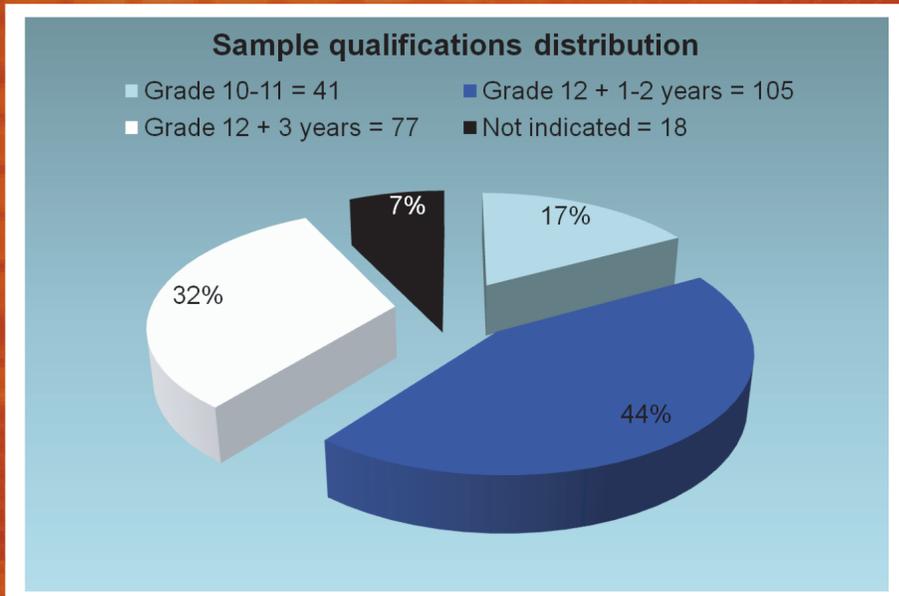
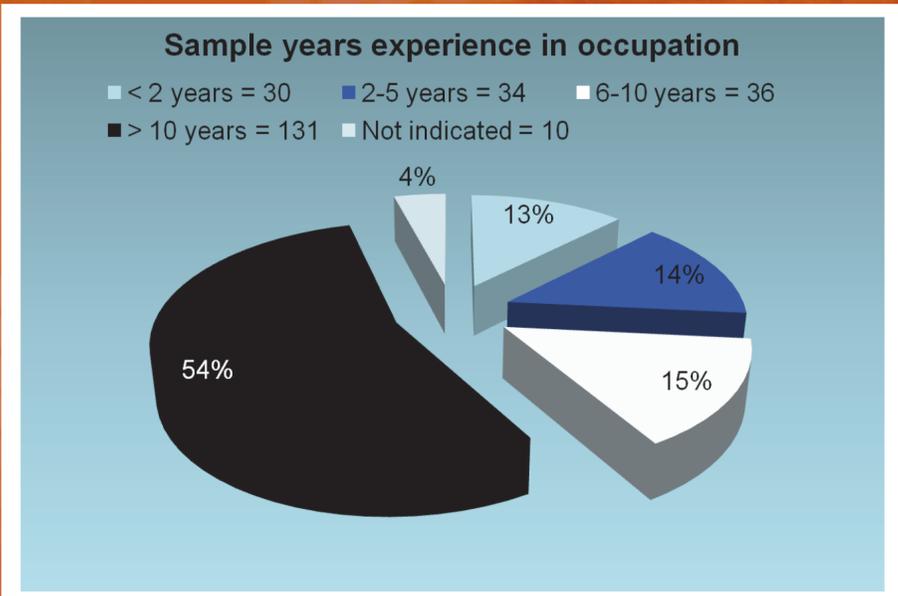
