CHAPTER 5

RESULTS

5.1 INTRODUCTION

The previous chapter provided a theoretical discussion of the research and statistical methodology. This chapter focuses on the reporting, interpretation and discussion of the research results. First, the results of Lawshe's test of the content validity of the initial items is reported and discussed. Thereafter the results of the exploratory factor analysis and the item and reliability analysis of the questionnaires are reported comprehensively. In addition, the results of the analyses of variance, the correlation between the variables and logistic regression analysis to predict marital status are reported and interpreted.

5.1.1 Assessment of the content validity of preliminary items

As indicated in Chapter 4, a draft framework questionnaire was designed that contained multiple measurement items relating to all the constructs identified for measurement. The framework questionnaire was pre-tested and verified by a group of 30 professionals to assess the construct validity of the items. The panel used a three-point rating scale developed by Lawshe (1975) to determine the relevancy of each statement to the latent domain the researcher intended to measure. (A copy of this questionnaire is provided in Appendix C.) The main purpose of this step was to test the preliminary questionnaire prior to revision.

The result of the calculations using Lawshe's technique are presented in Table 5.1. This table includes the Content Validity Ratio (CVR) for each item for the following domains:

Domain 1: Work demands and family responsibilities;
Domain 2: Time pressure;
Domain 3: Financial pressure;
Domain 4: Feelings of isolation;
Domain 5: Childcare arrangements;

Domain 6: The need to improve oneself;

Domain 7: Presence of mentors;

Domain 8: Personal support; and

Domain 9: Organisational support.

Table 5.1: The results of Lawshe's test for content validity

Item	Elements	Endorsements of statement			CVR	Retain yes/ no	Direction
		Essential	Useful, but not essential	Not necessary		Reject if CVR is < 0.4	Positive/ Negative
1. Work demands and family responsibilities							
1	I balance my work and family time.	24	6	0	0.60	Yes	Positive
2	My job keeps me away from my family.	22	7	1	0.46	Yes	Negative
3	I am able to 'switch off' at home.	24	6	0	0.60	Yes	Positive
4	I have time to do things with the family.	24	5	1	0.60	Yes	Positive
5	My time off matches my family members' schedules.	25	4	1	0.66	Yes	Positive
6	Responsibilities at home do not put me under strain.	26	3	1	0.73	Yes	Positive
7	I am pursuing a career at the expense of my home life.	23	5	2	0.53	Yes	Negative
8	I am comfortable with the arrangements for my children while I am working.	24	3	3	0.60	Yes	Positive
9	People at work think my family responsibilities interfere with my work.	24	3	3	0.60	Yes	Negative
10	Work demands affect my relationship with my child/children negatively.	23	4	3	0.53	Yes	Negative
11	I have little influence over what happens to me at work.	24	4	2	0.60	Yes	Negative
12	I spend enough time with my family.	22	4	4	0.46	Yes	Positive
13	I wish I had more time to do things with my family.	18	7	5	0.20	No	Negative
14	There are conflicting job tasks and family demands in the role I play.	21	7	2	0.40	Yes	Negative
15	When I go to bed at night, my mind is not occupied by tasks I have to do the following day.	17	7	6	0.13	No	Positive
16	There is stability and dependability in my home life.	21	8	1	0.40	Yes	Positive
17	I get so involved with my job that I feel a conflict of loyalty between my home and work responsibilities.	22	6	2	0.46	Yes	Negative
18	Responsibilities at home do not put me under strain.	23	4	3	0.53	Yes	Positive

Item	Elements	Endorsements of statement			CVR	Retain yes/ no	Direction
		Essential	Useful, but not essential	Not necessary		Reject if CVR is < 0.4	Positive/ Negative
19	Family demands have a favourable influence on my work.	24	3	3	0.60	Yes	Positive
20	I feel physically drained when I get home from work.	22	4	4	0.46	Yes	Negative
21	I feel emotionally drained when I get home from work.	22	7	1	0.46	Yes	Negative
22	My job improves the quality of my life.	23	5	2	0.53	Yes	Positive
23	I am in a job with a schedule flexible enough to let me meet my family responsibilities.	24	4	2	0.60	Yes	Positive
2.Time pressure							
1	I have enough time for myself.	21	7	2	0.40	Yes	Positive
2	I often have too much to do in too little time.	23	5	2	0.53	Yes	Negative
3	Unrealistic deadlines for the completion of work are not a regular occurrence.	23	5	2	0.53	Yes	Positive
4	I usually leave work on time.	21	5	4	0.40	Yes	Positive
5	My job leaves me enough time to spend with my family and friends.	23	5	2	0.53	Yes	Positive
6	I wish I had more time to do things with my family.	18	9	3	0.20	No	Negative
7	I spend quality time with my friends.	18	7	5	0.20	No	Positive
8	I do not work overtime during weekends.	18	6	6	0.20	No	Positive
9	I am overwhelmed with the workload I face each day.	21	3	6	0.40	Yes	Negative
10	The hours I work make it difficult to look after my child/children.	21	6	3	0.40	Yes	Negative
11	I feel I have to rush to get everything done each day.	24	7	9	0.60	Yes	Negative
3. Financial pressure							
1	I am in serious debt.	21	8	1	0.40	Yes	Negative
2	I do not have enough money to give my child/children what they need.	20	6	4	0.33	No	Negative
3	I feel that I am not meeting all of my child's/children's needs.	21	7	2	0.40	Yes	Negative
4	Sacrificing for my children is a part of single parenthood.	21	8	1	0.40	Yes	Positive
5	There is no great need to earn because of financial security.	19	8	3	0.27	No	Positive
6	I do not have enough money to cover medical and dental care.	22	7	1	0.47	Yes	Negative
7	My work input is adequately remunerated.	26	3	1	0.73	Yes	Positive
8	My fringe benefits are good.	22	3	5	0.47	Yes	Positive
9	There is financial support from others outside work.	21	5	4	0.40	Yes	Positive
10	I would love to move to a better home, but do not have sufficient funds to do so.	22	6	2	0.47	Yes	Negative

Item	Elements	Endorsements of statement			CVR	Retain yes/ no	Direction
		Essential	Useful, but not essential	Not necessary		Reject if CVR is < 0.4	Positive/ Negative
11	I am financially independent.	27	1	2	0.80	Yes	Positive
4. Feelings of isolation							
1	I feel socially isolated.	23	5	2	0.53	Yes	Negative
2	My identity is based solely on being a parent.	23	6	1	0.53	Yes	Negative
3	My job gives me a welcome break from housework and my child/children.	24	2	4	0.60	Yes	Positive
4	I feel that I am less likely to get chosen for certain assignments because of 'who I am' (e.g. a single mother).	22	3	5	0.47	Yes	Negative
5	When I am with my friends, I am able to be completely myself and relax.	20	4	6	0.33	No	Positive
6	I am invited to gatherings often.	19	5	6	0.27	No	Positive
7	I enjoy life outside of work.	23	4	3	0.53	Yes	Positive
8	I have extensive interests and activities outside work	20	6	4	0.33	No	Positive
9	When I have a problem, there is someone I can confide in and talk it over with.	24	1	5	0.60	Yes	Positive
5. Childcare arrangements							
1	If my child/children fall ill, there is someone who can stay home and look after him/her/them.	23	3	4	0.53	Yes	Positive
2	I am comfortable with the arrangements for my child when I am at work.	25	3	2	0.67	Yes	Positive
3	Making arrangements for my children while I work does not involve lots of effort.	23	4	3	0.53	Yes	Positive
4	I can usually get a babysitter if I want to go out in the evening.	21	8	1	0.40	Yes	Positive
5	It is easy to find someone to look after my child/children when I cannot be with him/her/them.	21	8	1	0.40	Yes	Positive
6	I get support when I have to take my child/children to a clinic/hospital.	20	7	3	0.33	No	Positive
7	I do not feel guilty about leaving my child/children when I go out to work.	22	6	2	0.47	Yes	Positive
8	I meet my child's/children's emotional needs and social development needs.	20	6	4	0.33	No	Positive
9	I worry about my child/children when I am at work.	23	3	4	0.53	Yes	Negative
10	My child's/children's health is not affected when he/she/they is/are placed in childcare.	23	5	2	0.53	Yes	Positive
6. The need to improve oneself							
1	The people I work for find it easier to blame than to praise.	25	3	2	0.67	Yes	Negative
2	I often feel undervalued.	23	5	2	0.53	Yes	Negative
3	I am not especially achievement-oriented.	22	2	6	0.47	Yes	Negative

Item	Elements	Endorsements of statement			CVR	Retain yes/ no	Direction
		Essential	Useful, but not essential	Not necessary		Reject if CVR is < 0.4	Positive/ Negative
4	There is inadequate training and development at my place of work.	23	4	3	0.53	Yes	Negative
5	When obstacles get in the way of my advancement, I keep trying.	24	6	0	0.60	Yes	Positive
6	My goal is to reach the top in my career.	24	4	2	0.60	Yes	Positive
7	It is not important to me to keep moving up in the hierarchy.	22	5	3	0.47	Yes	Negative
8	I feel that in my job I can develop or grow personally.	22	5	3	0.47	Yes	Positive
9	I have some influence over what happens to me at work.	26	1	3	0.73	Yes	Positive
10	I have a lot of discretion in my work.	25	0	5	0.67	Yes	Positive
11	My job taps into the range of skills which I feel I possess.	26	1	3	0.73	Yes	Positive
12	I keep up with new techniques, ideas, technology or innovations.	23	5	2	0.53	Yes	Positive
13	I get adequate feedback about my own performance.	24	3	3	0.60	Yes	Positive
14	There is potential for career advancement in my job.	24	5	1	0.60	Yes	Positive
15	There are opportunities for personal development in my job.	26	2	2	0.73	Yes	Positive
16	It is important to me to be seen as very successful.	26	4	0	0.73	Yes	Positive
7. Presence of mentors							
1	My manager encourages me to discuss my career and family problems.	26	4	0	0.53	Yes	Positive
2	When my manager gives me advice, s/he makes me feel stronger.	23	3	4	0.60	Yes	Positive
3	My manager encourages me to discuss positive/ negative feelings that I may have about my ability to succeed.	24	3	3	0.60	Yes	Positive
4	My manager guides me towards identifying problem areas in my work and helps me find the best solution.	22	3	5	0.33	No	Positive
5	My manager is always available when needed.	20	6	4	0.33	No	Positive
6	My manager is not intimidating; s/he is easy to approach at any time.	23	4	3	0.53	Yes	Positive
7	My manager gives me constructive feedback skilfully.	21	5	4	0.40	Yes	Positive
8	My manager serves a role model for achieving balance between personal and professional life.	24	3	3	0.60	Yes	Positive
9	My manager is a good listener.	25	5	0	0.67	Yes	Positive
10	My manager encourages me to review my strategies for managing my life while pursuing	23	5	2	0.53	Yes	Positive

Item	Elements	Endorsements of statement			CVR	Retain yes/ no	Direction
		Essential	Useful, but not essential	Not necessary		Reject if CVR is < 0.4	Positive/ Negative
	my career goals.						
8. Personal support							
1	Finding someone to look after my child/children when I cannot be with him/her/them is not a problem.	24	3	3	0.60	Yes	Positive
2	I get enough help and support from my child's/children's father(s).	22	5	3	0.46	Yes	Positive
3	I feel comfortable asking my co-workers for their help.	23	5	2	0.53	Yes	Positive
4	My supervisor is concerned about my welfare.	12	13	5	0.20	No	Positive
5	People offer to help me without having to be asked.	16	4	10	0.07	No	Positive
6	It is easy to get help from my colleagues.	15	5	10	0.00	No	Positive
7	I lack social support from people at my work.	16	7	7	0.07	No	Negative
8	My friends are supportive and helpful.	12	14	4	0.20	No	Positive
9	There is practical support from others outside work.	13	13	4	0.13	No	Positive
10	My parents are supportive and helpful.	13	13	4	0.13	No	Positive
9. Organisational support							
1	My organisation makes childcare provision for its employees.	25	4	1	0.67	Yes	Positive
2	There is great flexibility in my organisation.	25	2	3	0.67	Yes	Positive
3	My organisation appreciates any extra effort from me.	22	5	3	0.60	Yes	Positive
4	My organisation ignores any complaint from me.	23	4	3	0.53	Yes	Negative
5	There is job sharing in my organisation.	22	4	4	0.60	Yes	Positive
6	There is an option to work from home in my organisation.	26	2	2	0.73	Yes	Positive
7	A flexible work schedule is made available in my organisation.	23	4	3	0.53	Yes	Positive
8	My organisation has policies to support mothers in securing a realistic work life balance.	20	8	2	0.33	No	Positive
9	My organisation has on-site childcare.	21	8	1	0.40	Yes	Positive
10	My organisation brings in additional resources to handle workload.	23	4	3	0.53	Yes	Positive
11	My organisation shows an awareness of how much pressure mothers deal with.	20	9	1	0.33	No	Positive
12	My organisation has an open-door policy.	22	6	2	0.60	Yes	Positive
13	My organisation provides information on additional sources of support.	22	6	2	0.60	Yes	Positive
14	There is financial support for mothers with career responsibilities in my	20	10	0	0.33	No	Positive

Item	Elements	Endorsements of statement			CVR	Retain yes/ no	Direction
		Essential	Useful, but not essential	Not necessary		Reject if CVR is < 0.4	Positive/ Negative
	organisation.						
15	My organisation takes an interest in mothers' personal lives.	25	4	1	0.66	Yes	Positive
16	My organisation consults with mothers when making decisions about their work load.	21	8	1	0.40	Yes	Positive
17	Help is available from my organisation when I have a problem.	21	9	0	0.40	Yes	Positive
18	My organisation really cares about my well-being.	23	7	0	0.53	Yes	Positive
19	My organisation tries to make my job as interesting as possible.	26	4	0	0.73	Yes	Positive
20	My organisation is willing to help me when I need a special favour.	22	7	1	0.60	Yes	Positive
21	My organisation shows little concern for me.	18	12	0	0.20	No	Negative
22	If the organisation could hire someone to replace me, paying the person a lower salary, it would do so.	21	6	3	0.40	Yes	Positive

The results indicate that the majority of the measurement items (96) were related to the construct domains they were supposed to present. The CVR values of these items ranged from 0.78 to 0.40. All the items that met the statistical significance level of = 0.05 (CVR ≥ 0.40) were retained for the next phase in the development of the questionnaire.

