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Dublin Fire Brigade: Violence In The Workplace And Occupational Stress In The Control Room

Paul Harris
Royal College of Surgeons in Ireland

John F. Connolly
Royal College of Surgeons in Ireland

Ciaran O’Boyle
Royal College of Surgeons in Ireland

Citation

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Dublin Fire Brigade:

Violence in the Workplace and Occupational Stress in the Control Room - Initial 3 Station Study

Research conducted by:

Royal College of Surgeons in Ireland
Institute of Leadership

Report by:

Paul Harris, John Connolly, Ciarán O’Boyle

June 2008
Preface

Founded in 1862, Dublin Fire Brigade (DFB) is the largest full time Brigade in the country, serving 1.2 million people throughout the city and county of Dublin. DFB has undergone significant change in the past few years. As part of this change there has been interest from key stakeholders in identifying the main sources of violence and stress in the workplace, with a view to developing best practice for the prevention and management of these issues.

In February 2007 DFB, through the then SIPTU convenor Tony McDonnell, approached the Institute of Leadership (IoL) at the Royal College of Surgeons in Ireland (RCSI) to discuss a study for DFB into violence at the frontline workplace and occupational stress within the HQ Control Room. Following further exploratory meetings with Partnership, IoL presented a proposal to conduct initial research in a small number of stations which was envisaged as the first phase of an ongoing relationship with DFB. The proposal from IoL was approved at Partnership level and subsequently joint-funded by Dublin City Council (DCC) and DFB.

From the outset a Partnership approach was adopted. This allowed the full participation of the workers’ representative Unions (SIPTU and IMPACT), DCC, DFB HR and Management, and IoL. The overall approach was characterized as one of risk identification and assessment with a view to informing training and establishing best practice. The medium-term plan is to conduct a series of step-wise studies that focus on particular aspects of work considered particularly relevant to DFB. Each project would then inform subsequent studies and, in the first instance, the deliverable is a final report. Studies may run in parallel, and may lead to identification and delivery of separate training programmes as deemed appropriate.

This study was conducted by Paul Harris and John Connolly, both psychologists and researchers at the Institute, and Ciarán O’Boyle, Professor of Psychology and Chairman of the Institute.
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RCSI

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Summary of Key Findings
The research, conducted using survey methodology, was divided into two Studies:

- Study 1: Violence in the Workplace
- Study 2: Occupational Stress in the HQ Control Room

Findings indicated that occupational stress and work-related violence were significant issues in the three DFB stations looked at. The data provided an evidence-base for recommendations regarding training and organisational initiatives to improve crew-safety and increase psychological well-being.

Participant Profile
For Study 1 the overall response rate was 43% (N=142), and the Study 2 overall response rate was 66% (N=51). A more detailed response rate breakdown is given in Tables 1 and 2 below:

| Table 1: Response rates to Survey Of Violence Experienced by Staff (SOVES) in the Workplace |
|-------------------------------------------------|-----------------|-----------------|-----------------|
| Total (all 3 sites)                              | Personnel Invited N | Personnel Responding N | Response Rate % | Response Proportion % |
| Total (all 3 sites)                              | 333               | 142              | 43              | -                |
| Dolphin’s Barn                                  | 94               | 49               | 52              | 34               |
| Finglas                                         | 53               | 24               | 45              | 17               |
| Tara Street (HQ)                                | 186              | 69               | 37              | 49               |

| Table 2: Response rates to Survey of Occupational Stress in the HQ Control Room |
|-------------------------------------------------|-----------------|-----------------|-----------------|
| Personnel Invited N                             | Personnel Responding N | Response Rate % | Response Proportion % |
| Tara Street (HQ)                                | 77               | 51              | 66              | 100              |

Study 1 – Violence in the Workplace
Findings from the three sites studied were as follows:

High Prevalence of Violence
Almost all respondents (96%) had experienced some form of violence during their career. Of these, significant proportions were physically assaulted (69%), and/or threatened (80%) and/or verbally abused (94%) in the past year.

High Frequency of Violence
Over one fifth (22%) of respondents reported having been physically assaulted more than ten times in the past year. Nearly three quarters of respondents (72%) reported having been verbally abused and 42% having been threatened, more than ten times in the past year.
Violence Most Likely to Occur on Ambulance Duty
Over a third of respondents indicated that Ambulance duty was being performed when instances of physical assault occurred; one fifth (21%) indicated Fire-related duty was being performed and two fifths (40%) indicated both were being performed.

Main Source of Violence: Public/Client
The predominant source of violence was identified as the Public or Client. A considerable proportion of respondents identified the Relative of the Client and the co-worker as sources of violence.

High Injury Rate following Violent Incidents
Nearly a quarter (23%) of respondents reported sustaining a Minor or Major physical injury following the most recent occurrence of physical assault.

Violence Resulted in Taking Time Off Duty
Data showed that verbal abuse, threats, or physical assaults in the workplace had resulted in respondents taking time off duty. The majority of these (74%) had taken two or more work days following occurrences of violence. Over a fifth (22%) had taken more than five days off duty.

Physical assault had the Most Emotional Impact
The impact of violence varied depending on the type of incident. Two fifths of respondents (39%) reported being moderately or severely distressed by a recent occurrence of physical assault compared with 21% for verbal abuse and 24% for threats.

Non-Reporting of Violence
Non-reporting of violence was widespread with the majority of respondents (59%) stating that they ‘never’ or ‘not often’ reported incidents of verbal abuse, threats, or physical assaults. 42% of respondents stated that they ‘never’ reported physical assaults. Similarly high levels of non-reporting were identified for verbal abuse (57%) and threats (56%).

Support: Awareness
Over two fifths of respondents (43%) did not know if their employer had a formal policy/protocol of support for staff who had been assaulted.

Support: Availability
Two thirds of respondents (39%) agreed that support was available when needed. However 29% disagreed, 32% were undecided and half of all respondents agreed that it was difficult to access appropriate supports when necessary.

Support: Use Of
Many respondents (37%) used no support mechanisms following occurrences of violence. Of those who did, the most commonly used were to discuss the incident with a colleague (64%), with a partner/family member (24%), or with a friend (23%).

Support: Satisfaction
A large proportion of respondents (45%) were generally dissatisfied with support following occurrences of violence.
Training
The majority of respondents (92%) recognised the need for and importance of training. However, in the management of potentially violent individuals, 83% indicated that they had never received training, 39% indicated that they were ‘not confident’ in using physical intervention skills and 12% indicated that they were ‘not confident’ in using verbal intervention skills.

Study 2 – Occupational Stress in the HQ Control Room
Findings from the Control Room were as follows:

High Levels of Psychological Distress
Nearly half (45%) of Control Room personnel reported having high levels of psychological distress at the time of the study.

Stress Associated with Sick Days Taken
There was a positive correlation between number of sick days taken and level of psychological distress. Higher levels of stress were associated with higher psychological distress.

Primary Sources of Stress
These included:
- substandard equipment
- sleep disturbance,
- worries over reductions in personnel and wage levels
- abuse of the Ambulance system by the public

Stress associated with Psychological Distress
A relationship was identified between sources of stress and psychological well being. Higher scores (more stressful) on the SOOS (sources of occupational stress) were associated with higher scores on the GHQ12 (higher psychological distress).

Most Stressful Sources
Additional sources of stress rated as the most stressful and occurring most frequently were concerns over the future staffing of the Control Room, the flexibility and auditing of the ProQA system, of software (e.g. database systems, computer programs), and geographic address search and retrieval systems.

Home & Work Carry Over
There was a strong relationship between home and work carry over and psychological well being. Control Room personnel who showed higher levels of work-family conflict tended to have higher levels of psychological distress.

Work-Family Conflict
In line with findings showing high levels of psychological distress, the majority of HQ Control Room staff (almost two thirds) reported feeling ‘used up at the end of a work-day’ (63%) and reported that their job made them ‘feel exhausted at the end of a work-day’ (65%).

While not the case for all Control Room staff, work-family conflict seems to be an issue for a significant proportion of personnel. More than one third reported that they ‘worry about ... home-
life problems whilst at work’ and found it ‘difficult to unwind at the end of a work-day’. A further 30% reported that they ‘keep worrying about job problems’ after they leave work.

National and International Comparators
Data from several national and international studies were available. These studies generally included paramedic/ambulance personnel and these were, therefore, considered particularly appropriate for comparison. When benchmarked against this data the current study suggests a proportionally higher prevalence of violence within DFB.

Figure 1: Violence in the Workplace


A higher proportion of DFB personnel identified the relative of the client as a greater source of physical abuse and threats, compared with recent findings from an Irish Healthcare setting (Mc Kenna, 2004).
Psychological Distress was measured using the GHQ-12, a 12 item measure of psychological health symptoms developed by Goldberg and Williams (1988). It is a widely used and well validated screening instrument that assesses psychological distress or ‘mental ill-health’ and its brevity represents a distinct advantage over other more laborious measures.

