik. My klein laaitie huil in die laaste tyd baie. As ek begin aantrek, vra hy: “Gaan Pa werk?” “Ja, Pa gaan werk.” “Nee, Pa moenie gaan werk nie.” Dan koop jy hom maar om met “Pa sal jou môre-oggend skool toe vat”. Dan is hy weer rustig.*

Further evidence is contained in the verbatim comment of Respondent 0118:

Yes, but the whole of last year (2002) he was jailed. He was jailed 2001 until last year. So he went back to school. Last year was highly stressful. I was feeling as if I wasn't living.

The hypothesis can be formulated that problems with children may results from the fact that the firefighters do not have time to spend with their children. The firefighters are not at home to play an active role in the upbringing of their children which may leave the children feeling unsafe and insecure.

**(d) Subtheme 2.4 Lifestyle factors: alcohol abuse and lack of exercise**

Family stress as a result of lifestyle factors manifested as follows:

- Alcohol abuse (Respondents 0118; 0199)
- Lack of exercise (Respondent 096)

The results are characterised by negative lifestyle factors which seem to contribute to family stress. This point is illustrated by the verbatim comment of Respondent 0118:

We are always fighting because of myself using alcohol for my problems. Sometimes, after a hard day at work, when I get home, I just want to sit down, have a drink, and discuss it with my family. 'Today I was having this and this and this, and I am so stressful and tired.' So when I am busy drinking that thing comes again. So to forget, I drink a lot.

The hypothesis can be formulated that firefighters abuse alcohol to escape from the stressful experiences of their work. This abuse of alcohol may cause conflict with their marital partners, which could cause firefighters to lose control. Their children may feel unsafe when they witness their father or mother's out-of-control behaviour. This may cause them to feel afraid and lose their self-confidence, which may impede their functioning and development. Lack of exercise was also identified by a firefighter as a lifestyle factor that seems to generate family stress as contained in the verbatim comment of Respondent 096:

*Soos gewig optel. Dit is ernstig. Ek het op Magalies gewerk, op Wonderboom-lughawe en ek het fiets gery elke dag. Ek het op 'n stadium 90 kg geweeg en vandat ek hier is, weeg ek nou 110 kg.*

The hypothesis can be formulated that it may be difficult for overweight firefighters to perform their work functions effectively, which may result in feeling concerned about themselves and worthlessness. Such feelings of worthlessness and self-pity may be

transferred to the family.

**(e) Subtheme 2.5 Suicide**

Family stress as a result of suicide manifested as follows:

- Suicide (Respondent 0118)

The results indicate that one of the firefighters considered suicide as the only solution for personal and work-related problems. However, this firefighter indicated that certain steps will be instituted to prevent a tragedy. This point is illustrated by the verbatim comment of Respondent 0118:

I think I see their concerns. It seems as if they want to help me. My problem is using alcohol as a substitute. When I was thinking alone, thinking about all the stuff, I sometimes felt like I could blow myself out, throw myself in front of a car or hang myself. When that feeling comes I use the alcohol to help me forget those things. But instead it seems as if it becomes problematical. That is why I think if maybe those people can take those steps to help me.

The hypothesis can be formulated that firefighters who direct their aggression towards the self and do not know how to cope with it, may consider suicide as an alternative to escape the stressful situation permanently.

**(f) Subtheme 2.6 Anger and frustration aimed at family members**

Family stress as a result of anger and frustration aimed at family members manifested as follows:

- Anger aimed at family members (Respondents 049; 0199)
- Frustration aimed at family members (Respondent 096)

Stress occurs in the family when anger is aimed at the marital partner and children. This anger aimed at the family members is directly linked with job stress. This point is illustrated by the verbatim comment of Respondent 049:

If you are angry, you won't be relieved quickly. If there is something that didn't go well during the day, and you come home you are not as normal, sometimes you are shouting not knowing what you are shouting for. You get angry at work and you retaliate to the wrong people. If you are angry at work and you can't get the line of management to solve the problem, you get angry; and coming home retaliate at the wrong people. Sometimes I do, but later on I realised that I am angry at the wrong people. You don't realise that immediately. It comes after a day or two.