Based on the results achieved through the application of Lawshe's content validity technique, the following 25 items were eliminated:

I wish I had more time to do things with my family.

My supervisor is concerned about my welfare.

People offer to help me without having to be asked.

It is easy to get help from my colleagues.

I lack social support from people at my work.

My friends are supportive and helpful.

There is practical support from others outside work.

My parents are supportive and helpful.

When I go to bed at night, my mind is not occupied by tasks I have to do the following day.

I wish I had more time to do things with my family.

I spend quality time with my friends.

I do not work overtime during weekends.

I do not have enough money to give my (child/children) what they need.

There is no great need to earn because of financial security.

When I am with my friends, I am able to be completely myself and relax.

I am invited to gatherings often.

I have extensive interests and activities outside work.

I get support when I have to take my child/children to a clinic/hospital.

I meet my child's/children's emotional needs and social development needs.

My manager guides me towards identifying problem areas in my work and helps me find the best solution.

My manager is always available when needed.

My organisation has policies to support mothers in securing a realistic work life balance.

My organisation shows an awareness of how much pressure mothers deal with.

There is financial support for mothers with career responsibilities in my organisation.

My organisation shows little concern for me.

5.2 FACTOR ANALYSIS

5.2.1 Exploratory factor analysis

Exploratory factor analysis (EFA) was used to discover patterns among the variations in values of the variables and to assess whether the preliminary questionnaire measured substantive constructs or factors that are relatively independent of one another (Babbie & Mouton, 2006). The EFA was carried out by means of principal axis factoring (PFA) and rotated using the varimax rotation with Kaiser's normalization to an orthogonal solution. PFA allows for seeking the least number of factors that can account for the common variance in a set of variables (Garson, 2008).

To assess compliance with the distribution requirements, Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy were applied. Kaiser's criterion (1961), Cattell's (1966) scree-plot and Horn's (1965) parallel analysis were used to estimate the number of significant item factors. Horn's (1965) method of parallel analysis entails contrasting the eigenvalues of a correlation matrix of random uncorrelated items with the eigenvalues of the matrix of the actual data, based on an equal sample size and an equal number of variables. Factors in or dimensions of the matrix are retained if the eigenvalue from the actual data is greater than the eigenvalue from the random data (O'Connor, 2000:397). According to Hayton, Allen and Scarpello (2004), parallel analysis provides the most accurate estimate of the number of true factors in a complex dataset.

The squared multiple correlations (SMCs) were calculated to estimate the internal consistency of the factor solution. Squared multiple correlations are 'the squared multiple correlations of factor scores predicted from scores on the observed variables'. This index gives an indication of 'the certainty with which factor axes are fixed in the variable space' (Tabachnick & Fidell, 2007:649). The factor scores of the respondents were calculated by means of the regression approach, as suggested by Tabachnick and Fidell (2007:651).

In the first round of EFA, the 96 items of the preliminary questionnaire were inter-correlated and rotated to form a simple structure by means of the varimax rotation. Owing to the size (96 X 96), the inter-correlation matrix is not reported. Based on Kaiser's (1961) criterion (eigenvalues larger than unity), 16 factors were postulated. The 16 factors explained 75.30% of the variance in the factor space of the data. The factor analyses yielded more factors in the real test space than was expected. This is probably due to the presence of differentially skew items (Schepers, 2004). Next, the items included in the 16 factors were scrutinized. Thereafter, all items with factor loadings less than 0.45 or which cross-loaded high on more than one factor and items which seemed to be exceedingly similar in content were omitted (Tabachnick & Fidell, 2007:649). Factors with three or fewer items were also omitted.

In the end, 54 items were retained and were subjected to a second round of EFA with varimax rotation. The Kaiser-Meyer-Olkin (KMO) test for measuring sampling adequacy and Bartlett's test of sphericity displayed satisfactory results. The calculated KMO value of 0.931 was greater than 0.7 and Bartlett's test of sphericity [^{2} (1431) = 10718.090, $p < 0.001$] confirmed that the properties of the inter-correlation matrix of the 54 item scores were suitable for factor analysis. Based on Kaiser's criterion, eight factors with eigenvalues greater than one were extracted. The eight rotated factors explained 69.625% of the total variance in the data. An inspection of the scree-plot indicated that seven factors had been determined. The result of the parallel analysis presented in Figure 5.1 confirmed that there were actually seven significant constructs. Parallel analysis indicated a break in the scree-plot between roots seven and eight. The curve of the eigenvalues of the random data set (the broken line) intersects the curve of the eigenvalues for the real data (the solid line) at root seven (Hayton *et al*., 2004).

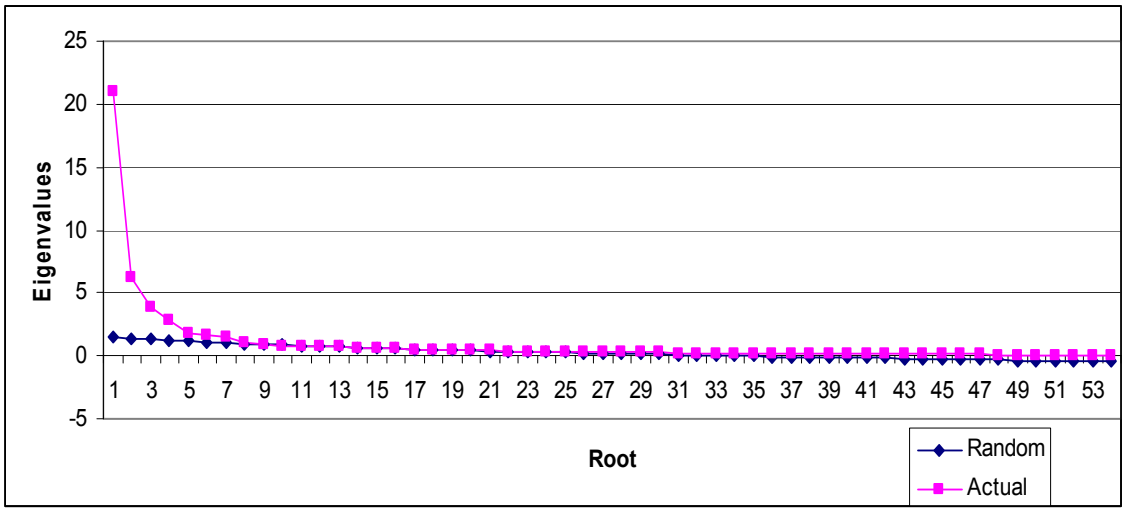

Figure 5.1: Scree-plot of the actual and the random data

However, only one item with a factor loading of 0.48 was associated with Factor 7 and the factor loadings of all the other items were less than 0.40. According to Tabachnick and Fidell (2007:646), the interpretation of factors defined by only one or two variables is risky, under even the most exploratory of factor analyses. Consequently, Factors 7 and 8 were disregarded for the

purposes of this study. The six rotated factors that were retained explained 65.292% of the total variance of the data.

The results of the principal axis factor analysis for the 54 retained items are summarized in Table 5.2. The factor loadings, percentage variance after extraction, and squared multiple correlations for each factor are reported.

According to the results depicted in Table 5.2, the factor scores of the factor solution ranged

from 0.486 to 0.875 for Factor 1;

from 0.496 to 0.836 for Factor 2;

from 0.672 to 0.891 for Factor 3;

from 0.481 to 0.760 for Factor 4;,

from 0.478 to 0.753 for Factor 5, and

from 0.474 to 0.703 for Factor 6.

Comrey and Lee (1992) suggest that loadings in excess of 0.71 are considered excellent, 0.63 very good, 0.55 good, 0.45 fair and 0.32 poor. According to these guidelines, it can be concluded that the items of the questionnaire are adequate for measuring the factor they are related to: 'The greater the loading, the more the variable is a pure measure of the factor' (Tabachnick & Fidell, 2007:649).

The squared multiple correlations of 0.666 to 0.931 between the item scores and the factor scores indicated that the factor solution was internally consistent and that all the factors were well defined by the relevant items. Squared multiple correlation values of 0.7 and higher mean that the observed variables (item scores) account for substantial variance in the factor scores (Tabachnick & Fidell, 2007:649).

Table 5.2 Principal factor extraction and varimax rotation of the items: factor loadings, eigenvalues, percentage variance, and squared multiple correlation of the six factors (n = 205)

ITEM	FACTORS PER ITEM	1	2	3	4	5	6
15	I get so involved with my job that I feel a conflict of loyalty between my home and work responsibilities.	0.875					
82	I feel I have to rush to get everything done each day.	0.850					
25	I would love to move to a better home, but do not have sufficient funds to do so.	0.842					
10	I often have too much to do in too little time.	0.811					
51	My identity is based solely on being a parent.	0.771					
80	I am overwhelmed with the workload I face each day.	0.769					
81	The hours I work make it difficult to look after my child/children.	0.734					
71	Work demands affect my relationship with my child/children negatively.	0.708					
93	I worry about my child/children when I am at work.	0.648					
12	I am in serious debt.	0.643					
49	I feel socially isolated.	0.611					
31	I often feel undervalued.	0.599					
43	People at work think my family responsibilities interfere with my work.	0.553					
40	There are conflicting job tasks and family demands in the role I play.	0.511					
20	I feel emotionally drained when I get home from work.	0.486					
67	There are opportunities for personal development in my job.		0.836				
66	There is potential for career advancement in my job.		0.834				
57	I feel that in my job I can develop or grow personally.		0.730				

ITEM	FACTORS PER ITEM	1	2	3	4	5	6
22	My work input is adequately remunerated.		0.693				
21	My job improves the quality of my life.		0.674				
56	My organisation tries to make my job as interesting as possible.		0.647				
59	I have some influence over what happens to me at work.		0.636				
68	My organisation is willing to help me when I need a special favour.		0.605				
39	My fringe benefits are good.		0.552				
77	My job leaves me enough time to spend with my family and friends.		0.504				
47	I usually leave work on time.		0.496				
79	My manager encourages me to review my strategies for managing my life while pursuing my career goals.			0.891			
58	My manager serves as a role model for achieving balance between personal and professional life.			0.880			
50	My manager gives me constructive feedback skilfully.			0.847			
65	I get adequate feedback about my own performance.			0.799			
70	My manager is a good listener.			0.799			
60	My manager encourages me to discuss positive/negative feelings that I may have about my ability to succeed.			0.774			
44	My manager is not intimidating, s/he is easy to approach at any time.			0.672			
89	There is great flexibility in my organisation.				0.760		
62	There is an option to work from home in my organisation.				0.692		
63	A flexible work schedule is made available in my organisation.				0.660		

ITEM	FACTORS PER ITEM	1	2	3	4	5	6
24	My organisation takes an interest in mothers' personal lives.				0.616		
86	I am in a job with a schedule flexible enough to let me meet my family responsibilities.				0.513		
17	My organisation provides information on additional sources of support.				0.487		
6	My organisation consults with mothers when making decisions about their work load.				0.481		
35	Help is available from my organisation when I have a problem.				0.481		
3	I am able to 'switch off' at home.					0.753	
4	I have time to do things with the family.					0.714	
2	I balance my work and family time.					0.681	
9	I have enough time for myself.					0.548	
18	Family demands have a favourable influence on my work.					0.521	
38	I spend enough time with my family.					0.519	
23	My time off matches my family members' schedules.					0.478	
42	I am comfortable with the arrangements for my children while I am working.						0.703
28	I can usually get a babysitter if I want to go out in the evening.						0.702
27	Making arrangements for my children while I work does not involve lots of effort.						0.655
69	It is easy to find someone to look after my child/children when I cannot be with him/her/them.						0.569
72	I do not feel guilty about leaving my child/children when I go out to work.						0.487
52	If my child/children fall/s ill, there is someone who can stay home and look after him/her/them.						0.474

ITEM	FACTORS PER ITEM	1	2	3	4	5	6
Eigenvalues		21.010	6.177	3.869	2.846	1.837	1.602
Percentage variance after rotation		17.246	12.538	11.596	8.953	8.862	6.097
Squared multiple correlation (SMC)		0.931	0.901	0.931	0.825	0.763	0.666

5.2.2 Factor naming and description

The aim with the development of the questionnaire was to explore the problems and pressures single mothers in professional occupations and management positions in South Africa experience, and to identify the resources needed to mitigate these stressors.

