



Musculoskeletal Disorders in Therapeutic Radiographers

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Summary

Musculoskeletal disorders are the most common work-related illness in Britain. Therapeutic radiographers and assistant practitioners work in demanding environments, within Radiotherapy centres. This document presents an analysis of an online survey conducted during July and August 2011, of Therapeutic Radiographers and Assistant Practitioners, within the United Kingdom. Respondents were asked a series of questions regarding their age, health, duration of working day, positions adopted whilst carrying out their duties including any health issues which they are suffering from. The survey was anonymous and covered all Therapeutic Radiographers and Assistant Practitioners within the UK.

Foreword

Musculoskeletal disorders are the most common work-related illness in Britain. The Health and Safety Executive recently published their annual statistics report 2010/11, in which Musculoskeletal disorders accounted for the majority of days lost due to work-related illness at some 7.6 million days which equates to 15 average days lost per case.

Therapeutic radiographers and assistant practitioners work in demanding environments, within Radiotherapy centres, demanding both emotionally and physically, and demanding due to the nature of the treatment they deliver. They undertake a range of activities which support delivery of the radiotherapy treatment. The Society of Radiographer (SoR) members deliver high quality radiotherapy treatments for patients, caring for and providing patient centred care across the entire radiotherapy pathway.

The majority of Therapeutic Radiographers and Assistant Practitioners regularly spend their time working an entire shift on Linear Accelerators where up to 40-50 patients may be scheduled to be treated on a daily basis in short appointment slots often of only around 10 minutes. It is essential that the radiation is delivered accurately and precisely in order to ensure that the best possible outcome is achieved for the patient. In this time radiographers are required to align patients on the treatment couch to the Linear accelerator with mm precision, and position patient specific immobilisation devices. Patients themselves are not able to assist with this process as they are unable to appreciate the precise movements required and adjustment requires specific skill. This requires Therapeutic Radiographers and Assistant Practitioners to adopt awkward positions in order to manoeuvre patients carefully, being appreciative of their individual needs, for example any pain they may be in and any risk there maybe to moving the patient's body in a certain way. Therapeutic Radiographers therefore often ignore their own posture and pain, both in order to undertake the set

up quickly and efficiently, but also to minimise causing pain to the patients. These factors have shown to correlate to the risk in developing a musculoskeletal disorder (MSD).

Therapeutic Radiographers remain on the shortage occupation list and there is a national vacancy rate of 5% across the skilled workforce. Any work related injury to any member of the therapeutic radiography workforce is a threat personally to their career and also a threat to continued service delivery. Therapeutic Radiographers are the only professionals trained to deliver the daily radiotherapy treatment. Without a sufficient workforce waiting times will increase for patients, and patient outcomes may be ultimately affected.

Introduction

This document presents an analysis of an online survey conducted during July and August 2011, of Therapeutic Radiographers and Assistant Practitioners, within the United Kingdom.

Respondents were asked a series of questions regarding their age, health, duration of working day, positions adopted whilst carrying out their duties including any health issues which they are suffering from. The survey was anonymous and covered all Therapeutic Radiographers and Assistant Practitioners within the UK.

We identified 3060 Radiotherapy members and 470 Assistant Practitioner members who were emailed an on-line survey-monkey TMquestionnaire. All therapeutic radiographers and assistant practitioners were on the Society and College of Radiographers (SCoR) database as at 28th April 2011. The online questionnaire comprised of 45 questions grouped within 7 sections. The response deadline was 2nd September 2011. A reminder was sent on the 28th August 2011.

Results and Discussion

The online questionnaire was started by 435 individuals; however of those started only 352 completed questionnaires were received. This indicates a response rate of 11.50%

95.9% of respondents identified themselves as SoR members, only 9.5% of assistant practitioners stated they are listed on the SCoR voluntary register.

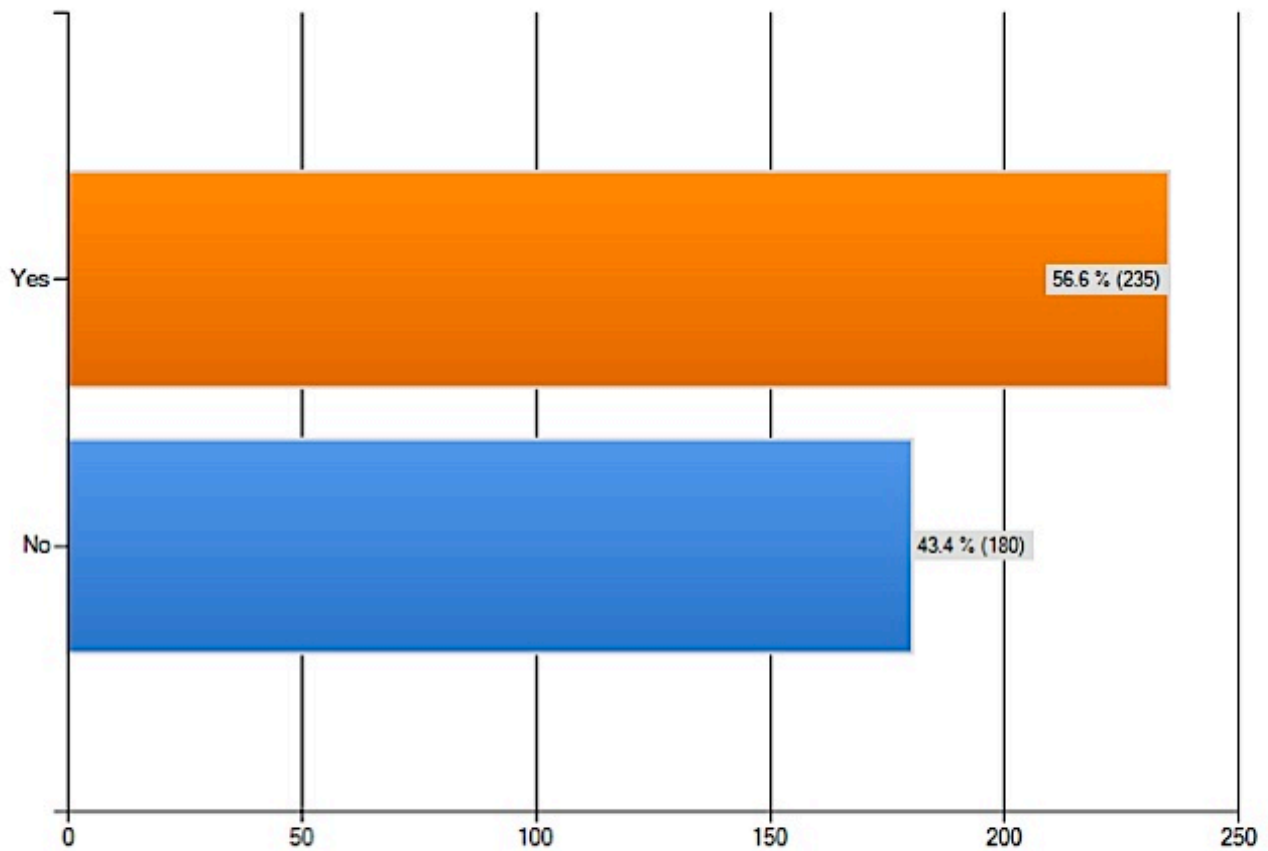
Section 1: this section looked at the general health of respondents:

Predisposing aches and pains:

In table 1: 56.6% of respondents identified they currently suffer with aches and pains, with 23% identifying neck pains, 21% identifying shoulder pains and 16% lower back pain.