Further evidence is contained in the verbatim comment of Respondent 096:

*Jy sit hierso en doen niks nie. Ek kan nie stil sit nie. By die huis bou ek model-vliegtuie, ek doen houtwerk en "sandblasting". As ek te besig is by die huis, "moan" my vrou. Wel, ons het somtyds die "silent treatment" met mekaar totdat ons afgekoel het. Somtyds, kan net een oproep my dag opneuk. Eers is jy gewoond om te sit en ewe skielik kom daar oproepe in. Hier is niemand op wie ek dit kan uithaal nie en dan gaan haal ek dit by die huis uit.*

The hypothesis can be formulated that firefighters may direct their anger and frustration at their families, with whom they have a close emotional connection, since emotional outbursts are not allowed in the work context. They perceive the family as a safe place

for such behaviour because they might not be rejected and might be forgiven. The conclusion can be drawn that if there are no healthy ways for firefighters to discharge these feelings of frustration, they may be directed at the family.

**(g) Subtheme 2.7 Physical and emotional exhaustion**

Family stress as a result of physical and emotional exhaustion manifested as follows:

- Physical exhaustion (Respondents 0118; 0236)
- Emotional exhaustion (Respondent 074; 0199; 0236)

The results indicate that firefighters seem to experience physical exhaustion due to the nature of their work. The verbatim comment of Respondent 0118 illustrates this point:

It was very stressful. That is why I say I didn't have a rest actually.

Further evidence is contained in the verbatim comment of Respondent 0236:

Especially when you come home you will find that you are tired. Sometimes the children want to play, but you are not in the mood, because you are tired. You just want to shower, eat and go to sleep. Sometimes you feel bad, because the children don't know why does it look like that you are unhappy, then I try to explain it. I am tired, but because they are children they don't listen.

Stress is experienced in the family due to the constant tiredness of the firefighter. The hypothesis can be formulated that firefighters may not perform their role in the family effectively because of physical and emotional exhaustion. They may not be able to cope

with the physical and emotional demands placed on them, and this could result in withdrawal from the family. They may also blame the family for not understanding their situation.

**(h) Subtheme 2.8 Marital partner being alone**

Family stress as a result of the marital partner being alone manifested as follows:

- Marital partner being alone (Respondents 049; 0236)

Stress occur in the family due to the loneliness of the marital partners of firefighters.

This point is illustrated by the verbatim comment of Respondent 049:

In the way that sometimes when doing something I just get stuck. Like when we did inventory at work, sometimes I just get stuck for 10 minutes thinking of her. How is she now? Where is she now? I had to phone to work first and then after I have talked to her and then she say "I am fine", then I become better.

Further evidence is portrayed by the verbatim comment of Respondent 0236:

It wasn't easy for us at the beginning. Especially the time when we were working 24 hours. She is alone at home with the children. It wasn't nice, but she coped. She knows that when I am not at home I am here at work. That time she wasn't working and I had to contact her now and then.

The hypothesis can be formulated that firefighters may feel concerned about the safety of their marital partners and children when they are working. They may feel that their

families are vulnerable and that they cannot protect them. This may also keep them from concentrating fully on their work.

**(i) Subtheme 2.9 Not being available to help the family when needed**

Family stress as a result of firefighters which are not available to help the family when needed manifested as follows:

- Not being available to help the family when needed (Respondents 049)

This point is illustrated by the verbatim comment of Respondent 049:

The problem that I am having about my family is that my wife is sick now and then. That worries me a lot. Like today, she is going to consult a doctor. I don't know what is happening. The doctor promised that if things doesn't go well, she will be transferred to the Pretoria Hospital.

The hypothesis can be formulated that firefighters may feel more guilty and blame themselves especially when a crisis develops in the family in their absence.