After studying the contents of the items defining each factor, it seemed that Factor 1 was predominately related to the pressures facing mothers in professional occupations and management positions. The content of the remaining five factors or scales were all related to resources that may be of value in supporting single working mothers to deal with high job and family demands. The following descriptive labels were assigned to each scale after studying the contents of the items defining each factor:

Factor 1: Work-family pressure

This factor focuses primarily on pressures associated with conflict in balancing work and family demands. The elements of this factor include issues related to work hours, time pressure, workload, role overload and role conflict, and the inability to satisfy family and professional role expectations. This factor also includes items related to pressures associated with financial constraints, and feelings of social isolation, low self-esteem and emotional exhaustion. This factor measures the presence of time-, strain- and behaviour-based conflict and pressures experienced by working mothers. Fifteen items loaded on this factor, and the factor loadings ranged from

0.875 to 0.486. This factor accounted for approximately 17.25% of the total variance.

Factor 2: Personal development

This factor refers to the opportunities that working mothers have for personal development, growth and career advancement in their jobs. This factor also includes items related to autonomy, stimulating work, adequate remuneration and time to spend with family and friends. This scale measures both the intrinsic and extrinsic job resources that provide support to employees at the organisational, work and social levels. In all, 11 items loaded on this factor, with factor loadings ranging from 0.836 to 0.496. This factor accounted for 12.54% of the explained variance.

Factor 3: Management support

This factor includes items related to management behaviour that provides social and interpersonal support to employees in the form of both work and psychosocial assistance. The elements of this factor include managers' encouraging working mothers to pursue their career goals, giving adequate and constructive feedback on performance, and recognising working mothers' need to achieve a balance between their personal and professional lives. Other characteristics of management support denoted by this factor are listening, encouraging, and being approachable and open-minded. The factor loadings of the seven items related to this scale ranged from 0.891 to 0.672. These items explained 11.60% of the variance.

Factor 4: Organisational flexibility

The factor refers to the role of the organisation in creating and providing a flexible work environment. This includes a flexible work schedule, allowing workers to work from home, involving or consulting mothers in decisions about workloads, providing information on additional sources of support and taking an interest in mothers' personal lives. Finally, this factor also looks at whether an organisation is willing to help when workers have a problem. This scale measures resources that provide support to employees at the work and social levels. Eight items loaded on this factor. It explained 8.95%

of the total variance. The factor loadings of the eight items ranged from 0.760 to 0.481.

Factor 5: Time for family interaction

This factor is relates to work-home interaction and refers to working mothers' experience of the availability of time for family interaction. The items of this factor are associated with an employee's ability to 'switch off' at home, to balance work and family time, to have time to do things with the family and have enough time for themselves, and time on hand to match family members' schedules. It also includes the point of view that family demands have a favourable influence on women's work. Seven items loaded on this factor, with loadings ranging from 0.753 to 0.478. This factor accounted for approximately 8.86% of the total variance.

Factor 6: Childcare support

This last factor includes six items that define working mothers' perceptions of childcare arrangements. The variables of this factor included working mothers' satisfaction with arrangements made for their children while the mothers are working, the availability of a helper or baby sitter when mothers are absent or when their children are ill, and the ease in which working mothers can arrange for someone to look after their children. These six items explained 6.10% of the total variance, and their loadings ranged from 0.703 to 0.474.

5.3 FACTORIAL RELIABILITY

5.3.1 Reliability and item statistics

The reliability of the factors of the questionnaire was determined by means of Cronbach's alpha coefficient, as proposed by Field (2005). The mean inter-item correlations between the items of each scale were also calculated to examine the internal homogeneity and unidimensionality of the six factors, as suggested by Clark and Watson (1995). The means, standard deviations, corrected item-

total correlations, mean inter-item correlations and Cronbach's alpha coefficients for the six factors are provided in Tables 5.3 to 5.8.

As indicated in Tables 5.3 to 5.8, the items of each factor correlated significantly (r ranged from 0.447 to 0.897) with the total score of the relevant factor, indicating that the items are related to the construct they signify. DeVellis (2003) regards an item with an item-correlation of more than 0.20 as generally acceptable. Compared to the guideline for alpha ≥0.70 recommended by Nunnally and Bernstein (1994), the alpha coefficient for the six factors all yielded acceptable values (Factor 1 =0.948; Factor 2 =0.927; Factor 3 =0.943; Factor 4 =0.897; Factor 5 =0.926 and Factor 6 =0.912). Furthermore, the deletion of any of the items did not increase the internal consistency of a factor substantially.

Table 5.3: Reliability and item statistics for Factor 1: Work-family pressure (n =205)

Items/variables	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
10. I often have too much to do in too little time.	3.6537	2.45789	0.778	0.943
12. I am in serious debt.	3.5171	2.23518	0.709	0.944
15. I get so involved with my job that I feel a conflict of loyalty between my home and work responsibilities.	3.8195	2.53826	0.827	0.941
20. I feel emotionally drained when I get home from work.	4.3854	2.39337	0.594	0.947
25. I would love to move to a better home, but do not have sufficient funds to do so.	3.7610	2.36113	0.823	0.942
31. I often feel undervalued.	3.6146	2.53462	0.706	0.944
40. There are conflicting job tasks and family demands in the role I play.	2.7024	2.22822	0.446	0.950
43. People at work think my family responsibilities interfere with my work	3.3707	2.31134	0.662	0.945
49. I feel socially isolated.	3.6976	2.32764	0.723	0.944
51. My identity is based solely on being a parent.	3.8537	2.36354	0.758	0.943

71. Work demands affect my relationship with my child/children negatively.	4.0732	2.53205	0.730	0.944
80. I am overwhelmed with the workload I face each day.	3.9659	2.51345	0.789	0.942
81. The hours I work make it difficult to look after my child/children.	4.3707	2.45930	0.685	0.945
82. I feel I have to rush to get everything done each day.	3.9415	2.48258	0.850	0.941
93. I worry about my child/children when I am at work.	4.1366	2.48542	0.688	0.945

Number of items: **15**
Mean inter-item correlation: **0.72**
Cronbach's alpha coefficient: **0.948**

Table 5.4: Reliability and item statistics for Factor 2: Personal development (n =205)

Items/variables	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
21. My job improves the quality of my life.	5.3756	1.63311	0.731	0.919
22. My work input is adequately remunerated.	5.6537	1.81282	0.735	0.919
39. My fringe benefits are good.	5.0341	2.08021	0.665	0.922
47. I usually leave work on time.	4.9268	1.94521	0.686	0.921
56. My organisation tries to make my job as interesting as possible.	5.0000	1.89167	0.697	0.920
57. I feel that in my job I can develop or grow personally.	5.7805	1.55160	0.715	0.920
59. I have some influence over what happens to me at work.	5.3122	1.93272	0.741	0.918
66. There is potential for career advancement in my job.	5.8634	1.68351	0.791	0.917
67. There are opportunities for personal development in my job.	5.6780	1.75280	0.801	0.916
68. My organisation is willing to help me when I need a special favour.	5.3951	1.82439	0.652	0.922
77. My job leaves me enough time to spend with my family and friends.	4.4634	2.35040	0.608	0.927

Number of items:	**11**
Mean inter-item correlation:	**0.71**
Cronbach's alpha coefficient:	**0.927**

Table 5.5: Reliability and item statistics for Factor 3: Management support (n =205)

Items/variables	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
44. My manager is not intimidating, s/he is easy to approach at any time.	4.9268	2.14876	0.702	0.946
50. My manager gives me constructive feedback skilfully.	5.3805	1.89468	0.858	0.930
58. My manager serves as a role model for achieving balance between personal and professional life.	5.6000	1.84338	0.897	0.927
60. My manager encourages me to discuss positive/negative feelings that I may have about my ability to succeed.	5.4293	1.81257	0.758	0.939
65. I get adequate feedback about my own performance.	5.6049	1.87736	0.816	0.934
70. My manager is a good listener.	5.5659	1.76896	0.791	0.936
79. My manager encourages me to review my strategies for managing my life while pursuing my career goals.	5.4634	1.94404	0.880	0.928

Number of items:	**7**
Mean inter-item correlation:	**0.82**
Cronbach's alpha coefficient:	**0.943**

Table 5.6: Reliability and item statistics for Factor 4: Organisational flexibility (n =205)

Items/variables	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
6. My organisation consults with mothers when making decisions about their work load.	3.0195	2.35347	0.617	0.890
17. My organisation provides information on additional sources of support.	3.4488	2.41595	0.686	0.883
24. My organisation takes an interest in mothers' personal lives.	3.7073	2.37061	0.707	0.881
35. Help is available from my organisation when I have a problem.	4.8927	1.97985	0.655	0.887
62. There is an option to work from home in my organisation.	3.5220	2.38372	0.701	0.882
63. A flexible work schedule is made available in my organisation.	3.9268	2.19838	0.726	0.880
86. I am in a job with a schedule flexible enough to let me meet my family responsibilities.	4.3951	2.28486	0.656	0.886
89. There is great flexibility in my organisation.	4.0732	2.37625	0.694	0.883
Number of items: **8** **Mean inter-item correlation:** **0.68** **Cronbach's alpha coefficient:** **0.897**				

Table 5.7: Reliability and item statistics for Factor 5: Time for family interaction (n =205)

Items/variables	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
2. I balance my work and family time.	3.9902	2.29447	0.747	0.917
3. I am able to 'switch off' at home.	4.4488	2.21039	0.792	0.912
4. I have time to do things with the family.	4.5854	2.15997	0.751	0.916
9. I have enough time for myself.	4.0927	2.42661	0.811	0.910
18. Family demands have a favourable influence on my work.	3.9463	2.25181	0.775	0.914
23. My time off matches my family members' schedules.	4.3366	2.15545	0.788	0.913
38. I spend enough time with my family.	4.7805	2.32329	0.706	0.921
Number of items:	**7**			
Mean inter-item correlation:	**0.77**			
Cronbach's alpha coefficient:	**0.926**			

Table 5.8: Reliability and item statistics for Factor 6: Childcare support (n = 205)

Items/variables	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
27. Making arrangements for my children while I work does not involve lots of effort.	5.0488	2.15969	0.723	0.901
28. I can usually get a babysitter if I want to go out in the evening.	4.7366	2.00707	0.758	0.896
42. I am comfortable with the arrangements for my children while I am working.	4.7415	2.09493	0.801	0.890
52. If my child/children fall/s ill, there is someone who can stay home and look after him/her/them.	4.2780	2.35475	0.747	0.898
69. It is easy to find someone to look after my child/children when I cannot be with him/her/them.	4.5024	2.12276	0.810	0.888
72. I do not feel guilty about leaving my child/children when I go out to work.	4.0732	2.32411	0.700	0.905
Number of items: **6** **Mean inter-item correlation:** **0.76** **Cronbach's alpha coefficient:** **0.912**				

The results reflected in Tables 5.3 to 5.8 also indicate that the mean inter-item correlations of the six factors/scales were higher than the range of 0.15 to 0.50 recommended by Clark and Watson (1995). The average inter-item correlations for the six factors/scales all yielded exceptionally high values (Factor 1 = 0.718; Factor 2 = 0.711; Factor 3 = 0.815; Factor 4 = 0.680; Factor 5 = 0.767; Factor 6 = 0.756). The high mean inter-item correlations are probably the result of the fact that the items were previously all scrutinized and endorsed by a panel of subject matter experts. The application of Lawshe's methodology in this study definitely enhanced the specificity of the target constructs. According to Clark and Watson (1995), a much higher average inter-item correlation can be expected when one is measuring a narrow or well-defined construct. The mean inter-item correlations scores on the six factors/scales appear to satisfy the requirements of homogeneity and unidimensionality and the items can be considered to be representative of the specific factor/scale that they assessed.

Based on the results reported above, all the items of the six factors were retained as separate scales to measure work-family pressure and to identify the resources needed to support single working mothers in coping with stress. For the purposes of this study, the questionnaire was called the Work-Family Pressure and Support Questionnaire (W-FPSQ).

Next, the 54 items of the six sub-scales of the W-FPSQ were subjected to an item analysis to provide evidence that the items have the ability to discriminate between high and low scoring groups. For this purpose, the item-discrimination index was computed for each item included in the six scales, using the t-test for independent groups, as suggested by Gregory (2004). The results of the item-discrimination analysis for each scale are reported in Appendix F.

The outcome of the item analysis illustrates that all the items have acceptable item-discrimination index values. The results indicate that every one of the items on each scale was able to discriminate significantly ($p < 0.001$) between the high- and low-scoring groups in the present sample.

The results of the analyses of the data indicated that the psychometric properties of the W-FPSQ meet the minimum requirements and that the questionnaire is sufficiently reliable and valid to capture the present sample of working mothers' perceptions of the pressures and support they experienced.

5.4 THE FACTOR STRUCTURE OF THE OVERALL STRESS INDEX

5.4.1 Internal structure and validity of the Overall Stress Index

To determine the factor structure and validity of the Overall Stress Index (OSI) for the present sample, the inter-correlation matrix of the scores of the respondents ($n = 205$) on the 11 items was subjected to PFA and rotated by means of the varimax rotation with Kaiser's normalization. To assess compliance with the distribution requirements, Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were used.

Kaiser's criterion (1961), and Cattell's (1966) scree-plot were used to estimate the number of significant item factors.