Table 1

Do you currently suffer with any predisposing injuries or aches and pains such as back/shoulder pain?

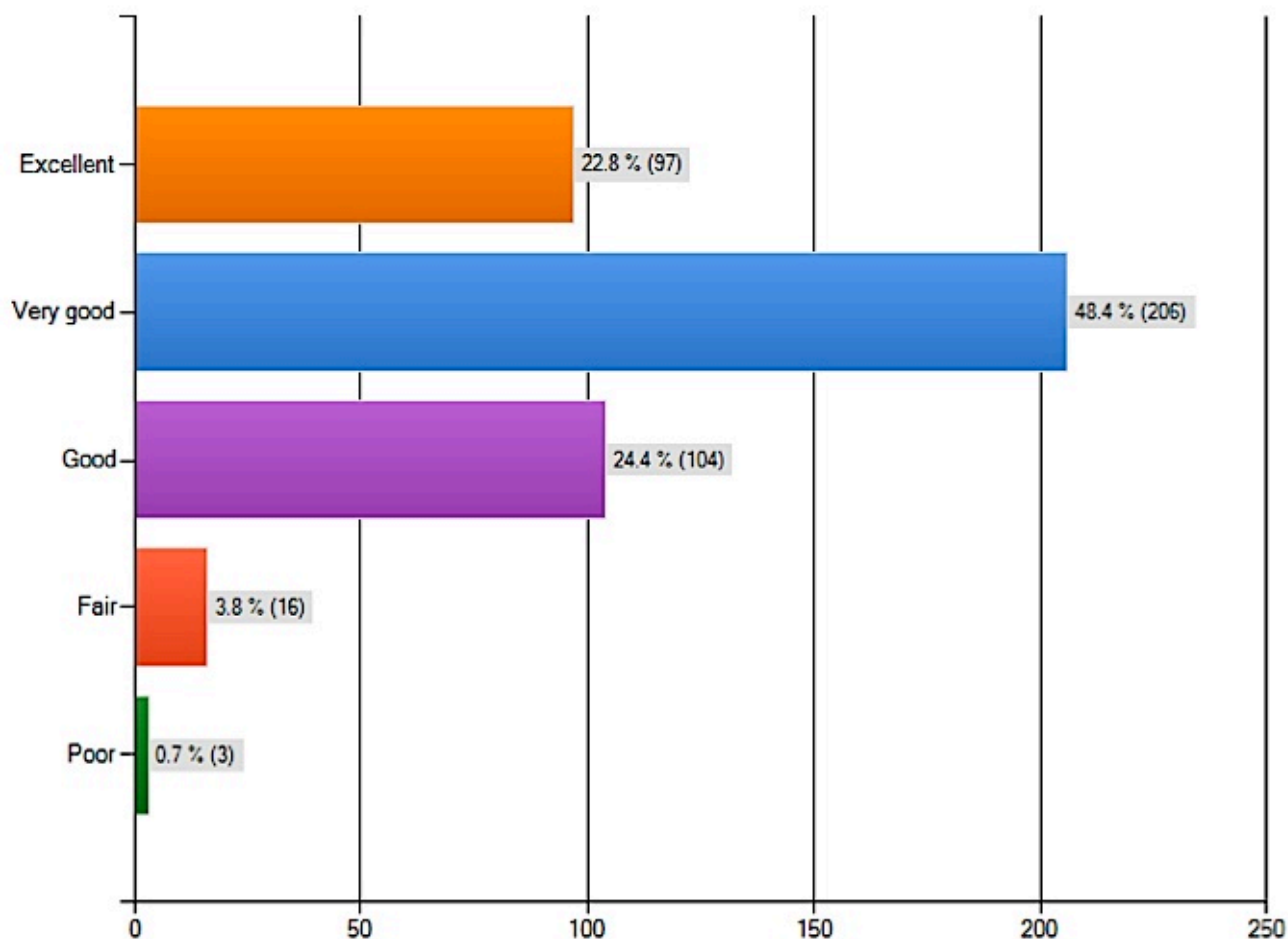


General health:

22.9% of respondents in table 2 felt that their general health was excellent, 48.6% said their health was very good, whilst 24.3% would identify their health as good. Just 4.2% identified their health as either fair or poor.

Table 2

In general would you say your health is ...



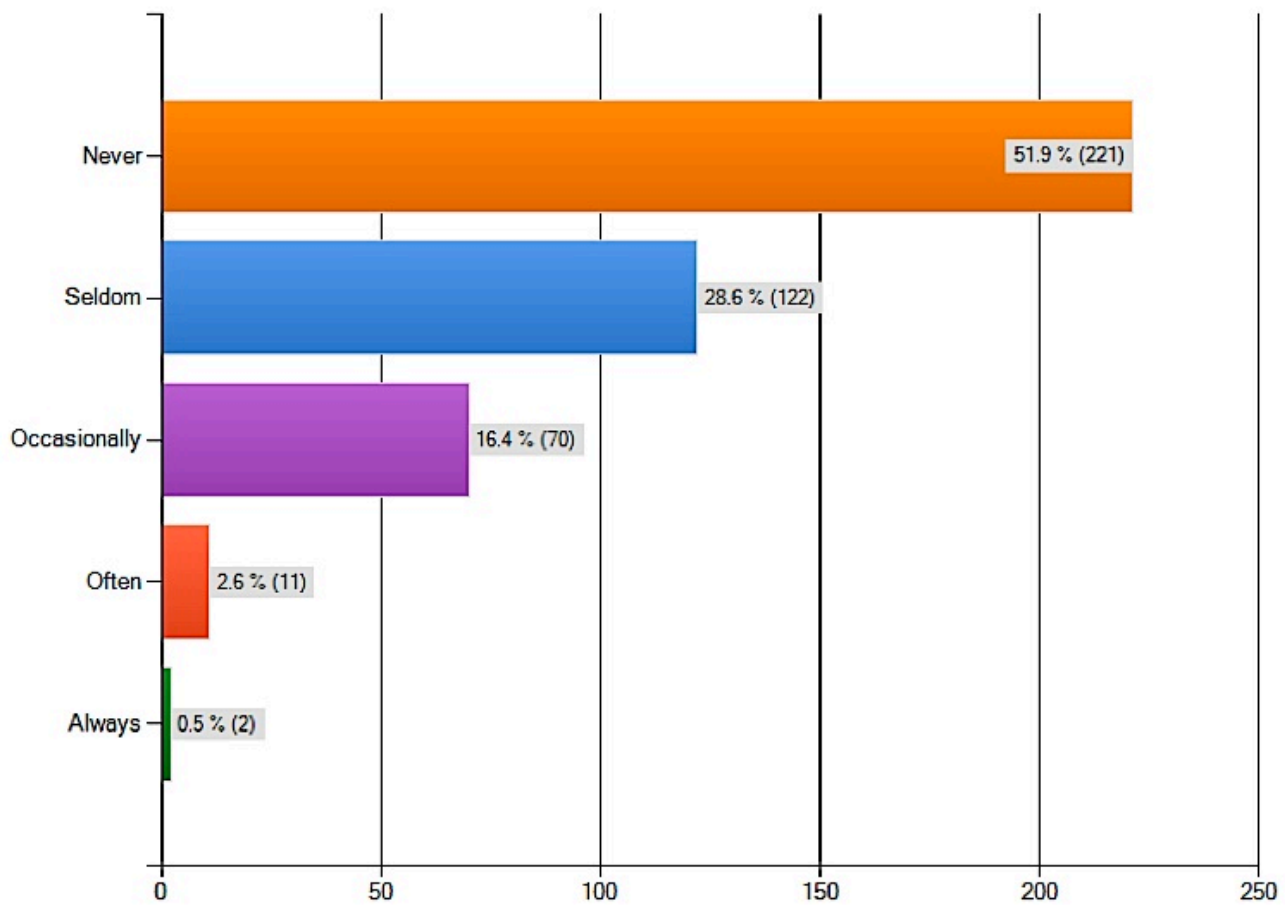
Respiratory troubles, Headaches and Excessive Tiredness and Fatigue:

Respondents of the survey identified with a number of health issues, 16.4% identified as having respiratory troubles, whilst the majority of respondents had suffered with headaches.