When compared with the general Irish population, HQ Control Room personnel had considerably higher levels of psychological distress.

Recent research from the National Psychological Wellbeing and Distress Survey (HRB, 2007) classified a total of 12% of their Irish sample as probable cases (having potential psychiatric problems) compared with 45% of HQ Control Room personnel.

Higher levels of psychological distress were evident in the current study when compared with previous DFB research.

In the current study 61% of Control Room personnel showed scores indicating possible caseness (GHQ12). Previous research in DFB (Shalloo 1999) identified 34.3% of personnel identified as possible cases (Shalloo used the 28 item version of the GHQ).

The prevalence and degree of psychological distress in Control Room personnel appears to be comparatively higher than similar high risk occupations. For example, twice as many DFB CRM staff had scores indicating significant psychological distress compared to Australian health sector staff, including emergency response ambulance personnel (Mayhew & Chappell, 2003).
Main Report

Introduction
The term Partnership, as used throughout this Report, refers to the collaborative and integrated nature of the research. Partnership stakeholders include:

- DFB Workers (represented by SIPTU & IMPACT)
- DFB Management and HR
- RCSI Institute of Leadership

Currently, DFB service has a total staff of 1030 with an additional 42 cadets in training. Personnel are spread across 15 operational Stations, the Garage and the Training Centre making a total of 17 workplaces in all. The Brigade operates both an emergency fire service as well as emergency ambulance service, and delivers these services to approximately 1.2 million people in 400,000 households across 365 square miles.

While the focus of the current study is on occupational stress and violence in the workplace, it is acknowledged that DFB already has in place a variety of relevant policies and systems (further details can be found in DFB Health and Safety Unit Annual Report, 2006). Examples include a critical incident stress debriefing system (CISD) for managing the aftermath of trauma and an employee assistance program (EAP) is also in place. This study received the full backing of the HR Department, DFB management, both Unions SIPTU and IMPACT, as well as Dublin City Council.

Methodology
The methods adopted for the research were identified and developed based on a review of the relevant literature, international best practice, and in consultation with the Partnership group. The research was designed to facilitate the particular organisational structure of DFB.

Ethical approval was obtained as is standard practice within IoL when conducting sensitive research of this nature. This approval was granted by the RCSI Research Ethics Committee to ensure that the highest standards of research conduct were maintained throughout the study. Participation was voluntary and no personally identifiable information was sought from respondents. The independent and objective nature of the research was emphasized throughout.

Studies
The project was divided into two studies as outlined below:

**Study 1: Violence in the Workplace**
This study aimed to identify and document the nature, incidence and prevalence of violence experienced by operational personnel in a sample of DFB stations. It further sought to identify the effect of and reporting of violent incidents as well as corresponding availability and use of support.

**Study 2: Occupational Stress in the HQ Control Room**
The objective here was to explore the prevalence, source and frequency of occupational stress in the HQ control room and to measure psychological well-being and potential work-family conflict.

A detailed methodology is given below for each of the two Studies, however, the following elements were common to both Studies:
Infor - mation posters were distributed in advance of the study. The intent was to raise awareness among personnel of the research background and aims and to facilitate communication for any questions regarding the study.

- Surveys were distributed to all invited personnel
- Survey packages were addressed to each staff member and left for collection in pre-designated areas. Each survey package contained a confidential return envelope and each study site had a secure drop-box in place for the return of completed surveys
- A period of approximately two weeks was given between distribution and collection of the surveys.

Study Sites
Budgeting and resource constraints for this study required that a sample of stations was made. Criteria for inclusion were that the Stations be representative of:

- Geographic location
- Activity levels
- Number of personnel and tenders

Three Stations were subsequently selected – Dolphin’s Barn, Tara Street, and Finglas – located and circled in red on the map below:

Figure 3: Map of Study Sites

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1 This period was agreed on in consultation with personnel and Partnership in order to accommodate shift-rotation so that all would have a chance to participate in the study.
Discrepancies between Internal and External Findings

It is to be expected that in some cases the results reported from the current studies differ from internal DFB Health and Safety reports. There are several explanations for this, including:

- Anonymous survey-based reporting compared with official internal reporting
- External and independent nature of this study
- Specific sampling and survey instruments used compared with official report forms
- This study also identified under-reporting as a significant issue (see Figures 12-14).

Research shows that official statistics often do not provide an accurate account (Fire Brigades union, 2005).

Study 1: Violence in the Workplace

Introduction

Defining Violence

Violence is an inherently broad concept encompassing a multitude of possible and interacting scenarios, applications, components and outcomes. Its breadth and depth have made standardising a definition difficult.

The European Foundation for the Improvement of Living and Working Conditions highlights the importance of recognizing the various types of violence in the workplace and, further, that psychological components are a priority concern (Di Martino et al, 2003). Accordingly, here in Ireland the Health and Safety Authority (2007) categorizes violence according to verbal abuse, threats and physical abuse.

Following detailed review and consultation it was decided to adopt the following operational definition proposed by the European Commission in Dublin:

“Incidents where persons are abused, threatened or assaulted in circumstances related to their work, involving an explicit or implicit challenge to their safety, well-being and health” (Wynne et al, 1997)

For the study purposes and in line with previous research, the following categories and behavioural indicators/examples were specified (McKenna, 2004):

- **Verbal Abuse**: abusive or offensive language, personally derogatory remarks, profanity or obscene comments
- **Threats**: warnings of intent to injure, harassment, physical intimidation, threat with a weapon
- **Physical Assault**: slapping, pinching, pushing, shoving, spitting, kicking, use of a weapon

Methodology

A survey-based methodology was used to identify and document the nature, incidence and prevalence of violence experienced by operational fire/ambulance personnel. This study further
sought to identify the effect of and reporting of violent incidents as well as corresponding availability and use of support.

The survey instrument chosen was the Survey Of Violence Experienced by staff (SOVES). The SOVES is a multi-item questionnaire initially developed by McKenna (1999, 2004) and has been reviewed, adapted and validated by the European Violence in Psychiatry Research Interest Group (EViPRG). Its subscales have achieved good levels of internal reliability (0.877-0.917) (See McKenna, 2004).

Several adaptations were made to the SOVES including:

- Minor language modifications to make the instrument more appropriate to the DFB context
- The visual analogue response category was changed from 0-100 to a 0-10
- Space was included to allow for more detailed responses.

A separate section of the questionnaire assessed pertinent demographic characteristics of respondents.

**Procedure**

An information poster was distributed to all sites in advance of the questionnaire being distributed. This was done primarily to raise awareness and inform staff, as well as to facilitate feedback. The poster outlined in brief the purpose and background of the study, and provided information, contact details, and notice of times when the researchers would be at the study sites for a brief presentation to any available personnel (i.e. those not on a call).

In order to facilitate the shift and rotational system on which DFB operates, it was decided to repeat the presentations at each study site.

Concurrent with the presentations, questionnaires were distributed to all operational fire/ambulance personnel (N=333) across the study sites. Survey packages were delivered at the time of the presentations. These packages, addressed to each staff member, were left for collection in staff pigeon holes (per-watch) in the Station office. This was co-ordinated with the help of the Station Officer on duty.

Questionnaires from each site were returned to a secure location in HQ from where they were collected by the researchers.

Data from the questionnaires was subsequently entered into a statistical analysis program (Statistical Package for the Social Sciences (SPSS), Version 15.0 for Windows); the paper surveys were stored securely. Following this, the data were checked for consistency and analysed. All datasets were stored in a secured electronic location on the RCSI network.