The KMO measure of sampling adequacy and Bartlett's test of sphericity produced satisfactory results. The KMO measure of sampling adequacy value (0.903) was greater than 0.7. This means that the data set was likely to factor well. Bartlett's test of sphericity confirmed [^{2} (55) = 1211.696, $p < 0.001$] that the properties of the correlation matrix of the item scores were suitable for factor analysis. Based on Kaiser's criterion (eigenvalues greater than one) and the scree-plot (Figure 5.2), two factors were postulated which explained 56.82% of the variance in the factor space after rotation. Although the items related to both factors had loadings higher than 0.5, the two factors were not well defined because of relatively high cross-loadings of four items. The rotated factor matrix of the solution, the eigenvalues and percentage variance explained are set out in Table 5.9.

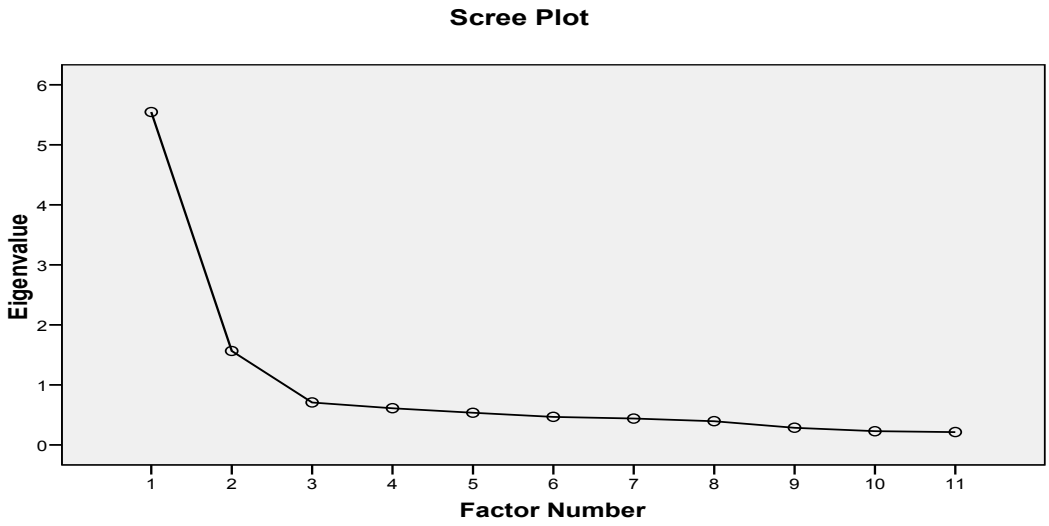

Figure 5.2: Scree-plot of the data captured with the Overall Stress Index

Table 5.9: Factor loadings, eigenvalues and percentage variance after rotation of the two factors related to the OSI (n = 250)

Item	Factor	
	1	2
S5. I get a prickling sensation or twinges in parts of my body.	0.803	0.298
S4. I get muscle tremors (e.g. eye twitch).	0.786	0.240
S3. I experience shortness of breath or feel dizzy.	0.767	0.358
S11. I feel hopeless about the future.	0.740	0.215
S10. I experience panicky spells.	0.720	0.137
S7. I lack energy.	0.074	0.711
S8. I have difficulty sleeping.	0.309	0.697
S9. I get headaches or feel pressure in my head.	0.137	0.630
S2. I have a tendency to eat, drink, or smoke more than usual.	0.428	0.605
S1. I feel unaccountably tired or exhausted.	0.259	0.583
S6. I feel as though I do not want to get up in the morning.	0.450	0.572
Eigenvalues	**5.547**	**1.565**
Percentage variance after rotation	**31.723**	**25.089**

5.4.2 Factor naming and description of the OSI

After studying the contents of the items defining each factor, the following descriptive labels were assigned to the factors:

Factor 1: Physiological symptoms (PSS)

This factor is made up of five items factor loadings of 0.7 and higher. The main features of these items are physiological reactions, such as prickly sensations or twinges in the body, muscle tremors, shortness of breath or dizziness and panicky spells. This factor accounted for 31.72% of the total explained variance

Factor 2: Exhaustion symptoms (ESS)

Six items loaded on this factor and they indicate lack of energy, difficulty in sleeping, headaches, exhaustion and a tendency to eat, drink, or smoke more than usual. This factor accounted for 25.09% of the total explained

variance. Two items loaded high on both factors, namely the tendency to eat, drink or smoke more than usual and a feeling of being too tired to get up in the morning.

5.4.3 Reliability of the two scales of the OSI

The reliability coefficients of the two scales of the OSI are depicted in Tables 5.10 and 5.11. The results indicate that the Cronbach's alpha coefficients of both scales were high. Alpha coefficients of 0.899 and 0.842 were calculated for the PPS scale and the ESS scale respectively. The results of the statistical analysis of the responses on the OSI suggest that the questionnaire was sufficiently reliable and valid to capture the stress symptoms that the working mothers in the sample experienced.

Table 5.10: Reliability and item statistics for Factor 1: Physiological symptoms (PSS) (n = 205)
(n = 205)

Items	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
S3. I experience shortness of breath or feel dizzy.	2.0732	1.51448	0.778	0.871
S4. I get muscle tremors (e.g. eye twitch).	1.9024	1.46202	0.776	0.872
S5. I get a prickling sensation or twinges in parts of my body	1.9951	1.50326	0.803	0.866
S10. I experience panicky spells.	1.8829	1.53902	0.690	0.890
S11. I feel hopeless about the future.	2.0683	1.58585	0.711	0.886
Number of items: **5** **Mean inter-item correlation:** **0.75** **Cronbach's alpha coefficient:** **0.899**				

Table 5.11: Reliability and item statistics for Factor 2: Exhaustion symptoms (ESS) (n = 205)

Items	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
S1. I feel unaccountably tired or exhausted.	3.4488	1.69010	0.589	0.822
S2. I have a tendency to eat, drink, or smoke more than usual.	2.8488	1.83420	0.654	0.810
S6. I feel as though I do not want to get up in the morning.	2.7610	1.59240	0.627	0.815
S7. I lack energy.	3.5317	1.45360	0.601	0.820
S8. I have difficulty sleeping.	2.9122	1.55995	0.691	0.802
S9. I get headaches or feel pressure in my head.	3.4341	1.55356	0.569	0.826

Number of items: **6**
Mean inter-item correlation: **0.62**
Cronbach's alpha coefficient: **0.842**

5.5 FACTOR STRUCTURE OF THE COPING BEHAVIOUR INDEX (CBI)

5.5.1 Internal structure and validity of the Coping Behaviour Index (CBI)

The inter-correlation matrix of the scores of the present sample of working mothers (n = 205) on the 17 items of the CBI was subjected to PFA and rotated by means of the varimax rotation with Kaiser's normalization.

The KMO measure of sampling adequacy of 0.962 and Bartlett's test of sphericity [^{2} (136) = 3015.145, p< 0.001] confirmed that the properties of the correlation matrix of the item scores were suitable for factor analysis. Based on the scree-plot (Figure 5.3) and Kaiser's criterion (eigenvalues greater than one), two factors were postulated which explained 63.373% of the variance in the factor space after rotation. The rotated factor matrix of the solution, the eigenvalues and percentage variance explained after rotation are set out in Table 5.12.

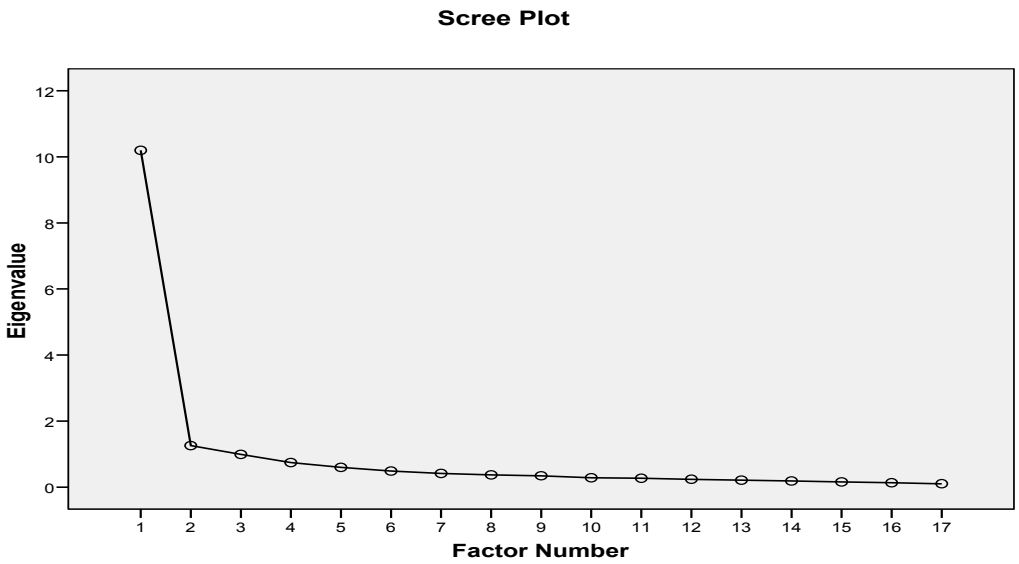

Figure 5.3: Scree-plot of the data captured with the Coping Behaviour Index

Table 5.12: Factor loadings, eigenvalues and percentage variance after rotation of the factors related to the Coping Behaviour Index n= 205)

Items	Factor	
	1	2
C5. I plan ahead.	0.856	0.307
C4. I talk to understanding friends.	0.806	0.231
C6. I expand my interests and activities outside work.	0.746	0.415
C10. I seek as much social support as possible.	0.693	0.334
C7. I pay selective attention (concentrating on specific problems).	0.674	0.469
C3. I use effective time management.	0.664	0.498
C8. I set priorities and deal with problems accordingly.	0.625	0.476
C17. I share my concerns with other people.	0.440	0.361
C11. I do not let things get to me.	0.347	0.767
C12. I keep calm under pressure.	0.294	0.759
C16. I try to reduce my workload.	0.194	0.735
C14. I find time to relax.	0.401	0.687
C2. I try to deal with the situation objectively, in an unemotional way.	0.469	0.657
C13. I keep home and work separate.	0.505	0.650
C15. I enjoy life outside of work.	0.449	0.614
C1. I resort to hobbies and pastimes.	0.393	0.586
C9. I try to 'stand aside' and think through the situation.	0.544	0.581
Eigenvalues	**10.197**	**1.258**
Percentage variance after rotation	**31.941**	**31.432**

5.5.2 Factor naming and description of the Coping Behaviour Index (CBI)

The items of the CBI deal with perceptual, cognitive or behavioural responses that are used to avoid, control or manage situations that could be regarded as worrying or stressful. These responses include planning ahead, expanding interests and activities outside of work, seeking as much support as possible, concentrating on specific problems, effective use of time and setting priorities, interpreting the problem whilst maintaining a positive outlook on the problem and taking care to handle the stressful event in a mature manner.

The two factors of the CBI were not well defined. Ten of the 17 items cross-loaded relatively high on both factors (see Table 5.12.) The discriminatory ability of the two factors was poor, as is reflected in the high inter-correlation coefficient between the summated scores of the two factors ($r_{x1x2} = 0.840$, $p < 0.0001$) and their correlation with the total score for the 17 item CBI ($r_{x1y1} = 0.926$, $p < 0.0001$; $r_{x2y1} = 0.968$; $p < 0.0001$). To avoid the problem of multicollinearity, it was decided to combine the scores of the two subscales of the CBI and generate an overall coping behaviour score for each respondent in the present sample.

The item reliability coefficients and total scale reliability of the CBI are reported in Table 5.13. The high reliability coefficient of 0.957 and mean inter-item correlation value of 0.738 for the 17 items of the CBI indicates that the questionnaire meets the requirements of homogeneity and unidimensionality and that these items can be considered to be representative of the coping behaviour that the questionnaire measures.

Table 5.13: Reliability and item statistics for the Coping Behaviour Index (n = 205)

Items	Mean	Std dev.	Corrected item-total correlation	Cronbach's alpha if the item is deleted
C1. I resort to hobbies and pastimes.	4.4927	1.14883	0.681	0.955
C2. I try to deal with the situation objectively, in an unemotional way.	4.6927	0.96923	0.784	0.953
C3. I use effective time management.	4.7463	0.96205	0.800	0.953
C4. I talk to understanding friends.	4.8390	0.89027	0.694	0.955
C5. I plan ahead.	4.8195	0.84111	0.784	0.953
C6. I expand my interests and activities outside work.	4.8000	0.94142	0.793	0.953
C7. I pay selective attention (concentrating on specific problems).	4.7659	0.95168	0.785	0.953
C8. I set priorities and deal with problems accordingly.	4.8000	0.94661	0.756	0.954
C9. I try to 'stand aside' and think through the situation.	4.7805	0.96284	0.779	0.953
C10. I seek as much social support as possible.	4.8390	0.95406	0.701	0.955
C11. I do not let things get to me.	4.6927	1.17915	0.770	0.954
C12. I keep calm under pressure.	4.5512	1.21007	0.724	0.955
C13. I keep home and work separate.	4.6683	1.03716	0.802	0.953
C14. I find time to relax.	4.7366	1.00921	0.757	0.954
C15. I enjoy life outside of work.	4.6634	0.97462	0.741	0.954
C16. I try to reduce my workload.	4.6829	1.05809	0.644	0.956
C17. I share my concerns with other people.	4.8146	0.89923	0.557	0.957

Number of items: **17**
Mean inter-item correlation: **0.738**
Cronbach's alpha coefficient: **0.957**

5.6 EXPLORING THE DATA

5.6.1 Distribution of the data

In order to subject the summated scale scores of the various measures to further statistical analysis, the distribution of the scores on the scales needed to be carefully examined to decide on the most appropriate type(s) of statistical analysis. Table 5.14 shows the descriptive statistics of the measuring instruments and the demographic variables. This table depicts the mean, standard deviations, skewness and kurtosis of the scores for each variable that was measured on a continuous scale.