A cause for concern within table 3 was that 99.1% of the respondents identified as feeling excessive tiredness or fatigue at the end of their shift.

Table 3

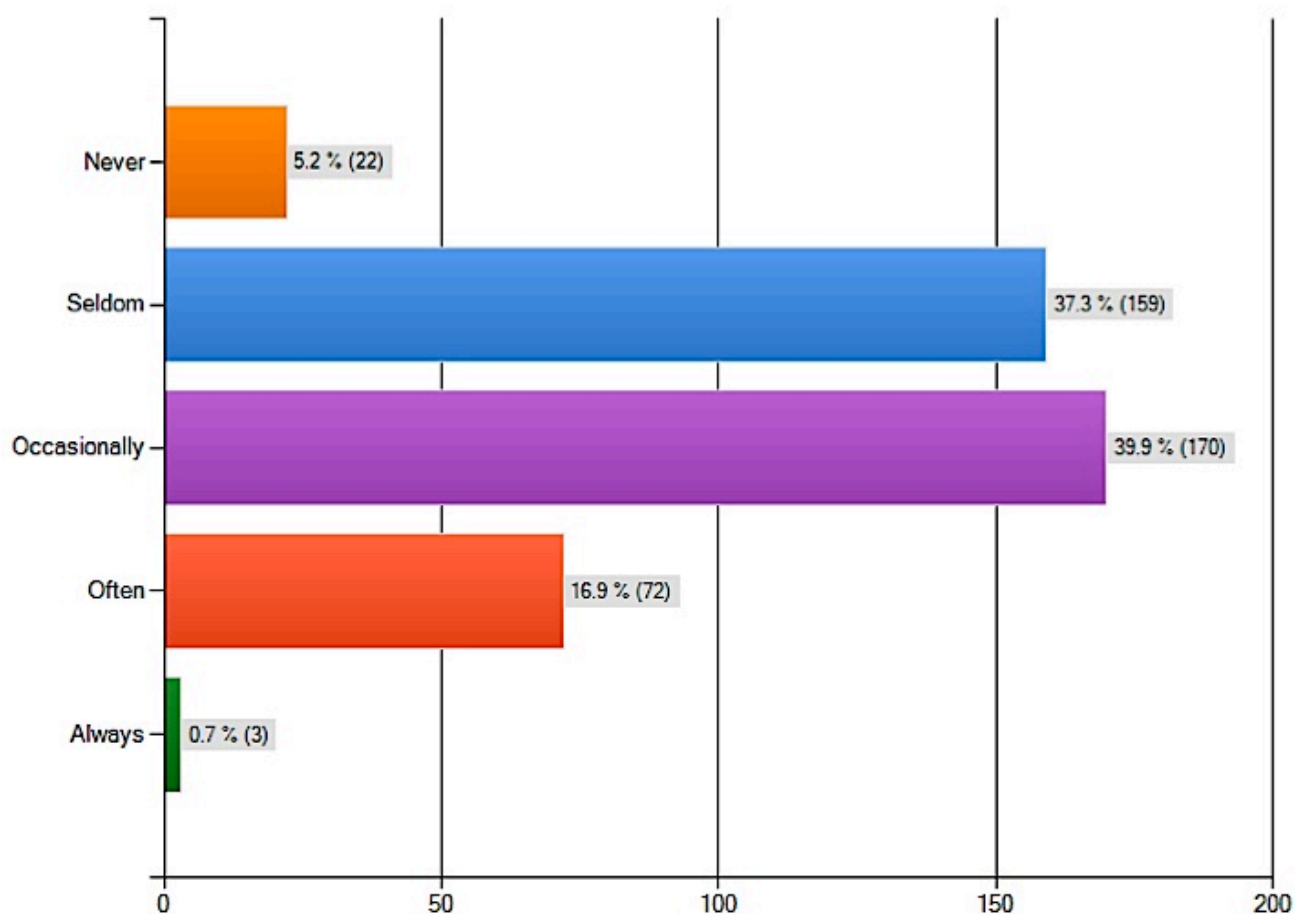
In general, how often do you suffer with respiratory troubles?



17.6% of respondents identified that they either often or always suffer with headaches whilst at work, whilst 39.9% occasionally suffered, this equates to 57.5% of members who carry out their duties whilst suffering from headaches. The root causes of these headaches amongst staff whether they be stress induced, insufficient lighting, or illness must be identified. Risk Assessments, workplace inspections and stress surveys can be used to ascertain the extent of the problem.

Table 4

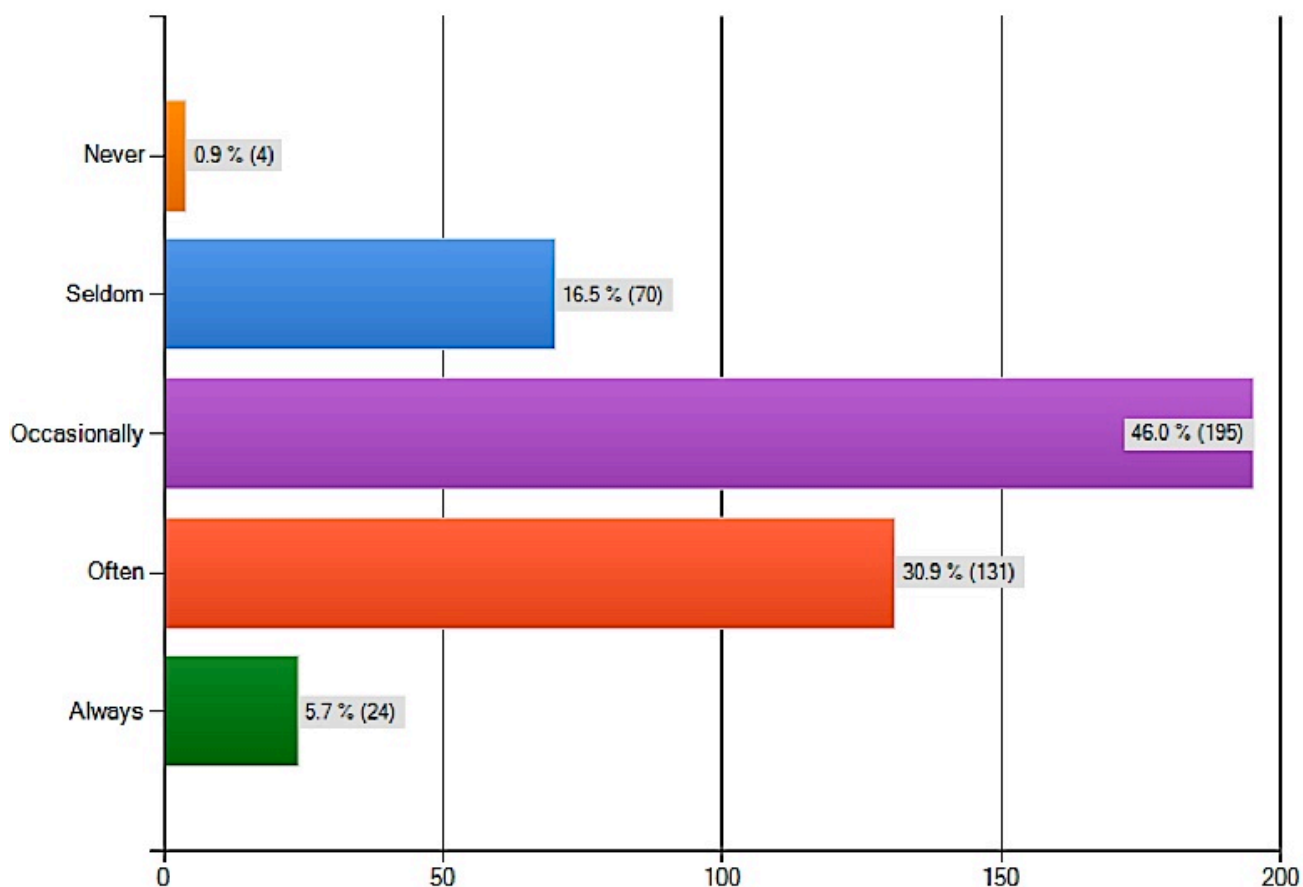
In general, how often do you suffer with headaches?