**(j) Subtheme 2.10 Depression**

Family stress as a result of depression manifested as follows:

- Depression (Respondents 096; 0118; 0164)

Firefighters experience depression as a direct result of the stress of their job. This point is illustrated by the verbatim comment of Respondent 096:

*Partykeer voel dit baie naby. Ja, dit is. Jy kan enigiemand vra. Op ander stasies was ek 'n ander mens gewees. Dit was lekker om werk toe te gaan. Partyoggende is ek nie eers lus om werk toe te kom nie.*

Further evidence is contained in the verbatim comment of Respondent 0164:

*Dit is eintlik maar net die “worries”. 'n Mens wonder maar net waarheen gaan die plek, waarheen neig hy nou met al die veranderinge. Jy sit hieronder in die donker. Dan hoor ons skielik dit het gebeur of ons gaan nou in daardie rigting.*

Dissimilar findings were experienced in terms of the positive correlation between depression and obsessive-compulsive behaviour, which implies that firefighters that experience depression tend to behave in an obsessive-compulsive manner. Similar findings were experienced in terms of the positive correlation between depression and interpersonal sensitivity, which implies that firefighters that experience depression tend to be very sensitive regarding personal matters. The hypothesis can be formulated that firefighters may experience depression, which is the result of having no control over the working conditions and environment, and that uncertainty and unsafety due to organisational changes intensify this feeling of hopelessness. Such feelings may cause them to become emotionally inaccessible to their families.

**(k) Subtheme 2.11 Physical, affective and cognitive stress symptoms**

Family stress as a result of physical, affective and cognitive stress symptoms manifested as follows:

- Physical stress symptoms (Respondents 002; 049; 074; 096; 0114; 0199)

The results indicate that for this specific subtheme, physical symptoms seem to be the main source of stress for firefighters in their family life. This point is illustrated by the verbatim comment of Respondent 096:

*Dit is vandat ek hier begin werk het. Ek het dit nog nooit gehad nie. Jy kan selfs vir my offisier vra hoeveel keer ek al siek was. Maar net een dag toe ek migraine gekry; so erg dat ek naer geword het. My migraine gaan uit deur my oë; ek sien net 'n kolletjie en die res is ge- 'blur'.*

Further evidence is contained in the verbatim comment of Respondent 0199:

*Hoofpyn, rugpyn, maagpyn. Dit is dit.*

The hypothesis can be formulated that firefighters who experience physical stress symptoms may feel that they are not in control of their bodies. They may fear that something is physically wrong with them. This may be interpreted as abnormal.

- Affective stress symptoms (Respondents 002; 074; 0114; 0199)

The affective stress symptoms are illustrated by the verbatim comment of Respondent 074:

*Dit is trane en 'n knop in die keel. Dit is sulke goed wat 'n ou ruk. Dit is nou al 'n rukkjie terug, maar dit is goed wat seermaak. Die mense wat regtig vir jou iets moes gedoen het, het niks gedoen nie, want hulle het nie ge- "worry" daaroor nie. Laat dit nou een van hulle seuns of een van hulle kinders of familie wees, dan het jy 'n ander reaksie gesien. Dan was daar nog die brandweerbegraving. Ek wil nooit weer*

*in my lewe 'n brandweerbegrafnis hê nie.*

The hypothesis can be formulated that firefighters who experience affective stress symptoms e.g. sadness and anger may feel that they are emotionally out of control and weak. They may think that something might be wrong with them psychologically.

- Cognitive stress symptoms (Respondents 002; 074; 0114; 0199)

The cognitive stress symptoms are illustrated by the verbatim comments of Respondent 0114:

Yes. ... I think: I have to do it, then I will do it. Sometimes I wish I had that power; I will do it, but I can't. I told myself: I will do it.

The hypothesis can be formulated that firefighters who experience cognitive stress symptoms may feel that they are unable to control their own thoughts and behaviour which may leave them feeling out of control and insecure.