To determine if parametric statistics were more applicable than non-parametric statistics, it was important to consider the assumption(s) that are relevant to the use of parametric tests. According to Field (2005:64), most parametric tests require that the population score is normally distributed, that the variances of the groups are equal, and that the dependent variables are measured on an interval level. In order to determine whether a factor is normally distributed, Morgan *et al*. (2007) suggest that the skewness and kurtosis of a distribution should not be more than 2.5 times the standard error. In the present study, the skewness and kurtosis of the dispersion of the variables could not be more than 0.425 and 0. 845 respectively to be regarded as normally distributed. Inspection of Table 5.14 reveals that the distribution of the sample scores of only four variables (25%) (these are marked with a single asterisk (*)) complied with the criteria of Morgan *et al*. (2007) and were approximately normally distributed, whereas the distribution of 12 of the variables (75%) appeared to be non-normal. The finding that the assumption of normality was not met for the six scales of the W-FPSQ may imply that caution should be exercised in generalising the results of this research beyond the sample collected (Field, 2005:641).

Table 5.14: Distribution of the scores of the total sample on the different variables
(n = 205)

Measurement/Scale	Mean	Std dev.	Skewness		Kurtosis	
			Sk stats	Std error	Ku stats	Std error
Demographic information						
Age in years*	34.45366	3.915035	-0.104	0.170	-0.261	0.338
Years of experience in organisation/profession	6.81683	3.937461	0.964	0.170	0.676	0.338
Hours work per week*	33.60000	6.236829	-0.372	0.170	-0.302	0.338
Number of dependants	2.34146	1.03870	0.920	0.170	0.991	0.338
Age of youngest child	6.8683	3.73998	0.557	0.170	-0.231	0.338
Days sick leave in last three months	2.10	1.899	0.504	0.170	-0.726	0.338
W-FPSQ						
Work-family pressure	56.86	27.5348	-0.098	0.170	-1.583	0.338
Personal development	58.48	15.6501	-1.428	0.170	1.331	0.338
Management support	37.97	11.4980	-1.556	0.170	1.117	0.338
Organisational flexibility	30.99	14.0211	0.190	0.170	-1.272	0.338
Time for family interaction	30.18	13.1779	-0.313	0.170	-1.377	0.338
Childcare support	27.38	10.9038	-0.425	0.170	-1.132	0.338
OSI						
Physiological symptoms (PSS)	9.92	6.4233	1.175	0.170	0.212	0.338
Exhaustion symptoms (ESS)*	18.94	7.2572	-0.069	0.170	-0.675	0.338
Overall stress score	28.86	12.2001	0.545	0.170	-0.510	0.338
CBI						
Overall coping behaviour*	80.38	13.0749	0.126	0.170	0.189	0.338

To verify the expected non-normal distribution of the scores, all the variables were further subjected to the Kolmogorov-Smirnov (K-S) goodness-of-fit test and the Shapiro-Wilk test of normality. Since one of the main foci in this study is a comparison of married and single working mothers, the distribution of each group was also calculated separately.

The results of the Kolmogorov-Smirnov test and the Shapiro-Wilk test are depicted in Tables 5.15 and 15.16 for the overall sample and the two sub-samples. In general, the Shapiro-Wilk test provides a more accurate calculation than the Kolmogorov-Smirnov test (Field, 2005:527). According to Tables 5.15 and 15.16, the two-tailed test for significance indicated that the distributions of the scores for most variables were non-normal ($p<0.05$). Thus the hypothesis that the sample distribution comes from a specific normal distribution is rejected at the 0.05 level of significance for both the overall sample and the two sub-samples. Since the distribution of the independent and the dependent variables were approximately non-normal, non-parametric statistical methodology was considered appropriate for the comparative and associational analyses of the data in this study.

Table 5.15: Results of the Kolmogorov-Smirnov test and the Shapiro-Wilk test of normality for the distribution of the data of the total sample (n=205)

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Demographic information						
Age in years	0.098	202	0.000	0.986	202	0.044
Years of experience in organisation/profession	0.144	202	0.000	0.925	202	0.000
Hours work per week	0.235	202	0.000	0.910	202	0.000
Number of dependants	0.274	202	0.000	0.863	202	0.000
Age of youngest child	0.108	202	0.000	0.959	202	0.000
Days sick leave in last three months	0.190	202	0.000	0.889	202	0.000
W-FPSQ						
Work-family pressure	0.152	205	0.000	0.891	205	0.000
Personal development	0.159	205	0.000	0.834	205	0.000
Management support	0.258	205	0.000	0.741	205	0.000
Organisational flexibility	0.110	205	0.000	0.938	205	0.000
Time for family interaction	0.153	205	0.000	0.903	205	0.000
Childcare arrangement	0.172	205	0.000	0.905	205	0.000
OSI						
Physiological symptoms	0.247	205	0.000	0.774	205	0.000
Exhaustion symptoms	0.109	205	0.000	0.963	205	0.000
Overall stress score	0.099	205	0.000	0.953	205	0.000
CBI						
Overall coping behaviour	0.101	205	0.000	0.963	205	0.000

Table 5.16:Tests of normality for each variable by marital status

Variables	Marital status	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Age in years	Single	0.105	101	0.008	0.986	101	0.385
	Married	0.091	101	0.038	0.976	101	0.063
Years of experience in organisation/profession	Single	0.132	101	0.000	0.886	101	0.000
	Married	0.132	101	0.000	0.952	101	0.001
Hours work p/week	Single	0.202	101	0.000	0.914	101	0.000
	Married	0.276	101	0.000	0.883	101	0.000
Number of dependants	Single	0.266	101	0.000	0.864	101	0.000
	Married	0.273	101	0.000	0.863	101	0.000
Age of youngest child	Single	0.132	101	0.000	0.952	101	0.001
	Married	0.097	101	0.020	0.960	101	0.004
Days sick leave in last three months	Single	0.157	101	0.000	0.913	101	0.000
	Married	0.221	101	0.000	0.859	101	0.000
Work-family pressure	Single	0.206	101	0.000	0.846	101	0.000
	Married	0.214	101	0.000	0.814	101	0.000
Personal development	Single	0.201	101	0.000	0.857	101	0.000
	Married	0.227	101	0.000	0.831	101	0.000
Management support	Single	0.226	101	0.000	0.812	101	0.000
	Married	0.268	101	0.000	0.662	101	0.000
Organisational flexibility	Single	0.128	101	0.000	0.925	101	0.000
	Married	0.143	101	0.000	0.925	101	0.000
Time for family interaction	Single	0.123	101	0.001	0.933	101	0.000
	Married	0.232	101	0.000	0.809	101	0.000
Childcare support	Single	0.130	101	0.000	0.950	101	0.001
	Married	0.280	101	0.000	0.777	101	0.000
Physiological symptoms	Single	0.145	101	0.000	0.908	101	0.000
	Married	0.433	101	0.000	0.571	101	0.000
Exhaustion symptoms	Single	0.153	101	0.000	0.950	101	0.001
	Married	0.083	101	0.082	0.953	101	0.001
Overall stress score	Single	0.089	101	0.046	0.984	101	0.261
	Married	0.095	101	0.025	0.945	101	0.000
Overall coping behaviour	Single	0.096	101	0.024	0.963	101	0.006
	Married	0.110	101	0.004	0.947	101	0.001

5.6.2 The comparison of the characteristics of the sub-samples

Before the main statistical analysis was undertaken, it was necessary to determine whether the characteristics of the single and married working mothers matched each other, and to verify that both groups were comparable. The Chi-square (^{2}), Phi-coefficient (φ) and Cramer's V (V) were computed to test the relationship and strength of the relationship between sample identity and the demographic characteristics of the participants.

The Chi-square results revealed that the ages of the single working mothers and that of the married working mothers were evenly distributed (^{2} (18) = 17.127; p ≥ 0.514); the total hours spent at work during a week was approximately the same for both groups of mothers (^{2} (8) = 14.622; p ≥ 0.067): the number of dependants was similar for both samples (^{2} (5) = 7.981; p ≥ 0.157); the ages of youngest children of the single and married mothers were alike (^{2} (15) = 10.683; p ≥ 0.775); and both groups took the same total number of days of sick leave in a three month period (^{2} (7) = 6.265; p ≥ 0.509). However, the single and married mothers differed significantly regarding their years of experience at their present organisation or in their present profession (^{2} (15) = 38.284; p < 0.001). The average years of experience for the married mothers was 8.29 years (SD = 4.070) as opposed to 5.35 years (SD = 3.198) for the single working mothers. According to Cohen's (1988) criterion, this finding may have implications, because the effect size (V = 0.438) of the difference was relatively large.

Cramer's V (V) and the Phi-coefficient (φ) were computed to test the strength of the relationships between sample identity and the demographic characteristics of the participants. No significant association was found between the sample grouping and qualification (V = 0.137; p = 0.275), job classification (V= 0.082; p = 0.513), nature of employment (φ = 0.084; p = 0.230), and the experience of negative events in the last three months (φ = 0.566; p = 0.452). On the other hand, single working mothers experienced more ongoing negative pressure (= 0.190; p ≤ 0.007), and were less convinced than the married mothers that it was

possible to negotiate non-standard working hours with their organisations (φ = -0.152; $p \leq 0.029$). The effect sizes of 0.19 and 0.15 are too small to have any practical implications and the differences between the two sub-samples are negligible.

The results of the comparisons mentioned above indicated that on the whole the characteristics of the single and married working mothers matched each other, and that the two groups were comparable. Detailed results of the Chi-square (^{2}), Cramer's V (V) and Phi-coefficient (φ) calculations are summarised in Appendix G.

5.6.3 The use of non-parametric tests

Due to the skewness of the distribution and the fact that the variances in the groups were unequal for six of the ten dependent behavioural scales, it was decided to use non-parametric tests. These tests are commonly referred to as distribution-free tests. As non-parametric methods, their applicability is much wider than that of the corresponding parametric methods. Due to the reliance on fewer assumptions, non-parametric methods are also more robust (Field, 2005). Non-parametric or distribution-free statistical tests do not depend on any assumptions about the form of the sample population or the values of the population parameters. Examples of non-parametric tests used in this research include Pearson's Rank order correlation (rho), the non-parametric multivariate analyses of variance (the non-parametric MANOVA) and the Mann-Whitney U-test.

5.7 RESULTS OF THE ASSOCIATIONAL STATISTICS

5.7.1 Correlation between the demographic, support, coping, pressure and stress variables

Because the assumption of the normality of the scores was noticeably violated, it was decided to use Spearman's rho method to calculate the correlations between the different variables.

The difference between Pearson's coefficient and Spearman's rho is in the type of data being used. Pearson's coefficient requires interval or ratio data while Spearman's rho only requires ordinal data (Myers & Well, 2003). Blalock (1979) contends that rho is really a measure of the linear relationship between variables, being a measure of the strength of the goodness-of-fit of the least squares straight line, however, this association by no means proves causality. The strength of the association between two variables shows only the degree of covariation between the variables, as one cannot rule out the existence of the influence from extraneous variables (Cooper & Schindler, 2003). Therefore, Cohen (1988) recommends a cut-off point of r = 0.30 (medium effect size) as a basis for accepting the practical significance of correlations between variables.

The Spearman's rho correlation and the inter-correlation of the variables are presented in Tables 5.17 to 5.19. Three tables were necessary because the size of the 17 X 17 correlation matrix was too large to include all the correlation coefficients in a single table. The Spearman's rho inter-correlation matrix for the demographic characteristics are shown in Table 5.17, and the results of the association between the demographic characteristics and the support variables, coping behaviour, and pressure and stress scales are reported in Table 5.18. The correlation coefficients indicating the relationship between the support, the coping behaviour, the pressure and the stress scales are depicted in Table 5.19.

Table 5.17: Spearman's rho inter-correlation of the demographic variables (n = 205)

Spearman's rho	Age in years	Years of experience in organisation/ profession	Level of qualification	Hours work per week	Number of dependants	Age of youngest child	Days sick leave in last three months
Age in years	1.000						
Years of experience in organisation/profession Sig (2-tailed)	0.544** 0.000	1.000					
Level of qualification Sig (2-tailed)	0.276** 0.000	0.298** 0.000	1.000				
Hours work p/week Sig (2-tailed)	0.075 0.285	-0.122 0.085	0.009 0.903	1.000			
Number of dependants Sig (2-tailed)	0.570** 0.000	0.329** 0.000	0.265** 0.000	-0.024 0.737	1.000		
Age of youngest child Sig (2-tailed)	0.282** 0.000	0.171* 0.015	0.036 0.610	0.096 0.169	-0.169* 0.015	1.000	
Days sick leave in last three months Sig (2-tailed)	-0.066 0.348	-0.120 0.090	-0.072 0.304	-0.083 0.238	0.086 0.381	-0.156* 0.026	1.000

** P< 0.001; *p< 0.00; $r_s \leq 0.10$ suggests a small effect; $r_s \geq 0.30$ suggests a medium effect; and $r_s \geq 0.50$ suggests a large effect.