The questionnaire asked therapeutic radiographers and assistant practitioners to identify whether they feel excessive levels of tiredness at the end of a shift, some 46% identified this level of tiredness/fatigue was experienced occasionally, whilst 30.9% stated they suffered often, with 5.7% (table 5) always feeling tired and fatigued. These statistics are extremely concerning as can lead to further damage to members health.

Table 5

On a typical day at work, how often do you feel excessive tiredness / fatigue at the end of the shift?

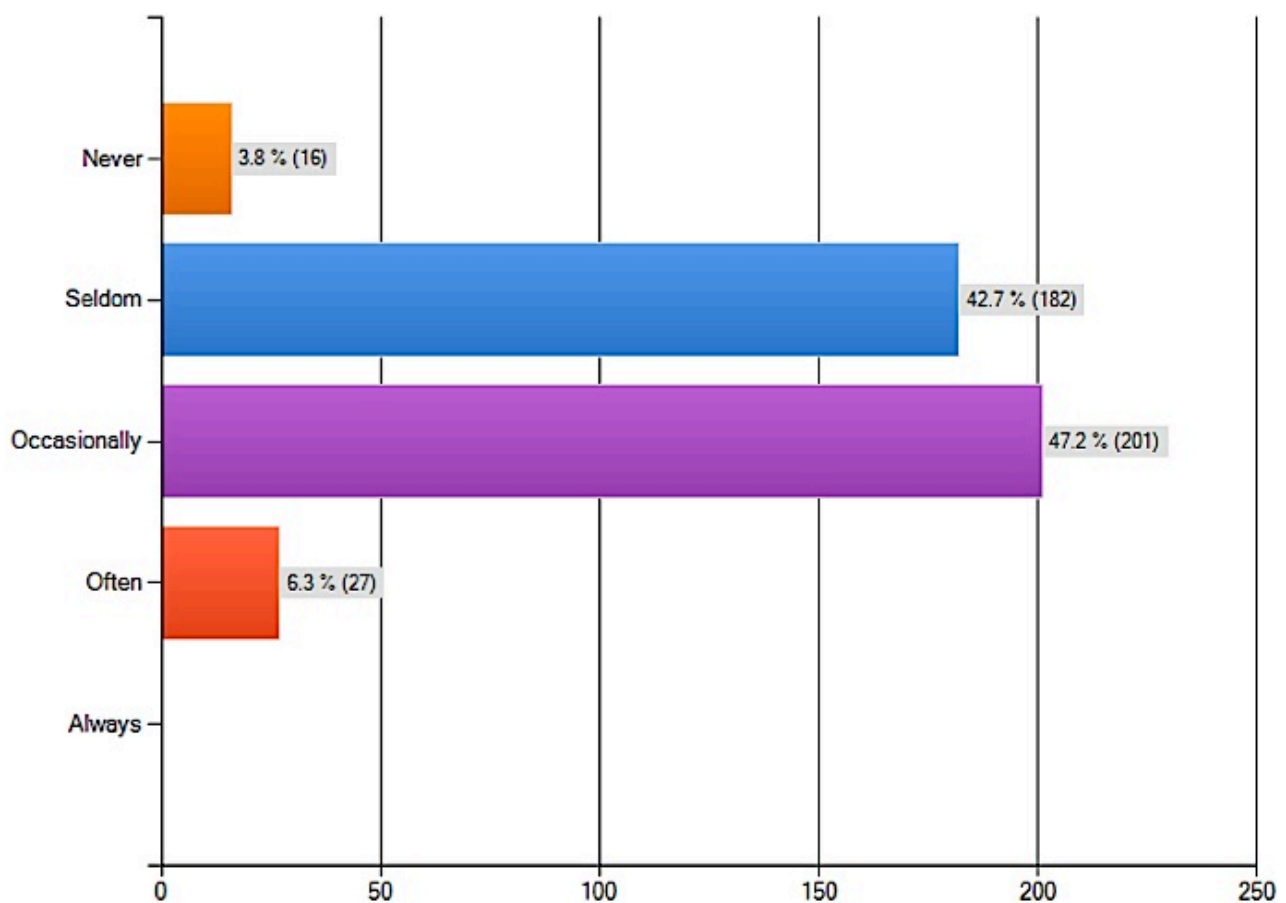


Concentration at work:

Only 3.8% of members stated during the online survey that they never had any trouble concentrating at work, whilst 96.2% of members identified in table 6 said they had trouble concentrating at work. There is a risk to patients if concentration of professionals is affected and this may lead to an increase in incidents and errors of treatment further work needs to be done to ascertain the underlying issues.

Table 6

In general, how often do you have trouble concentrating at work?



Section 2: Training:

The employer has legal duties under the Health and Safety at Work Act 1974 and the Management of Health and safety at Work Regulations 1999 to ensure that staff receive training this includes training which will reduce any risk associated with MSD's within the work place.

These risks should be identified and acted upon through effective management and training of staff.

Table 7 identifies that 60.9% of respondents have not received any training which would reduce the MSD risks within the workplace; this is a breach of the legal duty of the employer.

In table 8, 50.5% of respondents feel they have been given sufficient information and training to carry out their job without developing a MSD, 49.6% of respondents feel they have not been given sufficient training and information.

Whilst in table 9, 88.8% of respondents know their employer has a responsibility to provide information; they are still not receiving the necessary training.

Table 7

Have you ever attended any organised training to review and/or try to reduce the MSK disorder risk associated with your work?