### **(1) Subtheme 2.12 Shift work**

Family stress as a result of shift work manifested as follows:

- Shift work (Respondents 002; 074; 0236)

Shift work contributes to stress in the family life of firefighters. This point is illustrated by the verbatim comment of Respondent 002:

*Ja, ek glo so. Ons werk normale en abnormale ure. Die skofure gaan 'n probleem*

*wees.*

Further evidence is contained in the verbatim comment of Respondent 074:

*Al probleem is die skofte. Ons sien mekaar baie min. Wat 'n mens vang is die drie aande wat 'n ou van die huis af weg is, veral vir die kinders.*

The hypothesis can be formulated that firefighters may feel frustrated because they are often away from their families for several days at a time because they have to work shifts. This may contribute to feelings of guilt because they do not spend enough time with their families, who may consequently be alone in crisis situations.

**(m) Subtheme 2.13 Emotional distance from family**

Family stress as a result of the emotional distance from the family manifested as follows:

- Emotional distance from family (Respondent 074)

The results indicate that the emotional distance from the family seems to be a factor that should be considered as a family stressor. This point is illustrated by the verbatim comment of Respondent 074:

*Ek is maar 'n ou wat dit vir myself hou. Ek is stil en teruggetrokke en brei nie baie daaroor uit nie. Dit is soos ek is. Dit is nie lekker vir hulle nie. Ja, hulle kom dit agter. Veral my vrou, sy kom dit dadelik agter.*

The hypothesis can be formulated that firefighters may try to safeguard their families from job stressors by becoming emotionally distanced. The result of such action is that the family may become alienated in the process.

**(n) Subtheme 2.14 Financial problems**

Family stress as a result of financial problems manifested as follows:

- Financial problems (Respondents 0118; 0199)

The results indicate that financial problems can also be regarded as a family stressor. This subtheme links up with subtheme 1.6 under remuneration, fringe benefits and personnel policy, where the firefighters have indicated that remuneration and benefits need some improvement. This point is illustrated by the verbatim comment of Respondent 0118:

Financial problems. I am having a problem with this particular house. I am not staying in it now, because the lawyer said I am not supposed to stay there – both parties, myself as well as that woman – until the house is sold. Then I am worried, because I am paying for the house and I am not staying in it. All that I am thinking about is that woman took everything, furniture and whatever. I've got very much financial problems. Because of that marriage. She took everything and I am supposed to pay those things. Then, as far as my wife is concerned, she will say: "You are not paying things. You are not here." It cripples me financially. Normally, in a family, if finance is lacking there is a lot of fighting.

Further evidence is contained in the verbatim comment of Respondent 0199:

*Dit is maar net my skeisaak en my huis wat ek verloor en al sulke dinge, my kind.*

The hypothesis can be formulated that firefighters facing financial problems may experience anxiety about their own future and may feel afraid that they may not be able to support themselves or their families.

**(o) Subtheme 2.15 Anxiety**

Family stress as a result of anxiety manifested as follows:

- Anxiety (Respondent 0118)

The results indicated that firefighters experience work-related anxiety. This point is illustrated by the verbatim comment of Respondent 0118:

Sometimes I am afraid of work. When you come to work you actually don't know what type of work you are going to do for that day. You are there waiting for any call to come.

Confirming findings were experienced in terms of the positive correlation between anxiety and depression, which implies that firefighters that experience anxiety tends to be also depressed. The hypothesis can be formulated that anxiety experienced by firefighters as a result of not knowing what to expect when the next emergency call comes in may cause fear that each emergency call will be severe and traumatic.

Hypotheses formulated in terms of the overall qualitative results will be presented in the following section.