**Profile of Participants**

The overall response rate was approximately 43% (N=142). A breakdown of response rate by station can be seen below in Table 1. A detailed Profile of Participants is given overleaf:
### Table 3: Profile of Participants (Study 1)

<table>
<thead>
<tr>
<th>Profile</th>
<th>Description</th>
<th>%</th>
<th>N</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>99%</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1%</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Employment Status</td>
<td>Full Time</td>
<td>100%</td>
<td>142</td>
<td></td>
</tr>
<tr>
<td>Age Groups</td>
<td>&lt;=25</td>
<td>2%</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25-32</td>
<td>22%</td>
<td>31</td>
<td></td>
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<tr>
<td></td>
<td>32-39</td>
<td>30%</td>
<td>42</td>
<td></td>
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<tr>
<td></td>
<td>39-46</td>
<td>23%</td>
<td>33</td>
<td></td>
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<td></td>
<td>46-53</td>
<td>16%</td>
<td>23</td>
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<td></td>
<td>53-60</td>
<td>4%</td>
<td>6</td>
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<tr>
<td></td>
<td>60+</td>
<td>1%</td>
<td>2</td>
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<tr>
<td>Age Range</td>
<td>22-61</td>
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<tr>
<td>Age Mean</td>
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<td></td>
</tr>
<tr>
<td>Station</td>
<td>No.2</td>
<td>34%</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No.5</td>
<td>17%</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HQ</td>
<td>49%</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>Rank</td>
<td>Fire-fighter/EMT</td>
<td>85%</td>
<td>121</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub Officer</td>
<td>7%</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Station Officer</td>
<td>3%</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>District Officer</td>
<td>4%</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>0.70%</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Length Of Service</td>
<td></td>
<td>140</td>
<td>12yrs</td>
<td></td>
</tr>
<tr>
<td>Length Of Service At Stn.</td>
<td></td>
<td>142</td>
<td>7yrs</td>
<td></td>
</tr>
<tr>
<td>Average % of Public Contact</td>
<td></td>
<td>128</td>
<td>64%</td>
<td></td>
</tr>
<tr>
<td>Length Of Service at Rank</td>
<td></td>
<td>141</td>
<td>9yrs</td>
<td></td>
</tr>
<tr>
<td>Weekly Hours</td>
<td></td>
<td>118</td>
<td>41hrs</td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td>Primary</td>
<td>1%</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary</td>
<td>54%</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Third Level</td>
<td>37%</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post Graduate</td>
<td>4%</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unanswered</td>
<td>3%</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>19%</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Married/Cohabitng</td>
<td>73%</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Divorced/Separated</td>
<td>5%</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

n=142 Operational personnel
Table 4: Response Rates to Survey of Violence Experienced by staff (SOVES) in the Workplace

<table>
<thead>
<tr>
<th></th>
<th>Personnel Invited N</th>
<th>Personnel Responding N</th>
<th>Response Rate %</th>
<th>Response Proportion %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (all 3 sites)</td>
<td>333</td>
<td>142</td>
<td>43</td>
<td>-</td>
</tr>
<tr>
<td>Dolphin’s Barn</td>
<td>94</td>
<td>49</td>
<td>52</td>
<td>34</td>
</tr>
<tr>
<td>Finglas</td>
<td>53</td>
<td>24</td>
<td>45</td>
<td>17</td>
</tr>
<tr>
<td>Tara Street (HQ)</td>
<td>186</td>
<td>69</td>
<td>37</td>
<td>49</td>
</tr>
</tbody>
</table>

Results

Comparative data in this report are included for the purposes of benchmarking. The results of a recent North Eastern Health Board (NEHB) report (McKenna, 2004) into work-related violence are graphically displayed where relevant. This study was considered appropriate given its use of the same survey instrument and the Irish general healthcare population from which it sampled (to include Paramedic and ambulance personnel).

Prevalence of Violence

This section of the SOVES questionnaire asked questions about the prevalence, source and frequency of workplace violence. Of the 142 respondents 96% reported having experienced some form of violence (verbal abuse, physical assaults or threats) during their career. In the past year the breakdown is as follows:

- Personnel who responded (n=142) as having been physically assaulted: 69%
- Personnel who responded (n=142) as having been threatened: 80%
- Personnel who responded (n=142) as having been verbally abused: 94%

Data from several national and international studies were available. These studies generally included paramedic/ambulance personnel and were therefore considered particularly appropriate for comparison. When benchmarked against these data the current study suggests a proportionally higher prevalence of violence within DFB.

Figure 4: Prevalence of Violence in the Workplace

Previous research carried out in DFB also identified a similarly high percentage of respondents (83%) reporting having experienced violence at work (Ledden, 2003).

**Frequency of Violence**

Figures 1-3 describe the frequency with which personnel reported experiencing violence (verbal abuse, threats and Physical assaults) within the past year.

As can be seen from Figure 5 below verbal abuse was the form of violence which occurred most frequently with half of all respondents experiencing verbal abuse more than twenty times in the past year.

In the past year:

- 72% of respondents (n=135) reported experiencing verbal abuse more than 10 times
- 44% of respondents (n=114) reported experiencing threats more than 10 times
- 21.6% of respondents (n=97) reported being Physically assaulted more than 10 times

**Figure 5: Frequency of Verbal abuse in Past Year**

**Figure 6: Frequency of Threats in Past year**
Sources of Violence
Respondents were asked to indicate the categories which best describe the source(s) and frequency of abuse within the past year. Sources of violence were categorised as Client, Public, Relative of Client, Co-Worker, and Other.

Sources of Verbal abuse: The primary sources of verbal abuse (Figure 11) were the Public (91%) and Client (72%). A considerable proportion of respondents identified the Relative of the client (65%) and the Co-worker (27%) as sources of verbal abuse.

Sources of Threats: The primary sources of threats (Figure 10) were the Public (72%), client (58%) and relative of the client (46%). 10% of respondents identified the Co-worker as a source of threats.

Sources of Physical Abuse: The primary sources of physical abuse (Figure 9) were the Public (50%), Client (51%) and Relative of the Client (22%).

Data from this study identify the relative of the client as a greater source of threats than a recent survey of healthcare staff (McKenna, 2004).
Similarly, the data from this study identify the co-worker as a greater source of threats and verbal abuse.

**Figure 9: Sources of Physical Abuse in Past Year**

![Bar chart showing sources of physical abuse in past year.]

- Client (73)
- Public (71)
- Relative of Client (31)
- Co-worker (6)
- Other (12)

*(n=97)*

- DFB 3 Station Study
- McKenna (2004) Healthcare Staff

*Public not applicable as a response category for McKenna population

**Figure 10: Sources of Threats in Past Year**

![Bar chart showing sources of threats in past year.]

- Client (80)
- Public (192)
- Relative of Client (65)
- Co-worker (14)
- Other (5)

*(n=113)*

- DFB 3 Station Study
- McKenna (2004) Healthcare Staff

*Public not applicable as a response category for McKenna population*
*Public not applicable as a response category for McKenna population

**Activity/Duty Being Performed**
Respondents were asked to briefly describe/indicate the duties being performed when incidents of violence occurred.

Of 75 respondents, over a third (39%) indicated that Ambulance duty was most frequently being performed when physical assault occurred; one fifth (21%) indicated Fire-related duty was being performed and two fifths (40%) indicated both fire and ambulance duties were equally being performed.

Of 114 respondents, over a third (35%) indicated that Ambulance duty was most frequently being performed when threats occurred; one fifth (20%) indicated Fire-related duty was being performed and almost half (46%) indicated both fire and ambulance duties were equally being performed.

Of 109 respondents, over a third (37%) indicated that Ambulance duty was most frequently being performed when verbal abuse occurred; almost one fifth (16%) indicated Fire-related duty was being performed and a further half (48%) indicated both fire and ambulance duties were equally being performed.

**Reporting of Violence**
This section of the SOVES questionnaire examined the extent of reporting amongst DFB personnel. A high incidence of non-reporting was identified with the majority of respondents stating that they had ‘never’ or ‘not often’ reported incidents of violence.

- 57% of respondents stated that they never report occurrences of verbal abuse
- 56% of respondents stated that they never report occurrences of threats
- 41% of respondents reported that they never report occurrences of physical assaults

---

2 Formal reporting defined as verbal or written report to supervisor/line manager
Figure 12: Reporting of Verbal Abuse

(N=142)

- Never Report: 57%
- Not Often Report: 22%
- Sometimes Report: 12%
- Often Report: 5%
- Always Report: 3%
- Unanswered: 3%

Figure 13: Reporting of Threats

(n=142)

- Never Report: 56%
- Not Often Report: 24%
- Sometimes Report: 15%
- Often Report: 5%
- Always Report: 2%
- Unanswered: 3%

Figure 14: Reporting of Physical Assaults

(n=142)

- Never Report: 41%
- Not Often Report: 16%
- Sometimes Report: 15%
- Often Report: 8%
- Always Report: 2%
- Unanswered: 2%
The main reasons cited for non-reporting can be summarized as follows:

- That the reporting process was considered too laborious & time consuming, involving too much paperwork. That it was ‘not worth the hassle’
- That violence was seen as an expected part of the job, or ‘an occupational hazard’
- That staff did not think it was necessary
- That staff were too busy
- There was a lack of follow up; that it was felt that there was no point in reporting as nothing would be done about it
- That violence was an everyday/high frequency occurrence

Personal Effects of Violence

This section of the SOVES examined the impact of workplace violence by looking at three areas: physical, emotional and time off duty.

Violence in the Workplace and Physical Injuries

Respondents were asked to indicate whether recent occurrences of violence in the workplace had resulted in any physical injury and to what degree.