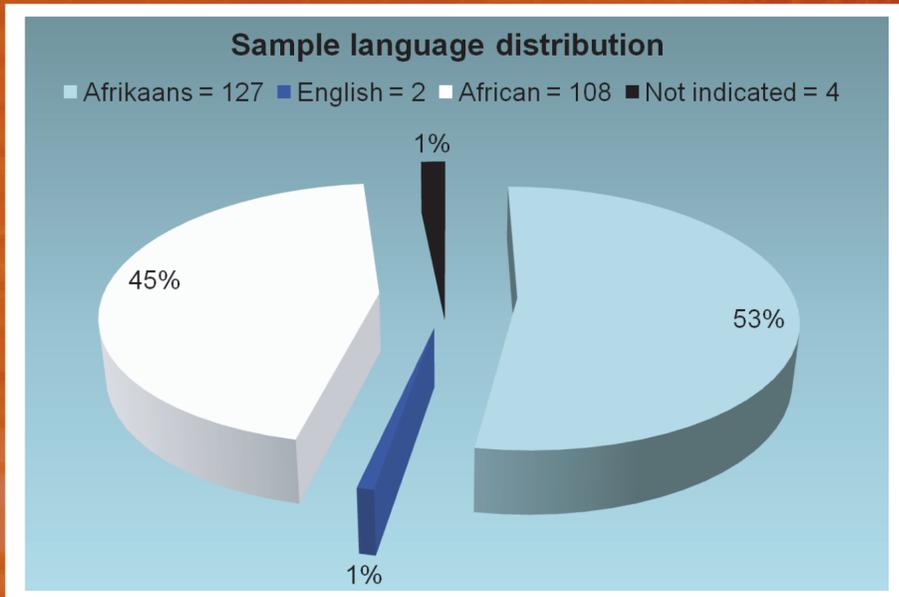
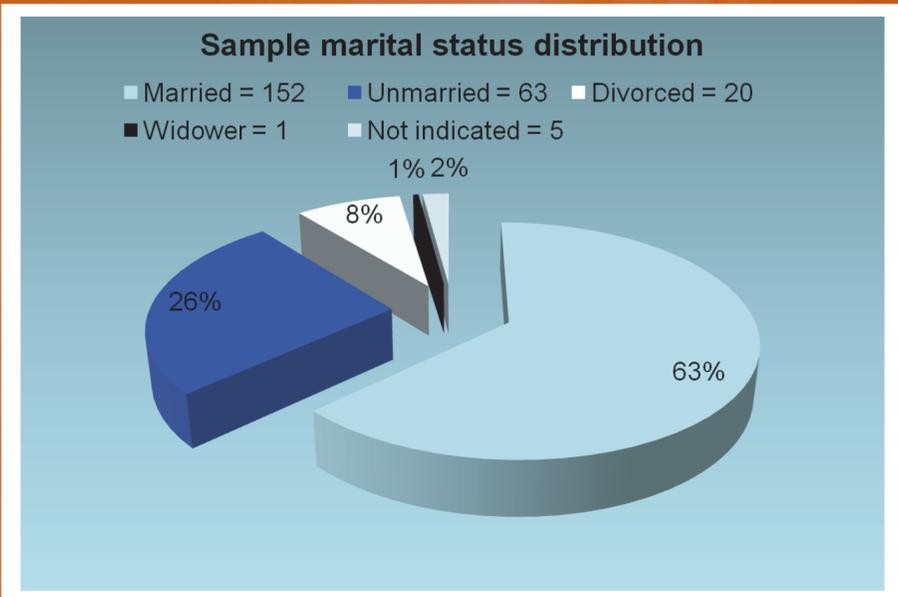