### 5.2.2 Hypotheses

The following hypotheses can be stated in terms of the qualitative results:

- It seem possible that there is a relationship between the causes of stress originating within the work situation (*inter alia* subthemes: task characteristics, organisational functioning, physical working conditions and job equipment, social and career matters, remuneration, fringe benefits and personnel policy) and job stress.
- It seem possible that there is a relationship between the causes of stress arising outside the work situation (*inter alia* subthemes: marital dysfunction and divorce, limited time with family, problems with children, lifestyle factors: alcohol abuse and lack of exercise, suicide, anger and frustration aimed at family members, physical and emotional exhaustion, marital partner being alone, not being available to help the family when needed, depression, physical, affective and cognitive stress symptoms, shift work, emotional distance from family, financial problems, anxiety) and family stress.

A summary of the results will be provided in the next section.

### 5.3 SUMMARY OF RESULTS

The descriptive statistics of the Experience of work and life circumstances questionnaire indicated that firefighters regard family stress as a major cause of stress

arising outside the organization, whereas they experience task characteristics as the main cause of stress originating within the work situation. Organisational functioning and the physical working conditions and inadequate equipment caused the least stress within the work situation. Firefighters experienced career and social matters as well as remuneration, fringe benefits and personnel policy as moderate causes of stress originating within the work situation. The analysis of the descriptive statistics of the Stress questionnaire indicated that very few firefighters expressed thoughts about ending their lives (suicidal tendencies), but feelings of concern (depression) were generally indicated.

The inferential statistics indicated that firefighters in the age category 26 - 30 years experience high family stress due to causes arising outside the work situation, and that firefighters in the age category 41- 54 years experience high job stress due to causes originating within the work situation. The male firefighters experience higher levels of family stress due to causes arising outside the work situation than the female firefighters.

The quantitative results further indicated that the male firefighters experience higher job stress due to causes originating within the work situation than the female firefighters. The quantitative results also indicated that the married firefighters experience high levels of family stress due to causes arising outside the work situation, and that unmarried firefighters experience high job stress due to causes originating within the work situation. Firefighters with 2 - 5 years' experience in their occupation experience high levels of family stress due to causes arising outside the work situation, and firefighters with less than 2 years' experience in their occupation experience high levels of job stress due to causes originating within the work situation. The quantitative results further indicated that the firefighters in the category Grade 10 - 11 experience

high family stress due to causes arising outside the work situation, and that firefighters in the category of Grade 10 - 11 experience high family stress due to causes originating within the work situation. The correlation statistics confirmed that firefighters do experience job stress due to a number of causes originating within the work situation.

The quantitative results are supported by the qualitative results. Task characteristics indicate that death, in particular the death of children, is a severe source of job stress for firefighters. Rescue operations that involve accidents in which people are injured also produce high levels of emotional stress. Firefighters are continuously exposed to trauma. Exposure to human loss, terrible sights and noises, and accountability for decisions that have to be taken under pressure are additional factors that also contribute to anxiety. It must be noted that serious fires in which people are trapped cause the least job stress for firefighters.

The qualitative results in terms of organisational functioning indicate that firefighters experience job stress due to poor management decisions and lack of support and interest in firefighting affairs. Job stress is further intensified by the lack of management skills and a shortage of personnel, which result in overloaded job schedules. The delegation of functions, and responsibility versus authority, are also sources of job stress for firefighters. The feelings of uncertainty and insecurity owing to organisational changes in the fire service can be described as an intense source of job stress for the firefighters. The amalgamation of the fire services of the former municipalities of Akasia, Centurion and Pretoria contributes to this feeling of uncertainty and insecurity. Discrimination against certain firefighters and affirmative action exacerbate the situation.

The qualitative results also indicates that firefighters experience high levels of job stress due to insufficient equipment and physical resources. The present situation is characterised by the fact that fire stations in more affluent areas have more equipment and physical resources at their disposal than the smaller fire stations. It is also difficult to obtain new technology for the smaller fire stations. Responses relating to social matters indicate that work relationships amongst firefighters are amongst the main sources of job stress. Poor relationships with supervisors and management are contributing factors to job stress. Job stress is further intensified by the conflict and negative attitudes that exist between colleagues. This conflict can sometimes be attributed to racial tension. Contact with offensive patients and drug abusers, unsocial working hours and the media on the scene are also social factors generating job stress. The pressure to conform to the firefighters' group and the lack of support from colleagues are important social factors to consider in addressing job stress.