Of the entire 142 staff who completed the survey, 33 (23%) reported sustaining a Minor\(^3\) or Major\(^4\) physical injury. Based on the number of staff experiencing physical assault (n=97) this Figure represents a 34% rate of injury following physical assault.

This high rate of injury has also been reported in similar occupational settings (see Figure 16 below)

**Figure 15: Physical Injury Following Physical Assault**

\[^3\] Minor - injury requiring treatment or first aid
\[^4\] Major – injury required medical assessment and/or treatment
None – no physical injury of any sort
Time off Duty Following Violence in the Work Place

Of the entire 142 staff who completed the survey, twenty respondents (14%) indicated that verbal abuse, threats, or physical assaults in the workplace had resulted in them taking time off duty.

Longest period of time off duty taken within the past year

Thirty personnel responded to the question asking the longest period of time off duty taken within the past year. The majority of these (75%) had taken 2 or more work days following occurrences of violence and 23% stated that they had taken more than 5 days time off duty.

Note: Rounding of percentages results in a total greater than 100%
Emotional Impact of Violence
Respondents were asked to rate the emotional impact of the most recent occurrence of Violence (verbal abuse, physical abuse and threats) by indicating the degree of distress felt (Figures 18-20 below).

Physical assault was reported as having the greatest emotional impact, with 39% of respondents rating it as moderately or severely distressing.

Verbal abuse: While 21% of respondents rated the impact of verbal abuse as moderately or severely distressing, 58% reported it as ‘not distressing’ or ‘minimally distressing’.

Threats: While 24% of respondents rated the impact of threats as moderately or severely distressing, 49% rated it as ‘not distressing’ or ‘minimally distressing’.

Physical abuse: While 39% of respondents rated the impact of physical assaults as moderately or severely distressing, 44% rated it as not distressing or minimally distressing.

When benchmarked against recent healthcare staff findings, respondents in this study tended to be less distressed by violent occurrences. For example, while 14% of respondents rated recent occurrences of physical assault as severely distressing, 38% of Healthcare staff gave the same rating.

Figure 18: Emotional Impact of Verbal Abuse
**Figure 19: Emotional Impact of Threats**

![Figure 19: Emotional Impact of Threats](image)

**Figure 20: Emotional Impact of Physical Assaults**

![Figure 20: Emotional Impact of Physical Assaults](image)
Support for Staff

Awareness of Support
Participants were asked to indicate if their employer had a formal policy/protocol of support for staff who had been assaulted.

Of the 139 respondents to this question, 43% were aware that such a policy/protocol existed, and 1% indicated that such a policy/protocol did not exist.

Figure 21: Awareness of Formal Policy/Protocol of Support for Staff Who Have Been Assailed

Satisfaction with / Availability of Support
This section of the SOVES asked respondents to indicate the strength of their agreement with several support related questions on a five point scale ranging from ‘strongly disagree’ to ‘strongly agree’.

Survey item: “Support is available to me when needed”
Of the 135 personnel who responded to this statement, 39% agreed that support was available when needed, 30% disagreed and a further 35% were undecided.

Figure 22: Support is Available to Me When Needed
Survey item: “It is difficult to access appropriate supports when necessary”
Of the 139 personnel who responded to this statement, 50% agreed that it was difficult to access appropriate supports when necessary.

Figure 23: It is Difficult to Access Appropriate Supports When Necessary

Survey item: “Staff are generally satisfied with the support they receive from DFB”
A minority of respondents agreed that staff were generally satisfied with the support they receive from DFB (11-26%). Between 45-55% of participants disagreed with this statement.

Figure 24: Staff Are Generally Satisfied With Support They Receive From DFB

Need for Support
Respondents were asked to rate their level of their agreement that staff needed support following violence (verbal abuse, threats or physical assault).

When benchmarked against McKenna’s 2004 Healthcare study, there are several notable differences between the two datasets. While both samples placed high importance on the need for support following physical violence (current study 91% compared with McKenna’s 97%), respondents in this study showed less agreement that staff who are verbally abused or threatened required support (Figures 25-27). Similarly, this study found lower levels of distress and also less formal reporting following verbal abuse and threats. This finding, when considered along with open text responses (see above section ‘Reporting of Violence’), may indicate a general perception/culture surrounding different forms of violence i.e. that violence is more physical than emotional. Within DFB support is
seen as less important for threats and verbal abuse and may be reflected in the low levels of formal reporting.

**Figure 25: Staff Who Experience Verbal Abuse In The Workplace Need Support**

![Figure 25](image)

**Figure 26: Staff Who Experience Threats in the Workplace Need Support**

![Figure 26](image)
Sources of Support
Participants were asked what support mechanisms they used following violent incidents (verbal abuse, threats or physical assault).

The most common support mechanisms used were ‘discussing the incident with a colleague’ (25%), ‘discussed the incident with a partner/family member (24%) or ‘discussed the incident with a friend’ (23%). However, 37% (51) stated that they used no support mechanisms following violent incidents.

Comparisons with a recent healthcare sample (McKenna, 2004) (Figure 28) suggest several differences in the type of support mechanisms used. DFB Respondents report using fewer support mechanisms following verbal abuse, threats or physical assault. While both samples report using colleagues and friends to an equal degree, fewer DFB personnel reported using their partner/family (24% vs. 37%) or supervisor (25% vs. 43%) as a source of support following violence in the workplace. Further, 16% of Healthcare staff reported using no supports compared with 37% of DFB personnel.
Managers as a Source of Support
Participants were asked to indicate agreement with the statement that managers are supportive after occurrences of verbal abuse, threats and physical assault (Figure 29). Respondents’ level of agreement varied depending on the type of violence encountered.

- 22% of total respondents surveyed (n=142) agreed that managers were supportive following occurrences of verbal abuse, 37% disagreed
- 30% of total respondents surveyed (n=142) agreed that managers were supportive after occurrences of threats, 34% disagreed
- 60% of total respondents surveyed (n=142) agreed that managers were supportive after occurrences of physical assault, 21% disagreed
Figure 29: Managers are Supportive Following Occurrences of Workplace Violence

Families/Friends as a Source of Support
Respondents were asked to indicate their agreement with the statement that Families/ Friends are a significant source of support following verbal abuse, threats and physical assault (Figures 30-32).

Comparisons with a recent healthcare sample showed fewer DFB personnel agreeing that Families/ friends are a significant source of support following verbal abuse (42% vs. 65%), threats (43% vs. 65%) and physical assault (51% vs. 70%).

Figure 30: Families/ Friends are a significant Source of Support Following Verbal Abuse
Respondents were asked to indicate their level of agreement with the statement that staff are reluctant to discuss instances of violence with their family/friends (Figure 33).

The majority of respondents agreed that staff are reluctant to discuss instances of violence with their family/friends (53-61%).
Figure 33: Staff are Reluctant to Discuss Instances of Violence with their Family/Friends

Respondents were asked whether different forms of support were needed following occurrences of verbal abuse, threats and physical assaults. The majority (75%) of respondents agreed that different forms of workplace violence required different supports.

Figure 34: Verbal Abuse, Threats and Physical Assault Require Different Supports

- **Verbal Abuse (n=139)**
- **Threats (n=138)**
- **Physical Assault (n=137)**
Training

Need for training
Respondents were asked the degree to which they rated the need for training for their current role or duties (Figure 35). Three quarters of the respondents rated such training as ‘essential’ with 17% rating it as ‘reasonably necessary’.

Figure 35: How Necessary Is Training For Your Current Role

![Bar chart showing the percentage of respondents who rated training as 'not necessary', 'somewhat necessary', 'reasonably necessary', and 'essential'.](n=52)

Importance of training
Respondents were asked to indicate their level of agreement as to how important they thought particular skills were to training in DFB (Table 5 below). All skills received high levels of rater agreement. Between 82-92% of respondents agreed that these skills were important to training.

Table 5: Agreement with Importance of Skills to Training

<table>
<thead>
<tr>
<th>Listed Skills</th>
<th>Agree</th>
<th>Disagree</th>
<th>Undecided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognise and Evaluate Potentially Violent Individuals (n=137)</td>
<td>92%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Respond Verbally with Potentially Violent Individuals (n=137)</td>
<td>88%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Set Behavioural limits with potentially Violent Individuals (n=136)</td>
<td>86%</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td>Recognise and Respond to Threats (n=137)</td>
<td>92%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Respond in Team Interventions (n=134)</td>
<td>86%</td>
<td>4%</td>
<td>8%</td>
</tr>
<tr>
<td>Safely Contain a Patient Physically (n=137)</td>
<td>88%</td>
<td>8%</td>
<td>3%</td>
</tr>
<tr>
<td>Review Staff Interventions (n=135)</td>
<td>82%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Self-awareness in Interactions with Patients/ Clients (n=137)</td>
<td>90%</td>
<td>4%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Training Received
Figures 36 and 37 outline responses to questions relating to training. Respondents were asked if they had ever received training in the management of potentially violent individuals and, if so, to indicate the type of training received.