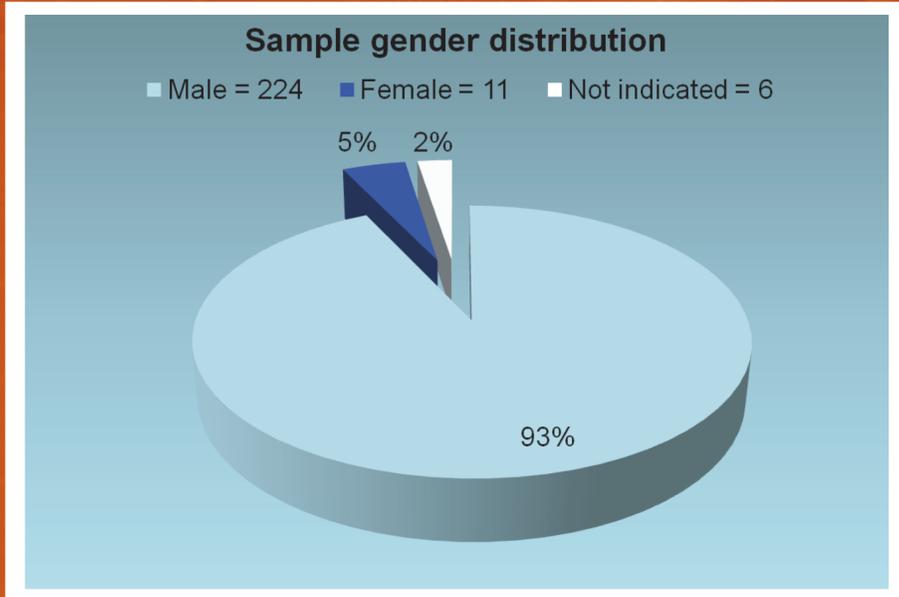
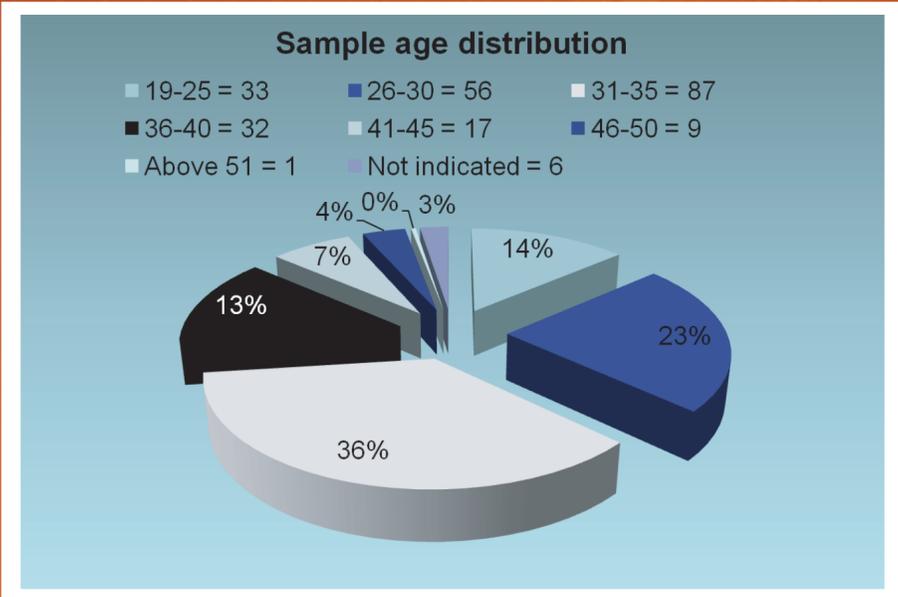