Table 5.18: Spearman's rho correlation between the demographic variables and the support, coping behaviour, pressure and stress scales (n = 205)

Spearman's rho	Personal development	Management support	Organisational flexibility	Time for family interaction	Childcare arrangement	Overall coping behaviour	Work-family pressure	Physiological symptoms	Exhaustion symptoms	Overall stress score
Age in years	0.110	0.097	0.093	0.075	0.019	0.020	-0.094	-0.088	-0.074	-0.082
Sig (2-tailed)	0.118	0.169	0.183	0.238	0.786	0.777	0.180	0.208	0.294	0.243
Years of experience in organisation/ profession	0.237**	0.157*	0.292**	0.282**	0.168*	0.069	0.376**	0.281**	0.319**	0.317**
Sig (2-tailed)	0.001	0.025	0.000	0.000	0.017	0.326	0.000	0.000	0.000	0.000
Level of qualification	0.093	0.163*	0.086	0.080	0.113	0.029	-0.107	0.006	-0.066	-0.047
Sig (2-tailed)	0.185	0.019	0.221	0.251	0.106	0.679	0.128	0.932	0.348	0.506
Hours work p/week	0.058	0.152*	-0.043	-0.044	0.082	-0.040	0.082	0.001	-0.050	-0.049
Sig (2-tailed)	0.407	0.030	0.539	0.534	0.243	0.573	0.205	0.995	0.479	0.482
Number of dependants	0.072	0.104	0.008	0.077	0.051	0.144*	-0.148*	0.096	-0.117	-0.134
Sig (2-tailed)	0.303	0.138	0.915	0.270	0.464	0.039	0.034	0.169	0.095	0.056
Age of youngest child	0.088	0.012	0.107	0.151*	0.058	-0.054	0.060	-0.037	-0.073	-0.052
Sig (2-tailed)	0.209	0.860	0.125	0.031	0.406	0.442	0.390	0.602	0.301	0.460
Days sick leave in last three months	0.001	-0.067	-0.021	-0.034	-0.088	0.005	0.066	-0.087	0.156*	0.126
Sig (2-tailed)	0.991	0.340	0.765	0.633	0.633	0.949	0.347	0.215	0.025	0.071

** P< 0.001; *p< 0.00; $r_s \leq 0.10$ suggests a small effect; $r_s \geq 0.30$ suggests a medium effect; and $r_s \geq 0.50$ suggests a large effect.

The correlation results depicted in Table 5.17 and Table 5.18 indicate that for the present sample:

Age is significantly correlated with years of work experience (r_s = 0.544, $p < 0.001$); qualifications (r_s = 0.276, $p < 0.001$); number of dependants (r_s = 0.570, $p < 0.001$) and age of the youngest child (r_s = 0.282, $p < 0.001$). Age did not bear any significant relationship to the supporting resources or pressures affecting working mothers, their experience of stress symptoms or their coping behaviour. The effect size of the correlation between age, years of work experience and the number of dependants is large ($r \geq 0.5$).

Working mothers' years of experience in their present organisation or profession displays a significant relationship with most of the variables under study. It is positively and significantly related to age (r_s = 0.544, $p < 0.001$), with a large effect size; level of qualification (r_s = 0.298, $p < 0.001$), with a small to medium effect size; number of dependants (r_s = 0.329, $p < 0.001$), with a medium effect size; and the age of the youngest child (r_s = 0.171, $p < 0.05$), with a small effect size. Years of experience was also positively related to personal development (r_s = 0.237, $p < 0.01$); organisational flexibility (r_s = 0 0.292, $p < 0.001$) and time for family interaction (r_s = 0.282, $p < 0.001$); but was negatively related to working mothers' perceptions of work-family pressures (r_s = -0.376, $p < 0.001$); and the stress dimensions (r_s = -0.281, -0.319, and -0.317, $p < 0.001$, respectively). The effect size of the correlations between years of experience and working mothers' perceptions of the support and stress variables are small to medium.

Level of qualification was significantly related to years of experience (r_s = 0.298, $p < 0.001$); number of dependants (r_s = 0.265, $p < 0.001$); and management support (r_s = 0.163, $p < 0.05$). According to Cohen's criterion (1988), these correlations have small size effects. Furthermore, level of qualification bears no noteworthy correlation with work-family pressure or the stress measurements.

The total hours that the married mothers spend at work in a week did not correlate significantly with any of their demographic characteristics, or their support, coping, pressure and stress scores.

The number of dependants that working mothers support correlated significantly ($p < 0.001$) with age (0.570), years of work experience (0.329) and level of qualification (0.265). The number of dependants also correlated positively with the overall coping behaviour score ($r_s = 0.144$, $p < 0.05$) and negatively with the work-family pressure score ($r_s = -0.148$, $p < 0.05$). The last two correlations covered very small size effects and are negligible.

The age of the youngest child correlated significantly with the respondents' age ($r_s = 0.282$, $p < 0.001$); years of work experience ($r_s = 0.171$, $p < 0.05$); number of dependants ($r_s = -0.169$ $p< 0.05$); and time for family interaction ($r_s = 0.151$ $p < 0.05$). However, the effect sizes of these correlations were all small and insignificant.

The number of days sick leave taken by the working mothers over a period of three months correlated negatively with the age of the youngest child ($r_s = -0.156$, $p < 0.05$) and related positively with the experience of exhaustion symptoms ($r_s = 0.156$, $p < 0.05$). Both correlation coefficients had a small effect size of 0.15, which is considered negligible, according to Cohen's (1988) criterion.

It seems that working mothers' years of experience in their present organisation or profession are the most important demographic variable in understanding possible variability in the sample's support, pressure and stress scores. Years of experience accounted for 14.1% of the variability in work-family pressure and 10.1% of the variability in the overall stress scores.

The correlation matrix depicted in Table 5.19 shows that the scores on the ten behavioural scales inter-correlated significantly ($p \leq 0.01$). The rho inter-correlation coefficients ranged from 0.236 to 0.720 for the support/ coping behaviour scales, and from 0.471 to 0.936 for the pressure/stress scales. The correlation coefficients between the support/coping behaviour scales and the pressure/stress scales fluctuated from -0.200 to -0.722. Of the 45 rho coefficients, 24 signified large size effects, ten indicated medium size effects and nine small size effects.

The specific results indicated that:

Scores on the personal development scale correlated significantly ($p < 0.001$) with the sample's scores on the coping behaviour scale, $r_s = 0.327$, signifying a medium effect size. Personal development was significantly negatively ($p < 0.001$) related to work-family pressure ($r_s = -0.544$); physiological symptoms ($r_s = -0.496$); exhaustion symptoms ($r_s = -0.620$); and overall stress ($r_s = -0.636$). These correlations denote large size effects according to Cohen's criterion (1988). Opportunities for personal development accounted for 29.6% of the variability in work-family pressure and 40.4% of the variability in the overall stress scores.

Perceptions of management support correlated positively with the scores on the coping behaviour scale ($r_s = 0.236$, $p < 0.01$) and negatively with the scores for work-family pressure ($r_s = -0.297$, $p < 0.001$); physiological symptoms ($r_s = -0.264$, $p < 0.001$); exhaustion symptoms ($r_s = -0.366$, $p < 0.001$); and overall stress ($r_s = -0.374$, $p < 0.001$). The effect size of the correlations are small to medium. Management support seemed to explain 14% of the variability in the overall stress scores.

Organisational flexibility scores correlated positively with the scores on the coping behaviour scale ($r_s = 0.335$, $p < 0.001$) and negatively with the scores for work-family pressure ($r_s = -0.495$, $p < 0.001$); physiological symptoms ($r_s = -0.286$, $p < 0.001$); exhaustion symptoms ($r_s = -0.579$, $p < 0.001$); and overall stress ($r_s = -0.507$, $p < 0.001$). Four of the correlations' effect sizes were medium to large. Creating and providing a flexible work environment seemed to explain 24.5% of the variability in work-family pressure and 25.7% of the variability in the overall stress scores.

The scores on the time for family interaction scale correlated significantly ($p < 0.001$) with the scores on the coping behaviour scale, $r_s = 0.335$, with a medium effect size. The availability of time for family interaction related significantly negatively ($p < 0.001$) with work-family pressure ($r_s = -0.624$); physiological symptoms ($r_s = -0.497$); exhaustion symptoms ($r_s = -0.722$); and overall stress ($r_s = -0.701$). According to Cohen's criterion (1988), these correlations denote large size effects. Time for family interaction accounted for 38.9% of the variability in work-family pressure, 52.1% of the variability in

the occurrence of exhaustion symptoms and 49.1% of the variability in the overall stress scores.

Childcare support correlated positively with the scores on the coping behaviour scale (r_s = 0.216, $p < 0.01$, small effect) and negatively with the scores for work-family pressure (r_s = -0.544, $p < 0.001$); physiological symptoms (r_s = -0.380, $p < 0.001$); exhaustion symptoms (r_s = -0.613, $p < 0.001$); and overall stress (r_s = -0.592, $p < 0.001$). The effect size of three correlations were large. Childcare arrangements accounted for 29.6% of the variability in work-family pressure, 37.6% of the variability in the occurrence of exhaustion symptoms and 35.0% of the variability in the overall stress scores.

Significant negative correlations between the overall coping behaviour score and the scores on the pressure/ stress scales were found. However, the effect size of all the rho correlation coefficients was relatively small. The correlations were r_s = -0.268 for work-family pressure, r_s = -0.200 for physiological symptoms, r_s = -0.243 for exhaustion symptoms and r_s = -0.260 for overall stress.

The high inter-correlations between the five support scales compelled the researcher to investigate the implication of the overlap in variance of the variables. The unique contribution of the support variables may be much smaller, despite the substantial correlation with the dependent variables (Tabachnick & Fidell, 2007:137). To address this problem the multiple correlation coefficients (R) were calculated between the scores of the sample on the support scales and their scores for work-family pressure, the physiological symptoms and exhaustion symptoms, and for the overall stress scale. This calculation provides a more realistic indication of the combined effect of the support scales scores (independent variables) in the determination of variance (R^2) in the pressure and the stress scores (dependent variables). It is important to mention that the R results cannot be used to infer causal relationships (Field, 2005:129) and that the values of R or R^2 are not precise, as the distribution of the variables did not comply with the assumption of normality. These results are summarised in Table 5.20.

Table 5.19: Spearman's rho correlation between the support, coping behaviour, pressure and stress scales (n = 205)

Spearman's rho	Personal development	Management support	Organisational flexibility	Time for family interaction	Childcare support	Overall coping behaviour	Work-family pressure	Physiological symptoms	Exhaustion symptoms	Overall stress score
Personal development	1.000									
Management support Sig (2-tailed)	0.521** 0.000	1.000								
Organisational flexibility Sig (2-tailed)	0.716** 0.000	0.400** 0.000	1.000							
Time for family interaction Sig (2-tailed)	0.699** 0.000	0.346** 0.000	0.720** 0.000	1.000						
Childcare support Sig (2-tailed)	0.686** 0.000	0.552** 0.000	0.639** 0.000	0.705** 0.000	1.000					
Overall coping behaviour Sig (2-tailed)	0.327** 0.000	0.236** 0.001	0.335** 0.000	0.335** 0.000	0.216** 0.002	1.000				
Work-family pressure Sig (2-tailed)	-0.544** 0.000	- 0.297** 0.000	-0.495** 0.000	-0.624** 0.000	-0.544** 0.000	-0.268** 0.000	1.000			
Physiological symptoms Sig (2-tailed)	-0.496** 0.000	-0.264** 0.000	-0.286** 0.000	-0.497** 0.000	-0.380** 0.000	-0.200** 0.004	0.471** 0.000	1.000		
Exhaustion symptoms Sig (2-tailed)	-0.620** 0.000	-0.366** 0.000	-0.579** 0.000	-0.722** 0.000	-0.613** 0.000	-0.243** 0.000	0.666** 0.000	0.595** 0.000	1.000	
Overall Stress Score Sig (2-tailed)	-0.636** 0.000	-0.374** 0.000	-0.507** 0.000	-0.701** 0.000	-0.592** 0.000	-0.260** 0.000	0.660** 0.000	0.815** 0.000	0.936** 0.000	1.000

** p< 0.001; *p< 0.00; $r_s \leq 0.10$ suggests a small effect; $r_s \geq 0.30$ suggests a medium effect; and $r_s \geq 0.50$ suggests a large effect.

Table 5.20 shows the results of the estimation of the multiple correlation coefficients (R) when all the support variables are combined and used simultaneously in the calculation of their collective relationship with the dependent variables individually. The multiple correlations (R) for personal development, management support, organisational flexibility, time for family interaction and childcare arrangement were approximately 0.642 for work-family pressure; 0.545 for physiological symptoms; 0.740 for exhaustion symptoms; and 0.709 for the overall stress measures. The five support variables appeared to collectively explain approximately 41.2% of the variability in work-family pressure; 29.7% of the variability of the physiological symptoms and 54.7% of the variability in the occurrence of the exhaustion symptoms. About 50.2% of the variability in the overall stress scores was due to the effect of the combined support scales. According to Cohen's criterion (1988), the effect size of R^2 is medium to large.