Of the 142 respondents who completed surveys, 83% indicated that they had never received such training.
Comparisons with a recent healthcare sample (McKenna, 2004) showed fewer DFB personnel had received training (28% vs. 17%) in the management of potentially violent individuals.

Figure 36: Training Received

Of those who reported receiving training, nine respondents reported receiving training in Breakaway techniques, six received training in Control and restraint techniques and a further twelve fell under the ‘other’ category (Figure 37).

Figure 37: Type of Training Received

Participants were asked to rate how confident they feel using physical and verbal intervention skills in the management of potentially violent situations in their workplace (Figures 38-39).

Respondents reported more confidence in using verbal rather than physical intervention skills.

While 39% of respondents indicated that they were ‘not confident’ in using physical intervention skills, 12% indicated that they were not confident in using verbal intervention skills.
**Figure 38: Confidence Using Physical intervention Skills**

(n=49)

[Bar chart showing confidence levels.]

**Figure 39: Confidence Using Verbal Intervention Skills**

(n=50)

[Bar chart showing confidence levels.]
Study 2: Occupational Stress In The Control Room

Introduction

Definitions

Stress
Stress is increasingly conceptualised as a transactional dynamic process that is relevant at individual, organisation and environment levels.

Following detailed review and consultation it was decided to adopt the following definition proposed by the European Foundation for the Improvement of Living and Working Conditions:

“Work-related stress is a pattern of reactions that occurs when workers are presented with work demands that are not matched to their knowledge, skills or abilities, and which challenge their ability to cope. These demands may be related to time pressure or the amount of work (quantitative demands), or may refer to the difficulty of the work (cognitive demands) or the empathy required (emotional demands), or even to the inability to show one’s emotions at work.” (European Foundation for the Improvement of Living and Working Conditions, 2007)

Work-family conflict
Work-family conflict occurs when pressures from work and family roles conflict. It can be defined as ‘a situation in which participation in the work (family) role is made more difficult by virtue of participation in the family (work) role’ (Greenhaus & Beutell, 1985, p.77). Thus, it is a dual process whereby either domain can negatively influence the other.

Methodology
As with the Study 1 (Violence in the Workplace) survey-based methodology was used to identify and document the nature, incidence and prevalence of occupational stress experienced by Control Room personnel in DFB.

Several instruments were chosen based on literature review; however, it was decided to inform the design of the final questionnaire by holding a number of small focus group discussions with an invited sample of Control Room personnel. This decision was made in recognition of the unique nature of the organisation and as a means of supplementing the questionnaire with Control Room specific concerns.

The Study Site was DFB’s Central Control Room, located in the Tara Street Headquarters. It is currently responsible for all calls within the broader Dublin and greater Leinster areas. A Control Room shift is typically comprised of staff operating the control room and a small number of reserve staff for busy periods. These reserve staff are on call and are located nearby in the Training Room or the Rec. Room. It was, therefore, possible to conduct some limited focus group discussions with reserve staff in accordance with their shift-availability.

Focus Groups
The participants in these focus groups were invited based on a random sample from the four watches (A, B, C, and D). The intention was to have a minimum of six people in each focus group. The
Control Room, as with the rest of DFB, operates on an emergency service basis. Consequently, if personnel were called for duty it was not always possible to have this number as a minimum.

Each focus group was audio-recorded (in accordance with ethical guidelines) to allow the researchers to analyse key themes, maintain accuracy and to supplement the final questionnaire.

**Measures**

**Sources of Occupational Stress**
The Sources of occupational Stress (SOOS, Beaton, 1993) is a 57 item questionnaire used to measure sources of job related stress in fire-fighter and emergency workers. Developed in Washington, it has demonstrated good internal reliability (Cronbach’s alpha > .07) and validity (Beaton, 1993). More recently, Shalloo (1999) adapted the SOOS, including additional subscales suited to the Irish context. She identified the same stable factor structures and good reliability (one subscale was identified as internally inconsistent and was, therefore, removed from further analysis). It was this adapted 66 item version that was employed in the current study. The factor structure was further validated in this study.

The SOOS instrument (also referred to as scale) is comprised of several categories (or subscales). Individual items are summed to give scale scores. For each stressor respondents are asked to provide a score ranging from 0 (indicating ‘not bothered’) to 10 (indicating ‘extremely bothered’).

The instructions clearly explain that by “Troubled” was meant frustrated, annoyed, irritated, etc. A “not applicable” category is also provided. The questionnaire asks respondents to indicate their experience of specific stressors in the preceding 10 shifts worked.

A separate section based on themes that emerged in the focus groups asked Control Room staff to rate ‘how much’ stress (if any) the themes had represented in the past year, and ‘how often’ this source of stress occurred.

**General Health Questionnaire 12 (GHQ12)**
The GHQ-12 is a 12 item measure of psychological health developed by Goldberg and Williams (1988).

It is a widely used screening instrument that assesses psychological distress or ‘mental ill-health’ and its brevity represents a distinct advantage over other more laborious measures. Its use has been widespread in occupational and population studies (Winefield, Gillespie, Stough et al., 2002; Andrew, 2002; Banks, Clegg, Jackson et al., 1980; Tedstone, Moran & Kartalova-O’Doherty, 2007) and its psychometric properties and factor structures have been well demonstrated across settings and cultures.

Reporting both average scores and caseness has been recommended in the literature (Sterud, Ekeberg & Hem, 2006) and provides greater depth of information as well as enabling comparisons between studies. Scores on the GHQ12 are summed to provide an overall score with a higher score indicative of greater psychological distress. Generally, the threshold can be taken as 11 or 12 with those scoring over 14 most likely requiring assistance (Goldberg, 1972; Goldberg & Williams, 1991, Mayhew & Chappell, 2003).
Work-Family Conflict

Work-family conflict was measured using Warr’s (1990) 4-item measure of negative job carry-over. Respondents are asked to indicate/rate their level of agreement on a 1-5 scale (strongly disagree to strongly agree) with high scores indicating higher levels of work family conflict. Sample items include: after work I keep worrying about job problems. Good levels of internal consistency have been demonstrated in previous research (Brough, 2005) and in the current study (Cronbach’s alpha .91). The addition of a separate item (from Brough, 2005) (‘I worry about my home life problems whilst at work’) did not effect the consistency of the scale (Cronbach’s alpha .89).

A separate section collected relevant demographic (for example Age, Gender, Rank, length of service) and lifestyle information (smoking, alcohol consumption, exercise behaviours). A total of 51 personnel participated giving a response rate of approximately 66%.

Procedure

An information poster was distributed to all sites in advance of the survey being distributed. This was done primarily to raise awareness and to inform staff, as well as to facilitate feedback. The poster outlined, in brief, the purpose and background of the study and provided information and contact details.

Questionnaires were distributed to all CRM staff (n=77) in Tara Street HQ. Data from the surveys were entered into a statistical analysis programme (SPSS) for comprehensive analysis.

Profile of Participants

Table 6: Profile of Participants (Study 2)

<table>
<thead>
<tr>
<th>Profile</th>
<th>Description</th>
<th>%</th>
<th>N</th>
<th>Mean</th>
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<tbody>
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<td>Gender</td>
<td>Male</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2%</td>
<td>1</td>
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</tr>
<tr>
<td>Employment Status</td>
<td>Full Time</td>
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<td>51</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;38</td>
<td>29%</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>39-44</td>
<td>22%</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>45-50</td>
<td>33%</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>51+</td>
<td>16%</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Age Mean</td>
<td>Age Range: 32-57</td>
<td></td>
<td></td>
<td>43.8yrs</td>
</tr>
<tr>
<td>Rank</td>
<td>Fire-fighter/EMT</td>
<td>86%</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub/Station Officer</td>
<td>14%</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Length Of Service in DFB</td>
<td></td>
<td>19.4yrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length Of Service in CRM</td>
<td></td>
<td>2.8yrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length Of Service at Current Rank</td>
<td></td>
<td>16.9yrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average % Of Time Spent in CRM</td>
<td></td>
<td>81%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length Of Service at Current Rank</td>
<td></td>
<td>18yrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly Hours</td>
<td></td>
<td>43.6hrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td>Secondary</td>
<td>69%</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Third Level</td>
<td>31%</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>4%</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>2%</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Married/Co-habiting</td>
<td>82%</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Divorced/Separated</td>
<td>12%</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

n=51 HQ Control Room staff
Results
Of the entire Control Room (n=77), 51 full time personnel participated giving a response rate of 66%. The average length of service with DFB was approximately 19 years with an average of 2.8 years spent in the control room.