# Biographical characteristics of the sample (N=241)



## MEASURING INSTRUMENT

### Experience of Work and Life Circumstances Questionnaire (Van Zyl & Van der Walt, 1991)

The first part of the questionnaire, which measures the way the job is experienced, indicates the level of stress of the firefighter, and whether a firefighter experiences stress at normal, high or very high levels.

- Scale A of the questionnaire consists of 40 items, each measured on a five-point scale which indicates how often certain stress emotions (for example depression, anxiety and frustration) occur.

The second part of the questionnaire measures the circumstances and expectations of the job and indicates the level of stress experienced by the firefighter.

- Questions are answered on a five-point scale (Scale B in the case of circumstances and Scale C in the case of expectations) to indicate how often specific emotions occur. There is a total of 76 items.

## MEASURING INSTRUMENT

### Hopkins Symptom Checklist (Gmelch, 1982)

This self-report symptom inventory is known as the Hopkins Symptom Checklist and was developed for firefighters to give them an understanding of possible psychological symptoms currently being experienced

- The questionnaire consists of five dimensions namely somatisation, obsessive-compulsive behaviour, interpersonal sensitivity, depression and anxiety.

The questionnaire consists of 45 items that focus on the measurement of the occurrence of a particular stress experience. Respondents are requested to complete each item on a "how often" basis.

- The occurrence is measured through the selection by respondents of one of the following alternatives: 1 = never; 2 = seldom; 3 = often; and 4 = almost always. There is no time limit for the completion of the questionnaire.

## DATA COLLECTION



- The questionnaires were administered in 12 sessions. The firefighters of the Northern and Southern regions were divided into three shifts. The respondents participating in each shift in the various regions were welcomed at the sessions and set at ease with the commencement of the administration of the questionnaires.



- They were asked to answer the questions truthfully and accurately. Respondents were given verbal instructions regarding the completion of the questionnaires and were assured of the confidentiality of the research.



- It was explained to the respondents that they would be asked to complete different questionnaires designed to measure the effects of stress, and that there would be no time limit. The results were discussed with the respondents where such a need was expressed.

## Key significant findings

### Reliability of the Experience of Work and Life Circumstances Questionnaire

**Table 1**

#### Reliability of the sub-scales of the Experience of Work and Life Circumstances Questionnaire

Subscales	Cronbach Alpha Coefficient
Stress level	0,92
Causes arising outside the working situation	0,82
Organisational functioning	0,79
Task characteristics	0,72
Physical working conditions and job equipment	0,82
Career matters	0,77
Social matters	0,77
Remuneration, fringe benefits and personnel policy	0,83

In Table 1 the internal consistency reliabilities of the subscales of the Experience of Work and Life Circumstances Questionnaire are reported. Cronbach Alpha Coefficients ranging from 0,72 to 0,92 were obtained.

The coefficients were acceptable for most of the subscales, except for the task characteristics subscale, which was slightly lower than acceptable. This seems to indicate acceptable reliabilities for the subscales of the Experience of Work and Life Circumstances Questionnaire.

## Key significant findings

### Construct validity of the Experience of Work and Life Circumstances Questionnaire

**Table 2**

#### Percentage of variance explained by the factors extracted from the sub-scales of the Experience of Work and Life Circumstances Questionnaire

Subscales	Number of factors retained by the MINEIGEN criterion	Cumulative percentage of the proportion
Stress level	11	63,14
Causes arising outside the working 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

Exploratory principal component analyses, one for each of the eight subscales of the questionnaire, were conducted to determine the number of factors underlying the intercorrelation matrices of the items.

Table 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 of the variance explained by each subscale of the questionnaire.

## Key significant findings

### Reliability of the Hopkins Symptom Checklist

**Table 3**  
Internal consistency reliabilities of the sub-scales of the Hopkins Symptom Checklist

Subscales	Cronbach Alpha Coefficient
Somatic	0,87
Obsessive-compulsive	0,76
Interpersonal sensitivity	0,79
Depression	0,85
Anxiety	0,74

Internal consistency reliabilities for the subscales of the Hopkins Symptom Checklist were computed and the results are presented in Table 3.

Alpha coefficients ranging from 0,73 to 0,86 were obtained.

## Key significant findings

### Construct validity of the Hopkins Symptom Checklist

**Table 4**  
Percentage of variance explained by the factors extracted from the sub-scales of the Hopkins Symptom Checklist

Subscales	Number of factors retained by the MINEIGEN criterion	Cronbach Alpha Coefficient
Somatic	2	54,64
Obsessive-compulsive	2	54,91
Interpersonal sensitivity	2	63,13
Depression	2	50,45
Anxiety	2	53,73

Table 4 indicates the number of factors with eigenvalues greater than one retained by the MINEIGEN criterion, as well as the proportion of the variance explained by each subscale of the questionnaire.

## DISCUSSION

The aim of the current study was to investigate whether psychometric properties demonstrated by the Experience of Work and Life Circumstances Questionnaire and the Hopkins Symptom Checklist were favourable enough to recommend the use of these questionnaires for firefighters.