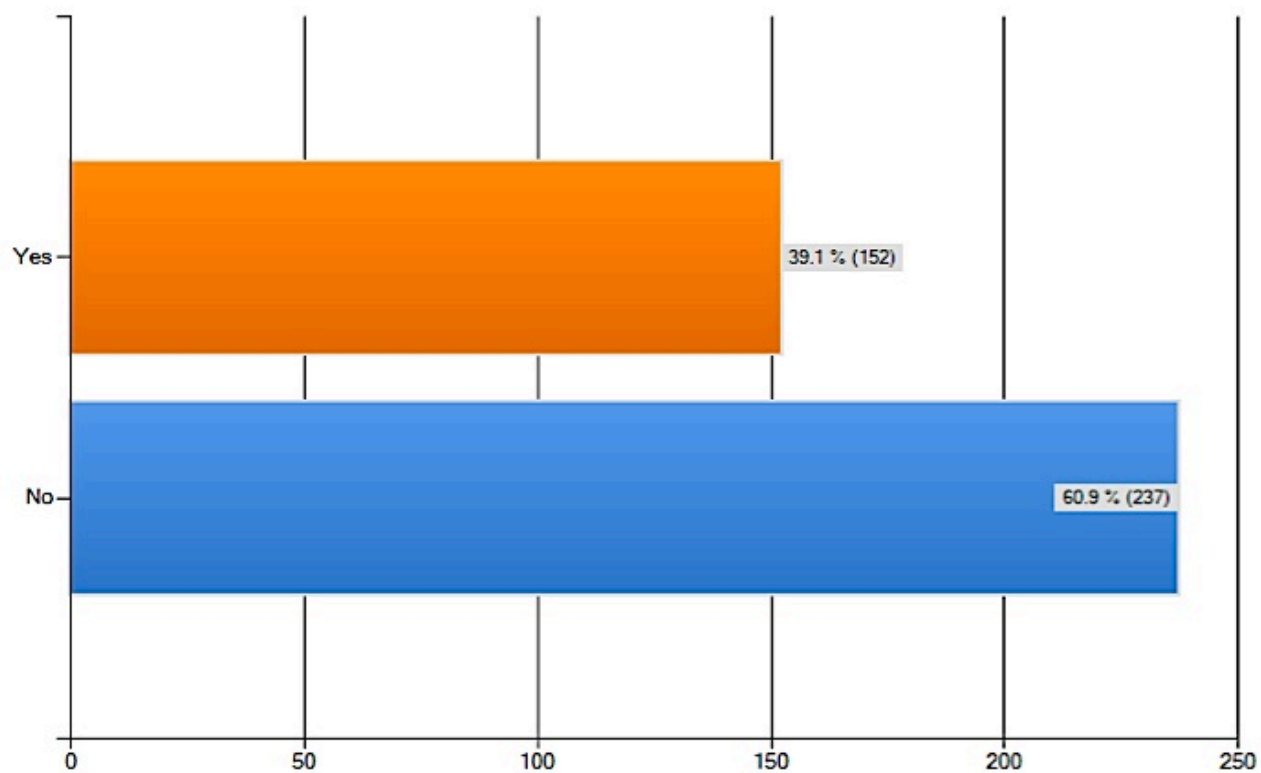


Table 8

I feel that I haven't been given sufficient training/information to carry out my job with minimal risk of developing a MSD(s).

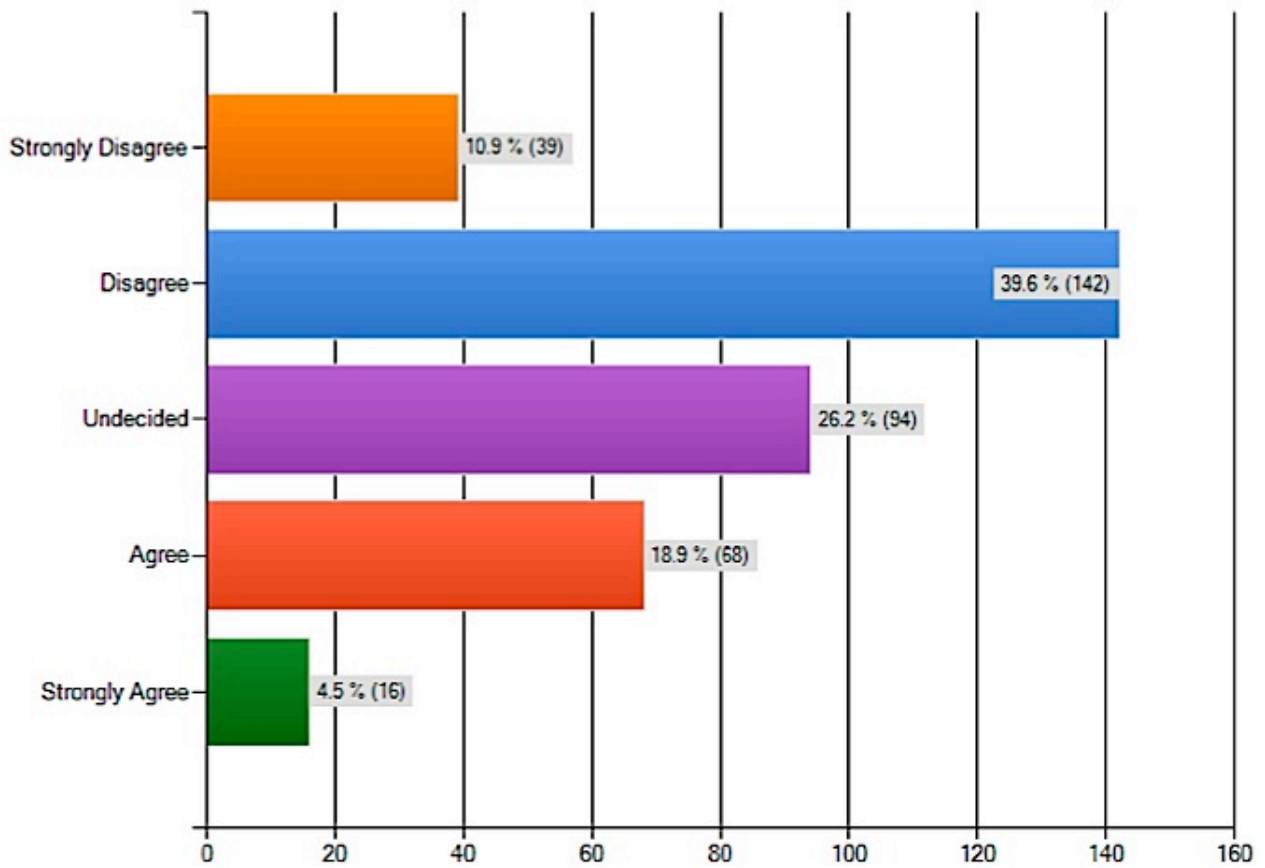
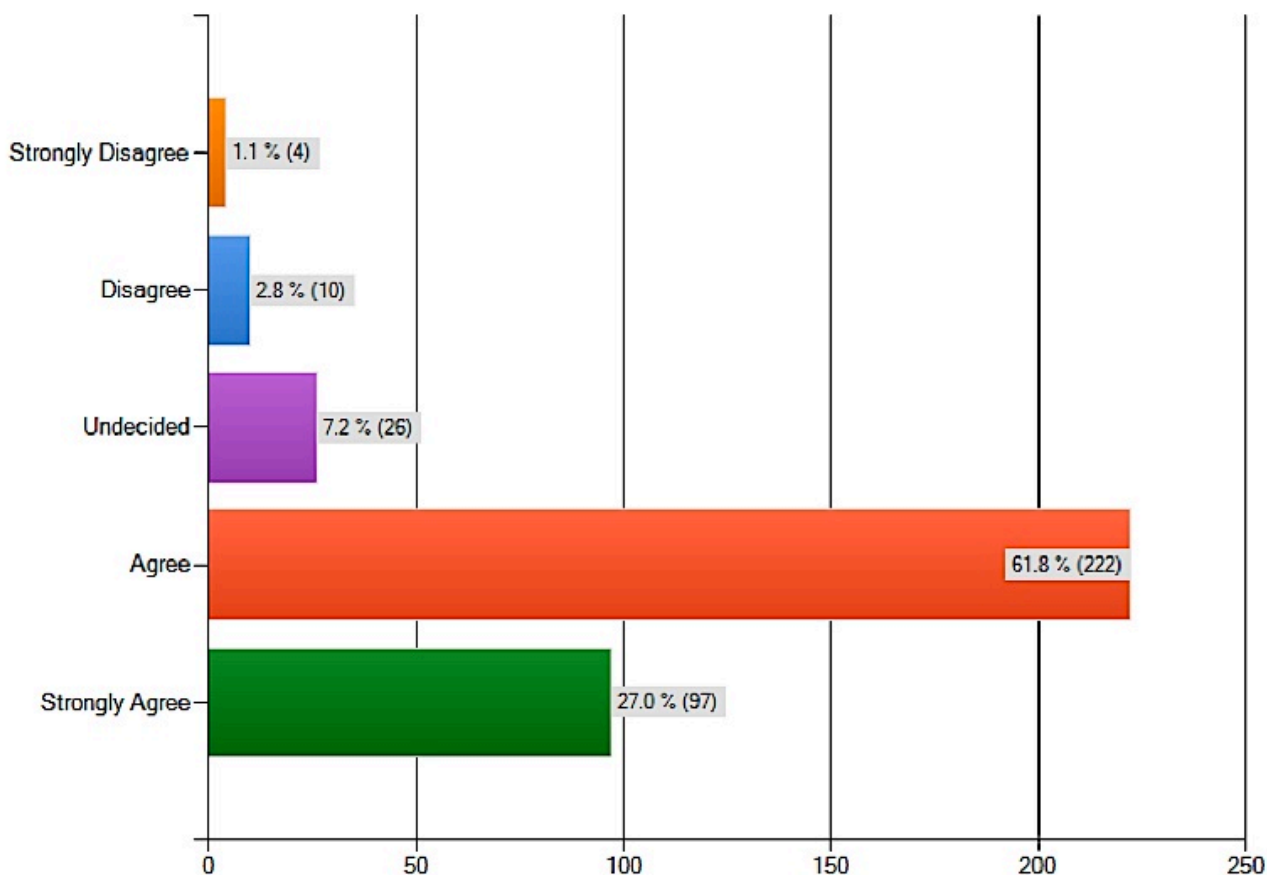