These results, although they are questionable because of the non-normal distribution of the scores, give an important indication of the value of support systems to assist working mothers to manage and cope with work-family pressure and stress.

Table 5.20: Multiple correlation between scores on the support scales and scores on the pressure and stress scales (n = 205)

Support scores with	Multiple correlation		Std error of the estimate	Change statistics			
	R	R Square		F change	df1	df2	Sig. F change
Work family pressure	0.642	0.412	21.38441	27.844	5	199	0.000
Physiological symptoms	0.545	0.297	5.45365	16.798	5	199	0.000
Exhaustion symptoms	0.740	0.547	4.94481	48.083	5	199	0.000
Overall stress	0.709	0.502	8.71401	40.182	5	199	0.000

5.8 RESULTS OF THE ANALYSES OF VARIANCE

5.8.1 Introduction

Non-parametric multivariate analysis of variance (MANOVA), as discussed by Zwick (1985), was used to uncover the main 'effects' of marital status and three categorical stress-related occurrences on the sample's perception of their personal development, management support, organisational flexibility, time for family interaction, childcare support, the overall coping behaviour scores, and their work-family pressure and overall stress scores. The test of between-subjects effects for the MANOVA was used to measure any statistically significant relationship between the mean rank scores of the different subgroups in the sample (Field, 2005:572). In cases where the F-tests were significant, the *post hoc* Mann-Whitney test was used to explore the difference between the mean rank scores of the two groups, as suggested by Morgan *et al*.(2007).The partial eta square (^{2}) was calculated to determine the effect sizes or strength of association between the demographic variables and the dependent variables (Cohen, 1988).

The MANOVA is a complex statistical method that analyses variants in multiple dependent variables together. The MANOVA provides a multivariate F-value based on a linear combination of dependent variables, as well as univariate F-values for each separate dependent variable. For the analysis to have greater power, the dependent variables should be conceptually correlated with one another at a low to moderate level. If the dependent variables are too highly correlated, multicollinearity is a restriction. Conversely, if the dependent variables are uncorrelated, there is usually no reason to analyse them together (Field, 2005: 573). Due to the high rho inter-correlation between the scores on the overall stress scale and its two sub-scales (physiological symptoms and exhaustion symptoms) of 0.815 and 0 0.936 respectively, only the mean rank scores for the overall stress measure were included in this analyses.

5.8.2 The results of the non-parametric multivariate analyses of variance (MANOVA)

The GLM procedure of SPSS was used to determine if vectors of the mean ranks for the categorical groups differed from each other to a statistically significant degree regarding the dependent variables. The first was to perform Box's M-test on the original data. This test for the homogeneity of variance-covariance matrices indicated that the observed covariance matrices of the dependent variables were not equal across the groups and that the assumption of equality was violated, $F = 2.191$, $p < 0.001$. Because the assumption of normality was violated, the non-parametric MANOVA with rank order data was performed, as suggested by Zwick (1985:148-152).

A four-way non-parametric factorial MANOVA was performed to determine whether there were statistically significant differences between the vectors of the mean rank scores of the subgroups for marital status, experience of negative events, ongoing negative pressure and negotiating non-standard working hours for the eight 'dependent variables'. The number of respondents in each subgroup or subset of the categorical variables is depicted in Table 5.21, and the relationship between the categorical independent variables and the dependent variables is summarized in Table 5.22.

Table 5.21: Number of respondents in each subgroup of the categorical variables (n = 205)

Between-subjects factors	Value label	N
Marital status	Single	104
	Married	101
Experience of negative events in the last three months	Yes	66
	No	139
Experiences ongoing negative pressure	Yes	109
	No	96
Negotiates non-standard working hours with the organisation	Yes	78
	No	127

Table 5.22: Results of the MANOVA: the relationship between the categorical variables and the dependent variables (n=205)

Effect		Value	F	Hypo-thesis df	Error df	Sig.	Partial eta square	Obser-ved power
Intercept	Pillai's Trace	0.975	942.913	8	193	0.000	0.975	1.000
Marriage	Pillai's Trace	0.523	26.494	8	193	0.000	0.523	1.000
Experience negative events	Pillai's Trace	0.049	1.256	8	193	0.269	0.049	0.569
Ongoing negative pressure	Pillai's Trace	0.052	1.335	8	193	0.228	0.052	0.601
Negotiate working hours	Pillai's Trace	0.375	14.485	8	193	0.000	0.375	1.000

The result of the MANOVA captured in Table 5.22 indicates that marital status and negotiating non-standard working hours have a considerable effect on the sample's perception of organisational support, coping behaviour, and work-family pressure and stress measures.

There were significant differences in the vectors of the mean rank scores of mothers' being single or married (Pillai's Trace = 0.523; F (8, 198) = 26.494, p = 0.001), and the vectors of the mean rank scores of mothers that responded 'Yes' or 'No' regarding their ability to negotiate non-standard working hours. Pillai's Trace of 0.375 with an associated F (8, 198) = 14.485, p = 0.001 was statistically significant for opportunity to negotiate. The Chi-square test statistic confirmed the inequality of the location vectors of the mean rank scores of the two subsets for being married (^{2} (8) = 103.031, p < 0.001) and the two subsets for negotiating non-standard working hours (^{2} (8) = 73.875, p < 0.01).

The following variables did not have an effect on the variance in the eight dependent variables: experience of negative events (F = 1.256; p = 0.269) and ongoing negative pressure (F = 1.335; p = 0.228).

5.8.3 Results of the test of between-subjects effects

The significance of the 'effect' of marriage and negotiating working hours and the variation in the mean rank scores across the subsets were analysed further. The results of the test of between-subjects effects and Cohen's criterion of the partial eta square (^{2}) for practical significance were used. According to Cohen (1988), the effect size is large when $^2 \geq 0.15$; medium when $^2 = 0.06$ to 0.14; and small when $^2 = 0.01$ to 0.05. Where the F-tests were significant, the Mann-Whitney test was used to explore the nature of the variance between the subsets, as suggested by Morgan *et al*. (2007).

The results of the test of between-subjects effects, associated with the non-parametric MANOVA, are summarised in Table 5.23. Because of the size of the information, only the essential results regarding the effect of marital status and negotiating non-standard working hours are provided here. The complete results of the test of between-subjects effects are set out in Appendix H.

From Table 5.23, it is apparent that in this sample there were statistically significant ($p < 0.01$) differences between the mean rank scores of single and married working mothers regarding their perceptions of the support and the overall coping behaviour variables, as well as the pressure and stress measures. The 'effect' of marital status on the perceptions of personal development, time for family interaction, childcare support, work-family pressure and overall stress were large ($^2 = 0.150$ to 0.438). The effect size was medium ($^2 = 0.10$) for organisational flexibility and small for management support and overall coping behaviour ($^2 \leq 0.054$). Marital status seemed to account for 15% of the variability in childcare support, 32.9% of the variability in time for family interaction, 32.9% of the variability in work-family pressure and 43.8% of the variability in the overall stress scores.

Table 5.23: The interaction effects of marital status and negotiating working hours with the support, coping behaviour and pressure and stress variables

Source	Dependent variable	F	df	Sig	Partial eta square	Observed power
Marriage	Rank Personal development	34.098	1	0.000	0.146	1.000
	Rank Management support	11.479	1	0.001	0.054	0.921
	Rank Organisational flexibility	22.060	1	0.000	0.099	0.997
	Rank Time for family interaction	98.160	1	0.000	0.329	1.000
	Rank Childcare arrangement	35.362	1	0.000	0.150	1.000
	Rank Overall coping behaviour	8.924	1	0.003	0.043	.844
	Rank Work-family pressure	97.974	1	0.000	0.329	1.000
	Rank Overall Stress Score	155.917	1	0.000	0.438	1.000
Negotiate working hours	Rank Personal development	42.036	1	0.000	0.174	1.000
	Rank Management support	10.383	1	0.001	0.049	0.894
	Rank Organisational flexibility	98.983	1	0.000	0.331	1.000
	Rank Time for family interaction	18.290	1	0.000	0.084	0.989
	Rank Childcare arrangement	19.864	1	0.000	0.090	0.993
	Rank Overall coping behaviour	8.600	1	0.004	0.041	0.831
	Rank Work-family pressure	15.994	1	0.000	0.074	0.978
	Rank Overall Stress Score	10.108	1	0.002	0.048	0.886

Statistically significant ($p < 0.01$) differences exist between the mean rank scores of working mothers that responded 'Yes' or 'No' in negotiating non-standard working hours on all the support, coping behaviour, pressure and stress variables. The opportunity to negotiate working hours had a large effect on their judgement of organisational flexibility and personal development (^{2} = 0.174 to 0.331). The effect size was medium regarding time for family interaction, childcare support and work-family pressure (^{2} = 0.074 to 0.090) and was small for management support and the overall coping behaviour and the overall stress scores (^{2} = 0.041 to 0.049). Approximately 17.4% of the variance in personal development and 33.1% of the variance in organisational flexibility were related to the negotiation of non-standard working hours.

The inclusion of the variable 'working mothers' years of experience in their present organisation or profession' as a covariate in the model did not have any significant effect on the results of the between-subjects effect of marital status or the opportunity to negotiate work hours. In combination with the other four factors in the model, the effect of 'years of experience' on the eight dependent variables was statistically insignificant ($p = 0.223$ to $p = 0.988$).

5.8.4 Mann-Whitney test

To compare the mean rank scores of each of the two subsets or groupings for marital status and the negotiation of working hours, sixteen *post hoc* Mann-Whitney tests were performed. The Mann-Whitney test is an appropriate *post hoc* test when an independent variable with two categories and one continuous dependent variable with a non-normal distribution are used, and the difference between the mean of the rank scores of the respondents in the two groupings needs to be tested.

When the responses of two subgroups are being compared, the Mann-Whitney test provides a z-value to assess whether or not the two samples come from the same distribution. To assess the effect size of the z-statistic of the Mann-Whitney test, the coefficient 'r' was computed by using the conversion formula $r = z/\sqrt{(N)}$ suggested by Field (2005) and Morgan *et al*. (2007). The z-values for the variables 'marital

status' and 'negotiation of working hours' were calculated separately. The z-value, mean rank score and effect size (r) for each of the eight behavioural scales are reported in Table 5.24 for marital status (single/married) and in Table 5.25 for negotiation (Yes/No).

5.8.4.1 Marital status

With regard to the relationship between marital status and the dependent variables, Table 5.24 shows statistically significant differences ($p < 0.01$ to $p < 0.001$) between single working mothers and married working mothers' responses on all the behavioural scales. When the 104 single working mothers' scores were compared to those of the 101 married working mothers, the single mothers' scores were significantly lower than those of their married counterparts on the five support scales and on the coping behaviour scale, and significantly higher on the pressure and stress scales.

Single mothers appear to be more ***discontented*** with

the opportunities for personal development, growth and career advancement in their present jobs ($U = 3137.00$, $Z = -4.985$, $p = 0.001$), with a medium effect size, $r = 0.348$;

the social and interpersonal support that their managers provided them in the form of both work and psychosocial assistance ($U = 3890.00$, $Z = -3.218$, $p = 0.001$), with a small effect size, $r = 0.225$;

the supportive role of their organisation in creating and providing a flexible work environment ($U = 3671.00$, $Z = -3.725$, $p = 0.001$), with a small effect size, $r = 0.260$;

their experience of the availability of time for family interaction ($U = 1902.00$, $Z = -7.896$, $p = 0.001$), with a large effect size, $r = 0.551$; and

the childcare arrangements made for their children while working ($U = 3027.50$, $Z = -5.247$, $p = 0.001$), with a medium effect size, $r = 0.366$.

In comparison with the scores of the married working mothers, the single working mothers' scores on the coping behaviour scale were also significantly lower. Although the effect size (r = 0.201) was small, the results suggested that single mothers seem to believe that they are failing in their efforts to manage adverse situations and that they are not coping with stress (U = 4036.00, Z = -2.879, p = 0.01).

Table 5.24: Mann-Whitney test: Comparison of mean rank values by marital status

Behavioural scales	Marital status	N	Mean rank score	U	Z	Sig. two-tailed	Effect size r
Personal development	Single	104	82.66	3137.00	-4.985	0.000**	0.348
	Married	101	123.94				
Management support	Single	104	89.90	3890.00	-3.218	0.001**	0.225
	Married	101	116.49				
Organisational flexibility	Single	104	87.80	3671.00	-3.725	0.000**	0.260
	Married	101	118.65				
Time for family interaction	Single	104	70.79	1902.00	-7.896	0.000**	0.551
	Married	101	136.17				
Childcare support	Single	104	81.61	3027.50	-5.247	0.000**	0.366
	Married	101	125.02				
Overall coping behaviour	Single	104	91.31	4036.00	-2.879	0.004*	0.201
	Married	101	115.04				
Work-family pressure	Single	104	135.45	1877.00	-7.950	0.000**	0.555
	Married	101	69.58				
Overall stress Score	Single	104	141.02	1297.50	-9.320	0.000**	0.651
	Married	101	63.85				

** P< 0.001; *p< 0.01; r ≤ 0.10 suggests a small effect; r ≥ 0.30 suggests a medium effect; and r ≥ 0.50 suggests a large effect.