Health Behaviours
Research has identified several behavioural pathways between stress and illness that may both contribute to and be influenced by sources of stress. For example stress may be associated with higher alcohol consumption and reduced exercise levels (Metcalfe et al., 2003). Some assessment of these behaviours is therefore useful. Respondents were asked questions about behaviours closely associated with health. These related primarily to smoking, exercise and drinking habits and can be seen in the figures below.

The majority of Control Room staff (75%) were non-smokers and reported exercising between one and four times per week (63%). Twenty percent of respondents reported consuming more than 21 units per week. 42% of respondents reported taking seven or more sick days in the past year.

Figure 40: Exercise Levels

Figure 41: Weekly Alcohol Consumption

---

5 For the purposes of this questionnaire units were defined as 1 unit = half glass of beer or 1 glass of wine or 1 measure of spirit
Sources of Occupational Stress

Sources of stress identified in the SOOS questionnaire are shown in Figure 44 below. The graph below indicates the mean score for each subscale. The 3 highest scoring subscales were ‘substandard equipment’, ‘worries about reduction in force/wage levels’ and ‘sleep disturbance’. The subscale ‘Conveying news of tragedy’ was scored the lowest. This is perhaps expected as this last subscale may be outside the remit of Control Room duties.

The relationship between sources of stress and psychological well-being was analysed using a series of standard correlations. These can be found in Appendix 2. Medium to strong correlations were identified between all individual subscales on the SOOS and scores on the GHQ. Higher reported levels of stress were related to greater psychological distress.

In the SOOS questionnaire, several items (questions) are summed to give subscale scores. The 10 highest ranking individual items as measured by their mean score are listed in Table 7 below.
Figure 44: Sources of Occupational Stress

Table 7: 10 Highest scoring individual items (SOOS)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Items</th>
<th>Mean Score (Range:0-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abuse of the ambulance system</td>
<td>7.98</td>
</tr>
<tr>
<td>2</td>
<td>Working with substandard equipment</td>
<td>7.44</td>
</tr>
<tr>
<td>3</td>
<td>Working with malfunctioning or improperly maintained equipment</td>
<td>7.4</td>
</tr>
<tr>
<td>4</td>
<td>Staff shortages increase my workload</td>
<td>6.38</td>
</tr>
<tr>
<td>5</td>
<td>Poor quality of sleep</td>
<td>5.8</td>
</tr>
<tr>
<td>6</td>
<td>Not getting enough sleep</td>
<td>5.72</td>
</tr>
<tr>
<td>7</td>
<td>Loss of sleep</td>
<td>5.62</td>
</tr>
<tr>
<td>8</td>
<td>Observing negative effects of stress on co-workers</td>
<td>5.49</td>
</tr>
<tr>
<td>9</td>
<td>Lack of independent arbitration in cases of grievance/complaint</td>
<td>5.42</td>
</tr>
<tr>
<td>10</td>
<td>Reduction in Force/Reduced Watch size or budget cuts</td>
<td>5.38</td>
</tr>
</tbody>
</table>
Figure 45 below shows individual items on the SOOS with the highest mean scores compared with previous DFB findings from Shalloo (1999). In the present study, the item ‘abuse of the ambulance system’ and those items describing problems with equipment were identified as the greatest sources of stress. Respondents reported consistently higher scores than did the Shalloo sample in 1999.

**Figure 45: Items with highest means (SOOS)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Operational staff (Shalloo, 1999)</th>
<th>DFB Control Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIF/Reduced Watch size or budget cuts</td>
<td>4.41</td>
<td>5.38</td>
</tr>
<tr>
<td>Lack of independent arbitration in cases of grievance/complaint</td>
<td>5.36</td>
<td>5.42</td>
</tr>
<tr>
<td>Observing negative effects of stress on co-workers</td>
<td>4.03</td>
<td>5.49</td>
</tr>
<tr>
<td>Loss of sleep</td>
<td></td>
<td>5.62</td>
</tr>
<tr>
<td>Not getting enough sleep</td>
<td>5.72</td>
<td></td>
</tr>
<tr>
<td>Poor quality of sleep</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td>Staff shortages increase my workload</td>
<td></td>
<td>6.38</td>
</tr>
<tr>
<td>Working with malfunctioning or improperly maintained...</td>
<td>4.03</td>
<td>7.4</td>
</tr>
<tr>
<td>Working with sub standard equipment</td>
<td>4.69</td>
<td>7.44</td>
</tr>
<tr>
<td>Abuse of the ambulance system</td>
<td>7.32</td>
<td>7.98</td>
</tr>
</tbody>
</table>

Notes: Higher scores indicate greater source of stress. The Shalloo (1999) study was carried out in primarily operational staff.
**Additional Sources of Stress following Focus Group Analysis**

Following the focus groups, a list of key themes was created for inclusion in the questionnaire. These themes are listed in Table 8 below:

**Table 8: List of Key Themes from Focus Groups**

<table>
<thead>
<tr>
<th>Key Themes</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate stand down time</td>
<td>Furniture (e.g. seating)</td>
</tr>
<tr>
<td>Calls that turn out to be hoax calls</td>
<td>Lighting</td>
</tr>
<tr>
<td>Unnecessary internal calls</td>
<td>Noise levels</td>
</tr>
<tr>
<td>Unnecessary external calls</td>
<td>Multiple standards across rural areas for which DFB Control Room is responsible</td>
</tr>
<tr>
<td>Lack of flexibility around the ProQA</td>
<td>Low morale in the Control Room</td>
</tr>
<tr>
<td>Inadequate information from caller</td>
<td>Concern over future staffing of Control Room</td>
</tr>
<tr>
<td>Address search/retrieval system</td>
<td>Leaving work behind when off-duty</td>
</tr>
<tr>
<td>Hardware (e.g. computer terminals, telecoms devices)</td>
<td>ProQA auditing</td>
</tr>
<tr>
<td>Software (e.g. database systems, computer programs)</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 46: Stress Rating of Key Themes from Focus Groups: ‘How Much’ and ‘How Often’**

---

7 Respondents were asked to indicate ‘how much’ of a source of stress (if any) and ‘how often’ the source of stress occurred, if at all, from a list of sources identified from Focus group discussions.
Respondents were asked to indicate ‘how much of a source of stress’ (if any) the themes have been over the past year on a 4 point scale (range 1-4; ‘not bothered’, ‘slightly bothered’, ‘somewhat bothered’, ‘extremely bothered’). They were also asked to indicate ‘how often this source of stress occurred’, if at all on a 4 point scale (range 1-4; ‘never’, ‘some of the time’, ‘most of the time’, ‘all of the time’). Mean scores for both scales (‘how much’ and ‘how often’) were plotted (Figure 46 above) to provide an indication of the themes that were the greatest and most frequently occurring source of stress. These are ranked in Table 9 below.

**Table 9: Ranked List of Themes from Focus Groups by ‘How much’ and ‘How often’**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concern over future staffing of control room</td>
</tr>
<tr>
<td>2</td>
<td>Lack of Flexibility around the protocol of the ProQA</td>
</tr>
<tr>
<td>3</td>
<td>Multiple standards across rural areas for which DFB are responsible (e.g. turnout criteria, call protocols)</td>
</tr>
<tr>
<td>4</td>
<td>Software (e.g. Database systems, computer programs)</td>
</tr>
<tr>
<td>5</td>
<td>Address search/retrieval system</td>
</tr>
<tr>
<td>6</td>
<td>Pro-QA auditing</td>
</tr>
<tr>
<td>7</td>
<td>Hardware (e.g. Computer terminals, telecommunications devices)</td>
</tr>
<tr>
<td>8</td>
<td>Low morale in the Control room</td>
</tr>
<tr>
<td>9</td>
<td>Noise levels</td>
</tr>
<tr>
<td>10</td>
<td>Hoax calls</td>
</tr>
<tr>
<td>11</td>
<td>Inadequate information from caller</td>
</tr>
<tr>
<td>12</td>
<td>Unnecessary external calls</td>
</tr>
<tr>
<td>13</td>
<td>Unnecessary internal calls</td>
</tr>
<tr>
<td>14</td>
<td>Furniture (e.g. Seating)</td>
</tr>
<tr>
<td>15</td>
<td>Inadequate stand down time</td>
</tr>
<tr>
<td>16</td>
<td>Lighting</td>
</tr>
<tr>
<td>17</td>
<td>Leaving work behind when off duty</td>
</tr>
</tbody>
</table>
General Health

General health was measured using the GHQ-12, a widely used screening instrument that assesses psychological distress or ‘mental ill-health’.

The GHQ12 can be scored using two distinct methods; ‘caseness’ (also known as bimodal) or ‘average’ (also known as Likert) scoring methods. Reporting both average scores and caseness has been recommended in the literature (Sterud, Ekeberg & Hem, 2006) and provides greater depth of information as well as enabling comparisons between studies.