Table 9

I am aware that my employer has a responsibility to provide me with information and training to enable me to carry out my role correctly.



Section 3: Work duties:

Table 10 found that 43.1% of respondents report sometimes finding it difficult to keep up with the work, whilst 18.1% often and 1.7% always find it difficult to keep up with the amount of work. With the pressures to continually keep to allocated appointment slots and maintain patient throughput in order to ensure national waiting time standards are met there is a risk that the workforce will not be able to maintain this.

The onset of MSD's, staff shortages through illness, staff shortages through cuts, is demanding more and more of the workforce and staff are feeling pushed into doing more and more daily. Expectations of the number of patient's employees are expected to see daily continues to cause pressure.

Table 12 identifies 74.9% of respondents who cannot influence the amount of work that they do on a daily basis, whilst just 14.2% feel they have some influence.

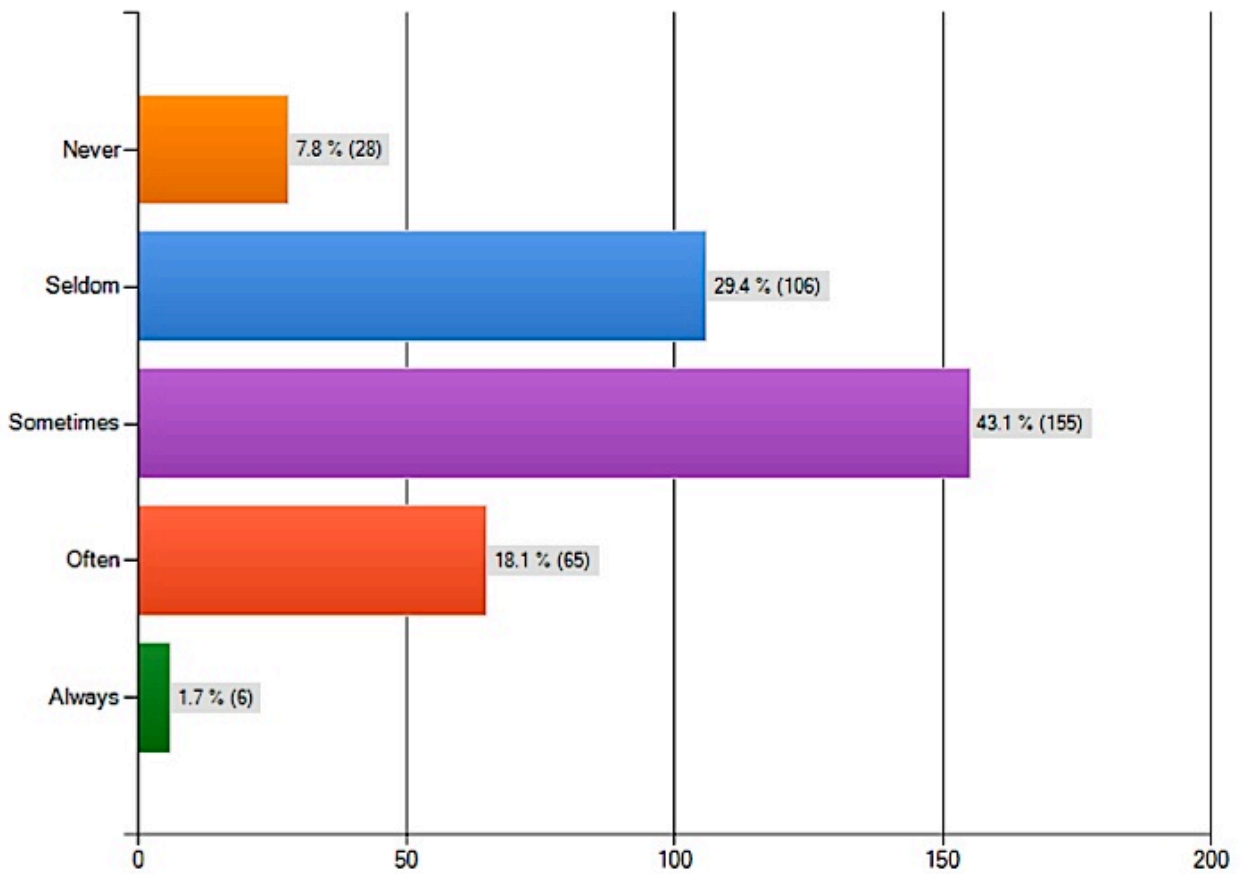
52% of respondents within table 13 felt supported by their manager, with 22.6% undecided, whilst a little under a quarter (24.7%) felt unsupported by their manager.

Senior managers provide support to 52% of respondents within table 14, whilst a little over a quarter (25.4%) again felt unsupported.

SCoR members support each other, with 78.6% of respondents stating they felt supported by their colleagues within table 15.