The inability to cope also seems to be reflected in the mean rank scores of the single working mothers on both the work-family pressure and overall stress scales. As seen in Table 5.24, the single working mothers were significantly more negative about their capacity to balance work and family demands and their ability to satisfy

professional and family role expectations (U = 1877.00, Z = -7.950, p = 0.001, with a large effect size, r = 0.555). The mean rank score (135.45) of the single working mothers was substantially higher than the mean rank score (69.58) of the married working mothers. Hence, it seems that single mothers in this sample experienced high levels of work-family pressure due to time constraints, workload and role overload and their inability to manage work and family role conflict. Likewise, marital status interacted significantly with the experience of stress symptoms. The mean rank score (141.02) of the single mothers on the overall stress scale was more than twice as large as the mean rank score (63.85) of the married working mothers (U = 1297.50, Z = -9.320, p = 0.001, large effect size, r = 0.651). This finding indicates that the single working mothers in this sample experienced soaring levels of exhaustion and physiological distress in comparison to the stress symptoms the married mothers expressed.

Thus, it is clear that marital status does have a major impact on working mothers' experience and perceptions of work-family pressure and stress, as well as the support systems that are needed to deal with or to mitigate stressful circumstances.

5.8.4.2 Possibility to negotiate non-standard working hours

Depending on the respondents' answers to the question regarding the 'possibility to negotiate non-standard working hours with the organisation', the respondents were categorized into two subgroups, a 'Yes' group (78) and a 'No' group (127). The mean rank scores of the 'Yes' and 'No' subsets on the dependent variables are shown in Table 5.25.

The statistics show that there were significant differences ($p < 0.05$ to $p < 0.001$) in the mean rank scores of those who were able to negotiate non-standard working hours with their organisations and those who were not able to do so. This variable had a significant impact on the perceptions of the subsets in the sample towards the support and coping scales and the pressure and stress measures. Although there were significant differences ($p < 0.01$) between the mean rank scores between the 'Yes' and 'No' subsets with regard to all ten behavioural scales, it is evident that

most of these differences had a medium to small effect size. However, being able to negotiate non-standard working hours was significantly (p = 0.001) related to the support scales, that is personal development and organisational flexibility.

Table 5.25: Mann-Whitney test: Comparison of mean rank values by the ability to negotiate non-standard working hours

Behavioural scales	Negotiate working hours	N	Mean rank score	U	Z	Sig. two-tailed	Effect size r
Personal development	Yes	78	136.42	2346.00	-6.327	0.000	0.442
	No	127	82.47				
Management support	Yes	78	120.53	3585.50	-3.327	0.001	0.232
	No	127	92.23				
Organisational flexibility	Yes	78	147.15	1509.50	-8.354	0.000	0.584
	No	127	75.8				
Time for family interaction	Yes	78	126.53	3118.00	-4.454	0.000	0.311
	No	127	88.55				
Childcare support	Yes	78	127.56	3037.50	-4.652	0.000	0.325
	No	127	87.92				
Overall coping behaviour	Yes	78	118.55	3740.00	-2.957	0.003	0.207
	No	127	93.45				
Work-family pressure	Yes	78	79.35	3108.50	-4.474	0.000	0.313
	No	127	117.52				
Overall stress score	Yes	78	83.08	3399.50	-3.770	0.000	0.263
	No	127	115.23				

** P< 0.001; *p< 0.00; r ≤ 0.10 suggests a small effect; r ≥ 0.30 suggests a medium effect; and r ≥ 0.50 suggests a large effect.

Relatively large and practically significant differences were obtained between the subsets' perceptions of the two support scales of personal development and organisational flexibility. The mean rank scores of the 'Yes' and 'No' subsets on these two scales were 'Yes' = 136.42 and 'No' = 82.47 for personal development and 'Yes' = 147.15 and 'No' = 75.8 for organisational flexibility, respectively. The

respondents in the 'Yes' subset were significantly more positive about the opportunities available for working mothers to attain personal growth, career advancement and autonomy in their jobs (U = 2346.00, Z = -6.327, p = 0.001, with a high medium effect size, r = 0.442). The 'Yes' group had also strong positive views about their organisation's capacity to create and provide a flexible work environment and were pleased with their organisation's support to working mothers at both the work and social levels (U = 1509.50, Z = -8.354, p = 0.001, with a large effect size, r = 0.584).

5.9 RESULTS OF THE LOGISTIC REGRESSION

A logistic regression analysis was performed on the marital status of the respondents as the outcome variable. The following eight continuous variables were included as predictors in the original model, namely personal development, management support, organisational flexibility, time for family interaction, childcare support, overall coping behaviour, work-family pressure and overall stress.

Backward stepwise regression was used. Field (2005) recommends this method as the preferred approach in exploratory analyses. The analysis starts with a full model and the predictor variables are eliminated from the model in an iterative process. After four steps, the backward stepwise regression analysis was completed and a model including five predictors was created. Three of the predictor variables were removed in the process, namely overall coping behaviour in Step 2, childcare support in Step 3, and personal development in Step 4.

The goodness-of-fit of the resulting model was statistically tested against the constant-only model provided by the analysis. To compensate for inflated Type 1 error, reasonable criteria to determine the significance for this test were calculated. Alpha was set at 0.006 for eight predictors and a constant ($\alpha = 0.05 / 9 = 0.006$) (Tabachnick & Fidell, 2007).

The -2 log-likelihood values (-2LL) of the new model was 137.914 and the -2 log-likelihood value of the constant-only model was 284.146. The comparison of the -2 log-likelihood values of the two models indicated that the change in the amount of

information provided by the final model was statistically significant at a 99% level of confidence (^{2} (5, N = 205) = 146.23, p < 0.0001). The computed model indicated that five predictors, as a set, distinguished reliably between single and married mothers.

The classification of the respondents as either single or married was exceptionally good. Based on the five predictor variables, 86.5% of the single working mothers and 89.1% of the married working mothers were correctly classified. The overall accuracy of this model to predict marital status with a predictor probability of 0.5 or greater was 87.8%. The predicted probability of the marital status of the respondents is illustrated in Figure 5.4.

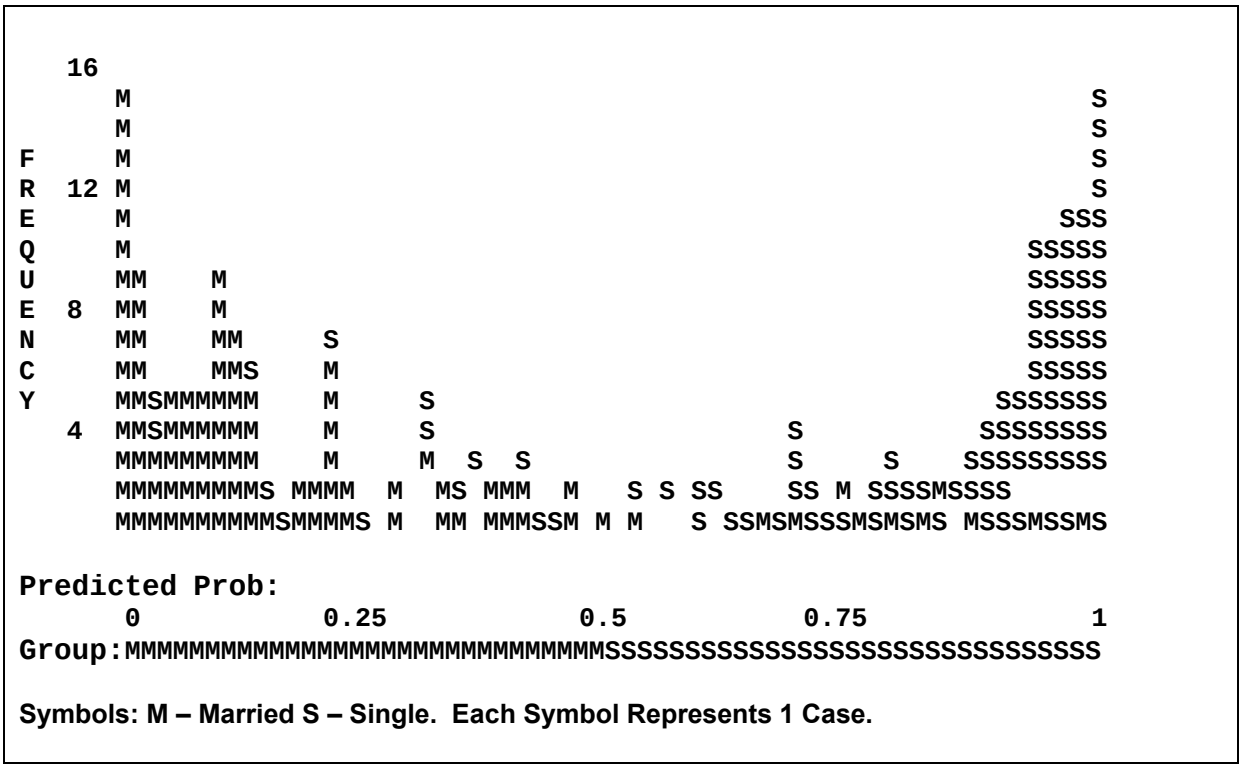

Figure 5.4: Observed groups and predicted probabilities of marital status

The Hosmer-Lemshow's goodness-of-fit test also endorsed the efficiency of the produced model. The number of subjects allocated to ten observed groups did not differ statistically significantly from the number of subjects allocated to the ten groups created by the logistic regression model. The Chi-square statistics (^{2} (8, N = 205) = 6.401, p = 0.602) confirmed that the variables in the model predicted the observed data very well.

The predictor measurements that contributed significantly to the model were management support, organisational flexibility, time for family interaction, work-family pressure and stress. Table 5.26 shows the regression coefficients ( ), Wald statistics, odd ratios, and 95% confidence intervals for odd ratios for each of the five predictors.

Table 5.26: Logistic regression analysis of marital status as a function of support and stress variables working mothers' experience

Variables in the equation		Wald Chi-square	Sig	Odds ratio	95%confidence interval for odds ratio	
					Lower	Upper
Management support	-0.055	6.271	0.012	0.947	0.907	0.988
Organisational flexibility	0.131	18.284	0.000	1.140	1.074	1.211
Time for family interaction	-0.114	11.294	0.001	0.892	0.835	0.954
Work-family pressure	0.036	11.149	0.001	1.037	1.015	1.059
Overall stress	0.118	16.722	0.000	1.125	1.063	1.190
(Constant)	-3. 913	5.334	0.021	50.046		

The Wald statistic test provides information about the statistical significance of each coefficient ( ) in the model. The test has a Chi-square distribution and calculates whether the -coefficient for the predictor is significantly different from zero. The Wald's Chi-square values for the variables organisational flexibility, time for family interaction, work-family pressure and stress were significant at the 0.001 level and for management support significant at the 0.01 level. The results indicating that each variable on its own accord made a significant contribution to the reliable prediction of marital status.

The odds ratios of organisational flexibility (1.140), work-family pressure (1.037), and stress (1.125) were greater than one, indicating that an increase of one unit in any

one of these three predictors will increase the odds of being classified as a single mother by 3.7% to 14.0%. The odds ratios of management support (0.947), and time for family interaction (0.892) were less than one. These results imply that the odds of a subject's being classified as single decreases with 5.3% to 16.5% with a one-unit increase in any one of the two predictors. The confidence intervals of the odds ratios for the individual predictors were constantly either positive [Exp( ) > 1] or negative [{Exp( ) < 1]. This allows the possibility of generalising these findings to the broader population of single and married mothers working in professional and management potions (Field, 2005). The relatively small standard error (SE) of each predictor variable confirms that the model is statistically stable. The magnitude of the SEs ranged from 0.011 to 0.034. The size of the inter-correlation coefficients of the predictor variables (0.286 to 0.727) attests to the absence of multicollinearity.

The proportion of variance in the outcome variable associated with the predictor variables is indicated by R^2. However, 'for regression models with a categorical dependent variable, it is not possible to compute a single R^2 statistic that has all of the characteristics of R^2 in the linear regression model, so approximations are computed instead'(SPSS Electronic manual). To estimate the coefficient of determination Cox and Snell's R^2 and Nagelkerke's R^2 were computed. The estimated squared multiple correlations as calculated with the two mentioned methods suggested that the model could account for approximately 51% to 68% of the variance in the outcome variable.

Finally, McFadden's $p^2 = 0.512$, as a measure of the strength of the association between the predictor variables and the model were highly satisfactory (Tabachnick & Fidell, 2007). In terms of Cohen's (1988) criterion, this relatively high p^2 value signifies that the effect size of the logistic model is large and of practical importance.

5.10 SUMMARY

In this chapter, the focus was reporting on and interpreting the research results. First, the results of Lawshe's method to test the content validity of the initial items were depicted. Next, the results of the exploratory factor analysis and item and reliability analysis of the W-FPSQ, the OSI and the OCI measurers were reported

comprehensively and critically. In addition, the results of the correlation and inter-correlation matrixes of the different independent and dependent variables were depicted in various tables and intensively discussed. Finally, the results of the multiple analyses of variance, and logistic regression analysis were examined. Applicable figures were used to demonstrate the scree-plots of the different factor analyses and to illustrate the outcome of the logistic regression analysis. (See Figures 5.3 to 5.4.)

On the whole, it can confidently be said that data have been harnessed to answer the research questions and to substantiate the research objectives. The use of relevant and appropriate statistics have thrown light on the defining characteristics of working women in general and single women in particular. In the next chapter, the results of the study are critically discussed and recommendations are made.