The qualitative results relating to career matters indicate that limited career and promotion opportunities also constitute a major source of job stress for firefighters. The insufficient training of firefighters to act in senior positions surfaced as another job stressor. Factors that are closely related to career matters are the remuneration, fringe benefits and personnel policy. Poor status, poor salaries and low expectations are also a high source of job stress for firefighters. Awareness of the differences in the salary structures, fringe benefits and personnel policies of the former municipalities of Akasia, Centurion and Pretoria are experienced by firefighters as a job stressor.

From the perspective of the family, the qualitative results are characterised by the divorce of three firefighters. Two of the firefighters indicated that personal problems had led to divorce, whereas the third indicated that job stress had been directly responsible for his divorce. The marital dysfunction experienced by firefighters can be

contributed to job stress. Another characteristic is the limited time that firefighters have to spend with their families. The hours of the shifts require firefighters to leave home early in the morning and return late in the evenings, which contributes to the problems they experience with their children. These problems result directly from the fact that the firefighters do not have time to spend with their children.

The qualitative results are further characterised by negative lifestyle factors that contribute to family stress. The firefighters abuse alcohol to try to forget the stressful conditions at work. Lack of exercise is also a lifestyle factor identified by a firefighter as a factor that generates family stress. One of the firefighters had considered suicide as the only solution for personal and work-related problems. However, this firefighter indicated that steps would be introduced to prevent a tragedy. Stress also occurs in families when anger is aimed at the marital partner and children. Such anger aimed at family members is directly linked to job stress. Job stress experienced by firefighters also manifests in acts of frustration aimed at family members.

The qualitative results further indicate that firefighters experience physical exhaustion due to the nature of their work. Stress is experienced in the family due to the constant tiredness of the firefighter. The emotional exhaustion of the firefighter contributes to his general fatigue. Stress occurs in families due to the loneliness of the marital partners of firefighters, and when the firefighter is not available to help the family in times of crisis. Firefighters suffer from depression as a direct result of the stress of their job, they feel that they have no control over the working conditions, and the uncertainty and insecurity brought about by organisational changes intensifies this feeling of hopelessness.

The qualitative results indicate that physical symptoms are a major source of stress for

firefighters in their family life. Affective and cognitive stress symptoms are also determinants that should be considered. Shift work contributes to stress in the family life of firefighters. The qualitative results further indicate that the emotional distance from the family is a factor that needs to be considered as a family stressor. The firefighter tries to safeguard his/her family from job stressors by being emotionally distanced, but the family is alienated in the process. Financial problems can also be regarded as a family stressor. Remuneration and benefits need some improvement. The qualitative results also indicated that the anxiety experienced by firefighters in the work situation contributes to family stress.

#### **5.4 CHAPTER SUMMARY**

This chapter, which dealt with the research results, commenced with the discussion of the quantitative results. The reliability and validity of both the Experience of work and life circumstances questionnaire and the Stress questionnaire were confirmed for this specific sample. The descriptive statistics in terms of the frequency tables of the Biographical questionnaire provided background knowledge for the dynamics of the job and family stress experienced by firefighters. The descriptive statistics were further analysed by looking at the mean scores of the Experience of work and life circumstances questionnaire and the Stress questionnaire.

A further analysis of the quantitative results was done by inferential statistics and correlation statistics in terms of the Pearson correlation coefficients of the Experience of work and life circumstances and Stress questionnaires. The analysis of the quantitative results was concluded by a discussion of the covariances between the

dimensions of job stress and family stress. The qualitative results were discussed in terms of the individual interview results. The chapter was concluded with a summary of the results. The conclusions, recommendations and limitations will be discussed in **Chapter 6.**