Table 10

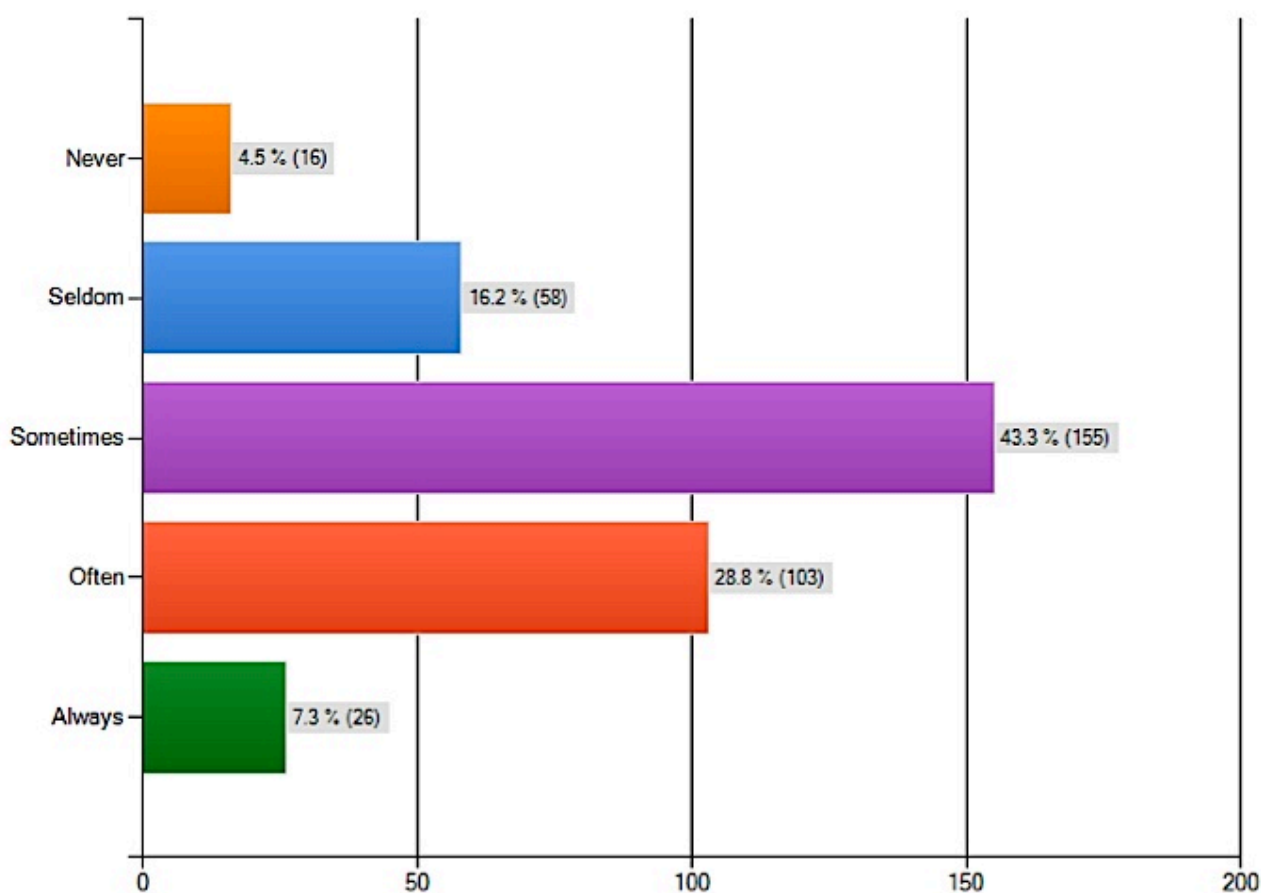
I find it difficult to keep up with the work I am expected to do.



The following results within table 11 show that members feel under pressure to continually do more:

Table 11

I feel under pressure to do the amount of work that is expected of me.



74.9% feel they have little or no influence on the work they do on a daily basis (table 12)

The involvement of members in work plans, patient lists, through meaningful dialogue and meetings would reduce potentially stressful situations, leading to a potential reduction in tension within the department.

Table 12

I can influence the amount of work I do on a daily basis (i.e. can reduce the number of appointments).

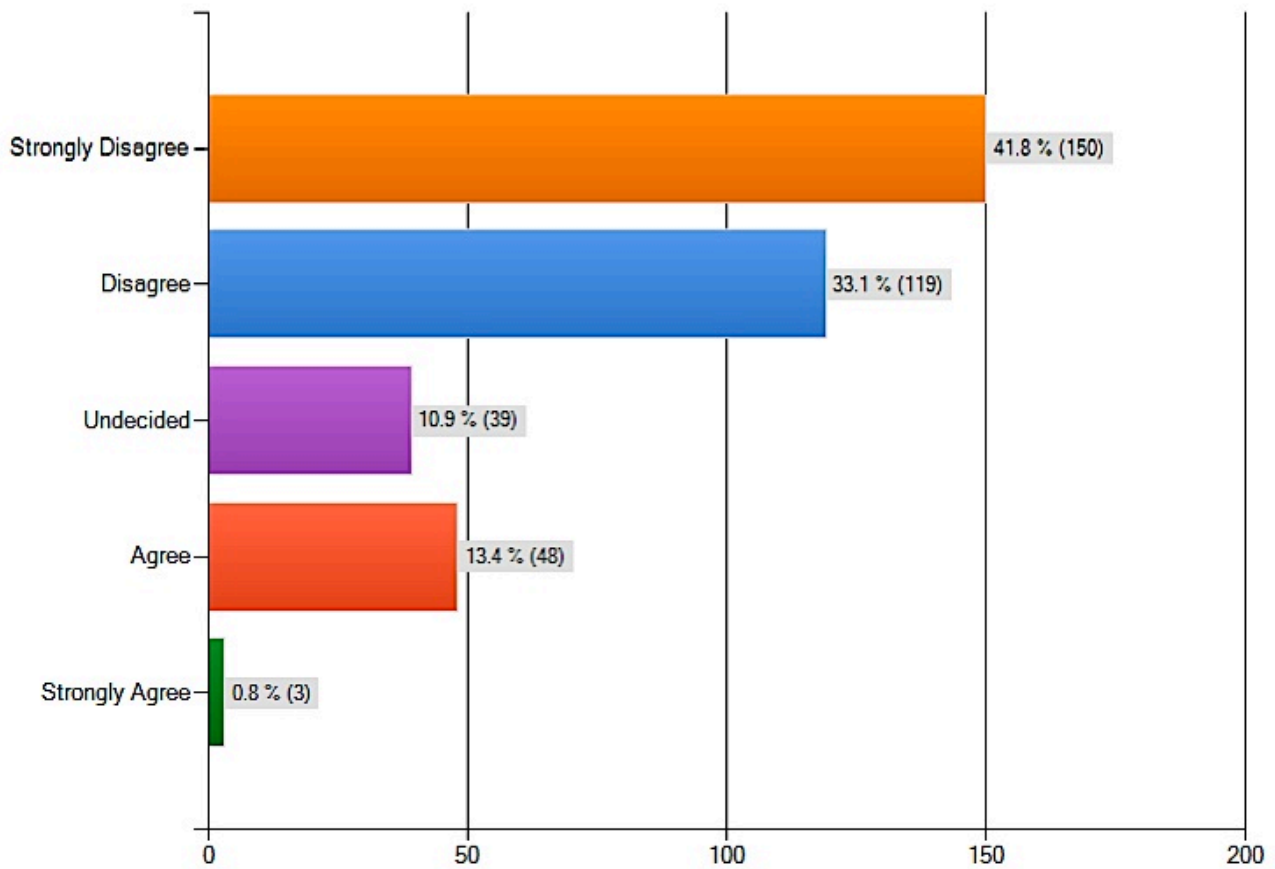


Table 13

I feel unsupported by my manager.