The magnitudes of the Cronbach Alpha coefficients for the subscales of both questionnaires were within an acceptable range for the sample of firefighters. With regard to reliability one may thus conclude that the two questionnaires met the standard required for psychometric instruments.

## Experience of Work and Life Circumstances Questionnaire

- Eleven factors with eigenvalues greater than one were retained for the subscale: stress level. These psychological job demands included such factors as aggression, being afraid, uncertainty, lack of support, lack of motivation, emotional disturbances, conflict, overloading, feelings of guilt and dependence on others, acceptance of things as they are, and being wary of colleagues.
- Eight factors with eigenvalues greater than one were retained for the subscale: causes arising outside the work situation. These high demands and low decision control included such factors as financial obligations, dissatisfaction involving personnel matters, difficult interpersonal relationships, dissatisfaction with the physical working conditions and job equipment, limited recreational facilities, family stress, rapidly changing technology, and health status.
- Two factors with eigenvalues greater than one were retained for the subscale: organisational functioning. These psychological job demands include such sub-factors as that management does not believe that the firefighters are hardworking and reliable, and that supervisors are not approachable.
- Five factors with eigenvalues greater than one were retained for the subscale: task characteristics. These high demands and low decision latitude included such factors as irritation, limited opportunities to display initiative, strain with colleagues, lack of sufficient knowledge and information, and physical exhaustion.
- One factor with eigenvalues greater than one was retained for the subscale: physical working conditions and job equipment. The psychological job demand includes the factor that the job equipment is not sufficient and that the physical working conditions are inadequate for the type of work.
- One factor with eigenvalues greater than one was retained for the subscale: social matters. A heavy psychological job demand includes the factor that firefighters feel that they are not able to maintain good relations with their supervisors and healthy social relationships.
- Two factors with eigenvalues greater than one were retained for the subscale: career matters. These high demands and low decision control include such factors as lack of career advancement and dissatisfaction with promotion opportunities.
- Two factors with eigenvalues greater than one were retained for the subscale: remuneration, fringe benefits and personnel policy. These high demands and low decision latitude included such factors as regulations pertaining to personnel matters are not satisfactory and inadequate salaries.

These results provide evidence for the validity of the sub-scales of the Experience of work and life circumstances questionnaire.

## Hopkins Symptom Checklist

- Two factors with eigenvalues greater than one were retained for the subscale: somatic. These psychological job demands include such factors as numbness and weakness in certain body parts, headaches and dizziness.
- Two factors with eigenvalues greater than one were retained for the subscale: obsessive-compulsive. These high demands and low decision control included such factors as concentration problems and difficulty to remember things, and check and recheck of behavioural actions.
- Two factors with eigenvalues greater than one were retained for the subscale: interpersonal sensitivity. These psychological job demands included such sub-factors as unfriendliness and lack of sympathy, and agitation and criticism.
- Two factors with eigenvalues greater than one were retained for the subscale: depression. These high demands and low decision latitude included such factors as desperation, blame, loneliness, and despondences and sorrow.
- Two factors with eigenvalues greater than one were retained for the subscale: anxiety. These psychological job demands include such factors as nervousness, being afraid, avoiding certain places and tension.

These data provide evidence for the validity of the subscales of the Hopkins Symptom Checklist.

## CONCLUSIONS

Behavioural researchers and industrial psychologists should take note of the findings of this study, namely that the Experience of Work and Life Circumstances Questionnaire and Hopkins Symptom Checklist were suitable for the evaluation of job and family stress for this specific sample of firefighters in the South African context.

Given the nature of the sample, it may be reasonable on extra-statistical grounds to generalise these findings to the population of South African firefighters, because the large sample consisted of all the firefighters in one metropolitan area who were not working shifts at the time of testing. One would assume that the working conditions of firefighters would not vary much between the various areas.

The research findings add to the existing knowledge about the psychometric properties of the Experience of Work and Life Circumstances Questionnaire and Hopkins Symptom Checklist, and specifically job and family stress. It is recommended that industrial psychologists make use of these measuring instruments during counselling to enhance the psychological well-being of firefighters and their families.