The caseness method can be used as a ‘case detector’ or to flag individuals with probable psychiatric problems. The Likert or average scoring method is argued to be more appropriate for comparative purposes. Both scoring methods are reported here.

GHQ12 Caseness

Items are scored on a 0-0-1-1 scale with a score range of 0-12. As with previous research those scoring 4 or above were categorised as ‘a probable case’ (i.e. those having a probable psychiatric illness) (Tedstone et al., 2007; Scottish Health Survey 2003).

Nearly half (45%) of Control Room personnel were classified as probable cases at the time of the study.

Figure 47: Breakdown of GHQ12 Caseness

Recent research from the National Psychological Wellbeing and Distress Survey (Tedstone et al., 2007) classified a total of 12% of their Irish sample as probable cases (having potential mental health problems) compared with 45% of Control Room personnel. The frequency distribution of caseness can be seen in Figure 48 below.
Previous research in DFB (Shalloo 1999) using the 28 item version of the GHQ identified 34.3% of personnel identified as possible cases. This compares with 19% of Staffordshire fire-fighters (McLeod & Cooper, 1992).

Figure 49: GHQ12 Caseness – Comparative Data

Table 10: GHQ Measures & Caseness Criteria

<table>
<thead>
<tr>
<th>Study</th>
<th>Instrument</th>
<th>Caseness cut off score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Study</td>
<td>GHQ12</td>
<td>&gt;/=4</td>
</tr>
<tr>
<td>*Tedstone, Moran, Kartalova-O’Doherty &amp; Walsh (2007) (GHQ12 &gt;/=4)</td>
<td>GHQ12</td>
<td>&gt;/=4</td>
</tr>
<tr>
<td>**Dong &amp; Erin (1995)</td>
<td>GHQ12</td>
<td>&gt;/=4</td>
</tr>
<tr>
<td>***Shalloo (1999)</td>
<td>GHQ28</td>
<td>&gt;5</td>
</tr>
<tr>
<td>****Mc Crudden (2003)</td>
<td>GHQ28</td>
<td>&gt;5</td>
</tr>
<tr>
<td>*****Alexander &amp; Klein (2001)</td>
<td>GHQ28</td>
<td>&gt;5</td>
</tr>
<tr>
<td>******Mc Cleod &amp; Cooper (1992)</td>
<td>GHQ28</td>
<td>&gt;5</td>
</tr>
</tbody>
</table>

GHQ Likert scoring method
In the Likert method scores on the GHQ12 are summed to provide an overall score with a higher score indicative of greater psychological distress. Items are scored on a scale of 1-2-3-4 with a range of 0-36. Generally, the threshold can be taken as 11 or 12 with those scoring over 14 most likely requiring assistance (Goldberg & Williams, 1988, 1991; Mayhew & Chappell, 2003).

Figure 50: GHQ12 Likert Mean Score


Figure 50 above shows the mean GHQ12 score for DFB to be comparatively higher than related Irish and Australian populations.
Comparisons show that while 22.5% of Australian health sector workers scored above this cut off point of 14 (Mayhew & Chappell, 2003) 43% of DFB CRM staff had similar scores indicating significant psychological distress. The frequency distribution of GHQ12 scores can be seen in Figure 51 above.

It is noted that high levels of psychological distress have been reported in similar occupational groups. For example, a high prevalence of psychological distress (greater than 20%) in ambulance workers has been found in several studies (Sterud, Ekeberg & Hem, 2006). Data from this study suggest a greater prevalence of psychological distress in Control Room personnel.

Further analysis revealed several statistically significant relationships.

A series of Correlations were conducted and findings are displayed in Appendix 2

- A relationship was identified between all of the SOOS subscales and psychological well-being. Higher scores (more stressful) on the SOOS were associated with higher scores on the GHQ12 (higher psychological distress)
- Personnel who indicated more psychological distress also indicated having taken more sick leave days
- Psychological well being differed across age groups. Data indicated that the 45-50 year age group had the highest GHQ score (i.e. higher psychological distress) and the 51+ year age group had the lowest GHQ score
- Length of service in DFB, or length of time spent in the control room was not related to levels of psychological well being

---

8 Correlational findings should be interpreted with caution due to the small sample and consequent small group size
There was a negative correlation between length of service and a number of sources of stress. Family/financial strain and poor health habits both decreased with increased length of service. Length of service may act as a protective factor for this group in this regard.

Length of service in the control room was related to several SOOS subscales. Longer service in the control room was correlated with increased ratings of the following as a source of stress: Job skill, Co-worker conflict, Discrimination, Personal Safety.

Work Family Conflict

Home & work carry over

There was a strong relationship between work-family conflict and psychological well-being. Control Room personnel indicating higher levels of work family conflict tended to have higher levels of psychological distress.

The majority of Control Room staff (63%) reported feeling ‘used up at the end of a work-day’ and 65% reported that their job made them ‘feel exhausted at the end of a work-day’.

The data indicated that work-family carry-over appeared to be a significant issue for Control Room personnel. Over a third reported worrying about their problems whilst at work and they found it difficult to unwind at the end of a work day. A further thirty percent agreed that they kept worrying about job problems after their shift is over.

Figure 52: Home & work carry over

![Chart showing percentages of Control Room personnel for various work-family issues](chart.png)
**Recommendations**

The collection of data regarding the impact of stressors and violence on the wellbeing of a workforce is a necessary first step in designing preventive and remedial measures. While prescriptive strategies can generally be differentiated into proactive and reactive approaches, prioritizing the specific evidence-based components of these approaches is more challenging. Working with people in stressful and potentially stressful occupations requires clear guidelines and comprehensive policies. More importantly, these should translate into applications that make a practical difference.

As regards violence in the workplace, there is broad agreement that it should be seen and addressed, not as an ‘isolated individual problem, but as a structural strategic problem rooted in social, economic, organisational and cultural factors’ (Framework Guidelines For Addressing Workplace Violence In The Health Sector, Geneva, 2002, p. 9). Framework guidelines highlight the need to identify:

“Short, medium and long term objectives and strategies at the earliest stages so as to organize action to achieve realistic targets within agreed time frames. Action should also be articulated in a series of fundamental iterative steps that include:

* violence recognition
* risk assessment
* intervention
* monitoring and evaluation”

( *Framework Guidelines For Addressing Workplace Violence In The Health Sector, Geneva, 2002, p. 11* )

Operating within realistic timeframes is necessary to facilitate effective change. Effective management of these issues requires ongoing evaluation and monitoring of violence and stress, as well as assessment of interventions aimed at their management. As Mckenna (2004, p. 111) points out, there may be a ‘...temptation to rapidly develop policies in response. However, such policies, run a high risk of becoming aspirational documents rather than operational and carefully considered commitments to specific courses of action that reflect the contemporary state of best practice’. Based on the findings from the two studies, the following recommendations may serve as guidelines for initiating discussion about dealing with violence and stress in DFB.
Study 1: Violence in the Workplace.

Recommendation 1: Establish an ongoing evaluation system
This study has highlighted a relatively high level of violence in the work of DFB staff and has also highlighted the difficulties for management in identifying problems and dealing with them, given the culture of under-reporting that exists. Regular surveys of violence experienced by staff would contribute to an effective risk management strategy and would also allow the impact of any interventions to be assessed.

Recommendation 2: Review staff support systems
Half of all respondents found it difficult to access appropriate supports when necessary and the majority were dissatisfied with support following incidences of violence. It is important to ensure that there are structured support systems available and easily accessible, and that these are used. Staff may benefit from a variety of support mechanisms. Further investigation of the finding that staff prefer non-formal organisational supports is warranted. Staff support systems should be reviewed in the context of these findings with a view to assessing adequacy, accessibility and effectiveness.

Findings highlight the potential psychological impact of violence and suggest the limitations of focussing solely on the physical manifestations of violence. There is a clear need to acknowledge the potential psychological impact, not only of physical, but also of verbal abuse and threats.

Recommendation 3: Review training
The findings suggest a clear need for DFB to review training needs in relation to the management of workplace violence. The majority of respondents had never received training in the management of potentially violent individuals and a large proportion were not confident in using physical and verbal intervention skills. This is of particular concern given the prevalence and frequency of violence identified in this study. Any intervention or training in the management of workplace violence should take account of the varying nature of the situation and the activity being performed by DFB personnel. Operational policies and procedures should also reflect this.
Study 2: Occupational Stress in the Control Room

Recommendation 1: Establish an ongoing evaluation system
This study has highlighted a somewhat surprising level of psychological distress in the control room staff. Regular surveys of staff wellbeing would contribute to a risk management strategy and would also allow the impact of any interventions to be assessed.

Recommendation 2: Tackling Sources of Stress
The study highlighted a number of key sources of stress that can be reviewed in terms of their frequency and impact and interventions designed and implemented to remove or reduce them. For example, the stress engendered by problems with staffing, equipment, hardware and software might be attenuated, given adequate resources.

Recommendation 3: Training on work-home carry-over
Work-family carry-over was a significant issue for the majority of control room staff. Work systems should be reviewed in this context and training in strategies for reducing work-home carry-over could be implemented.

Recommendation 4: Review staff support systems
Staff support systems should be reviewed in the context of these findings with a view to assessing adequacy, accessibility and effectiveness.

Recommendation 5: Introduce training on stress management
Ongoing technical training should be supplemented with training in recognising and dealing with stress and improving coping skills.
References


Beaton, R., D., & Murphy, S., A. (1993). Sources of occupational stress among Firefighter/EMTs and Firefighter/Paramedics and correlations with job-related outcomes. Prehospital and Disaster Medicine, 8(2), 140-149.


Appendices

Appendix 1: Survey Of Occupational Stress - Subscale Reliability

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Items</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Disturbance</td>
<td>56,46,29,13</td>
<td>0.96</td>
</tr>
<tr>
<td>Job Skills Concerns</td>
<td>20,30,31,32,42,52</td>
<td>0.799</td>
</tr>
<tr>
<td>Past Critical Incidents</td>
<td>3,10,34,48,54</td>
<td>0.838</td>
</tr>
<tr>
<td>Management/Labour Concerns</td>
<td>7,14,17,50,66</td>
<td>0.838</td>
</tr>
<tr>
<td>Apprehensions Regarding Personal Safety</td>
<td>2,6,21,23,35,43,55</td>
<td>0.894</td>
</tr>
<tr>
<td>Co-Worker Conflict</td>
<td>1,41,44,45</td>
<td>0.897</td>
</tr>
<tr>
<td>Substandard Equipment</td>
<td>27,60</td>
<td>0.815</td>
</tr>
<tr>
<td>RIF/Wage/Benefit Worries</td>
<td>26,61</td>
<td>0.667</td>
</tr>
<tr>
<td>Conveying Tragedy</td>
<td>15,53</td>
<td>0.86</td>
</tr>
<tr>
<td>Tedium</td>
<td>24,28</td>
<td>0.772</td>
</tr>
<tr>
<td>Poor Health Habits</td>
<td>5,59</td>
<td>0.786</td>
</tr>
<tr>
<td>Discrimination</td>
<td>11,25</td>
<td>0.906</td>
</tr>
<tr>
<td>Family/Financial Strain</td>
<td>18,47,49</td>
<td>0.832</td>
</tr>
<tr>
<td>Second Job Stress</td>
<td>8,58</td>
<td>0.332</td>
</tr>
<tr>
<td>Overall Reliability</td>
<td></td>
<td>0.982</td>
</tr>
</tbody>
</table>
## Appendix 2: Correlations between Psychological Well Being and Sources of Stress

<table>
<thead>
<tr>
<th>Sources Of Stress: (SOOS Subscales)</th>
<th>Correlation coefficient</th>
<th>$r^2 \times 100$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Disturbance</td>
<td>.715**</td>
<td>51%</td>
<td>.000</td>
</tr>
<tr>
<td>Job Skill</td>
<td>.49**</td>
<td>24%</td>
<td>.002</td>
</tr>
<tr>
<td>Past Critical Incidents</td>
<td>.556**</td>
<td>31%</td>
<td>.000</td>
</tr>
<tr>
<td>Management Conflicts</td>
<td>.612**</td>
<td>37%</td>
<td>.000</td>
</tr>
<tr>
<td>Personal Safety</td>
<td>.553**</td>
<td>30%</td>
<td>.000</td>
</tr>
<tr>
<td>Coworker Conflict</td>
<td>.589**</td>
<td>35%</td>
<td>.000</td>
</tr>
<tr>
<td>Substandard Equipment</td>
<td>.375**</td>
<td>14%</td>
<td>.007</td>
</tr>
<tr>
<td>Reduction in Force/Wage levels</td>
<td>.479**</td>
<td>23%</td>
<td>.000</td>
</tr>
<tr>
<td>Conveying News of Tragedy</td>
<td>.453*</td>
<td>20%</td>
<td>.000</td>
</tr>
<tr>
<td>Tedium</td>
<td>.618**</td>
<td>38%</td>
<td>.000</td>
</tr>
<tr>
<td>Poor Health habits</td>
<td>.563**</td>
<td>32%</td>
<td>.000</td>
</tr>
<tr>
<td>Family/Financial Strain</td>
<td>.685**</td>
<td>47%</td>
<td>.000</td>
</tr>
<tr>
<td>Second Job Stress</td>
<td>.529**</td>
<td>28%</td>
<td>.000</td>
</tr>
<tr>
<td>Discrimination</td>
<td>.489**</td>
<td>24%</td>
<td>.000</td>
</tr>
<tr>
<td>Length of Service in Control Room</td>
<td>-.11</td>
<td>~</td>
<td>0.465</td>
</tr>
<tr>
<td>Length of Service in DFB</td>
<td>-.21</td>
<td>~</td>
<td>0.139</td>
</tr>
<tr>
<td>Sick Days taken</td>
<td>.417**</td>
<td>17%</td>
<td>.004</td>
</tr>
<tr>
<td>Age</td>
<td>-.196</td>
<td>~</td>
<td>0.167</td>
</tr>
<tr>
<td>Work-Family conflict</td>
<td>.689**</td>
<td>47%</td>
<td>.000</td>
</tr>
<tr>
<td>Alcohol Consumption</td>
<td>.03</td>
<td>~</td>
<td>0.842</td>
</tr>
<tr>
<td>Significant correlations between Length of Service and Sources of Stress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Health habits</td>
<td>-.329*</td>
<td>11%</td>
<td>0.02</td>
</tr>
<tr>
<td>Family/Financial Strain</td>
<td>-.307*</td>
<td>9.4%</td>
<td>0.032</td>
</tr>
<tr>
<td>Correlations between Length of Service in the Control Room and Sources of Stress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Skill</td>
<td>.308*</td>
<td>9.5%</td>
<td>0.042</td>
</tr>
<tr>
<td>Coworker Conflict</td>
<td>.393**</td>
<td>15%</td>
<td>0.008</td>
</tr>
<tr>
<td>Discrimination</td>
<td>.33*</td>
<td>11%</td>
<td>0.025</td>
</tr>
<tr>
<td>Reduction in Force/Wage levels</td>
<td>.337*</td>
<td>11%</td>
<td>0.022</td>
</tr>
<tr>
<td>Personal Safety</td>
<td>.336*</td>
<td>11%</td>
<td>0.023</td>
</tr>
</tbody>
</table>

*Correlation is significant at the .05 level

**Correlation is significant at the 0.01 level

Note: Caution is warranted in interpreting the $r^2$ as the small sample may result in an overestimate of the explained variance (see Tabachnick & Fidell, 2001, p.147)
A series of analyses were conducted to investigate relationships between relevant variables. Spearman’s Rank Order Correlations (rho) were used to calculate the strength of the relationship between variables. Cohen’s (1988) interpretive guidelines can be used as a guide to interpret strength of correlations (r=.10 to .29 = small; r=.30 to .49 = medium; r=.50 to 1.0 = large).

No significant relationships were identified between the following variables:

- Length of Service in DFB & GHQ score
- Length of Service in DFB control room & GHQ score
- Alcohol consumption and psychological well being
- Sick days and work-family conflict

Significant relationships were identified between:

**Sources of stress and Psychological well being:** A series of non Spearman’s rho non-parametric correlations were carried out to investigate the relationship between stress and psychological well being. A relationship was identified between all of the SOOOS subscales and psychological well being (medium to large correlations in all cases).

**Sick days and Psychological well being:** Medium positive correlation (p<.001; r =.417).

**Home and Work carry over and GHQ scores:** A large positive correlation (p<.001, r =.689) showed that an increase in H&W scores were accompanied by an increase in GHQ scores.

**Age and Psychological well being:**
The Kruskall Wallace test was conducted to determine whether there were any significant differences in Psychological well being across different Age Groups. Groups were collapsed into 4 age groups. There was a significant difference (p<.05). An inspection of the mean ranks, and cross tabulations (below), suggest that the 45-50 age group has the highest GHQ score (i.e. poorer psyche. Well being) and the 51+ age group has the lowest GHQ score (Interestingly it is significantly lower although caution may be needed in interpretation due to small/uneven numbers in groups).

### Table of Age Group and GHQ Score

<table>
<thead>
<tr>
<th>Age Group</th>
<th>GHQ (Likert)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=38</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>39-44</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>45-50</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>51+</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>