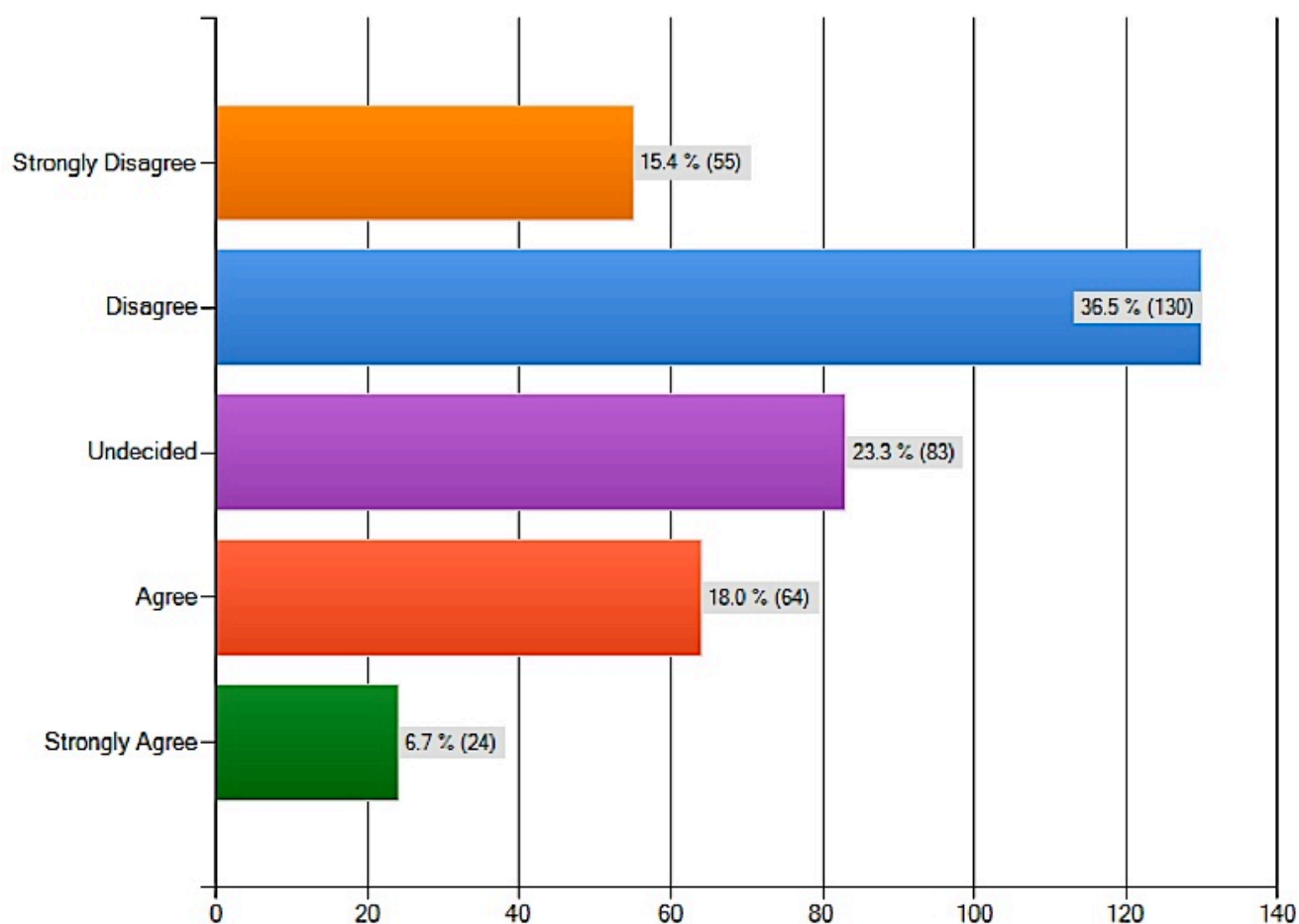


Table 14

I feel unsupported by my senior manager.

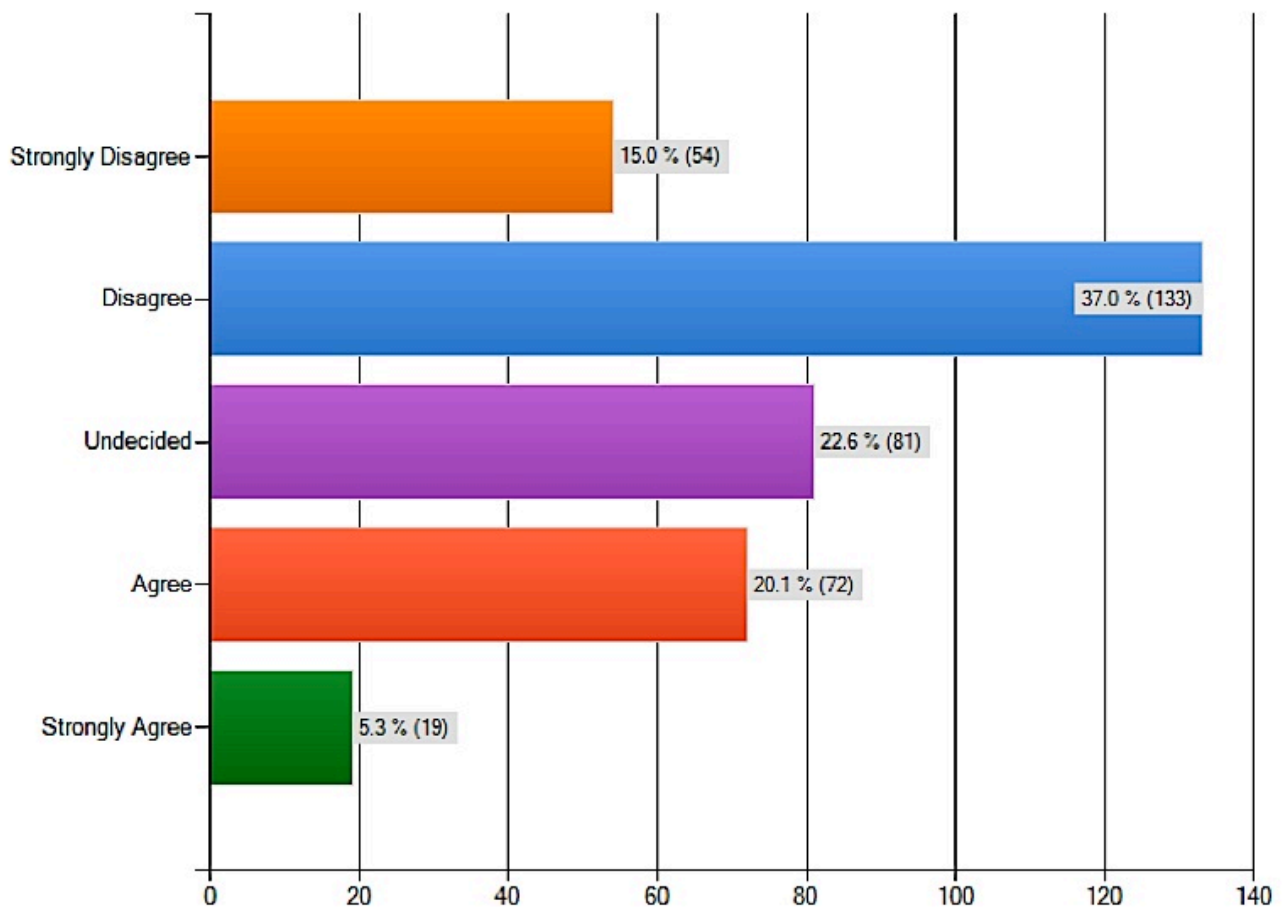
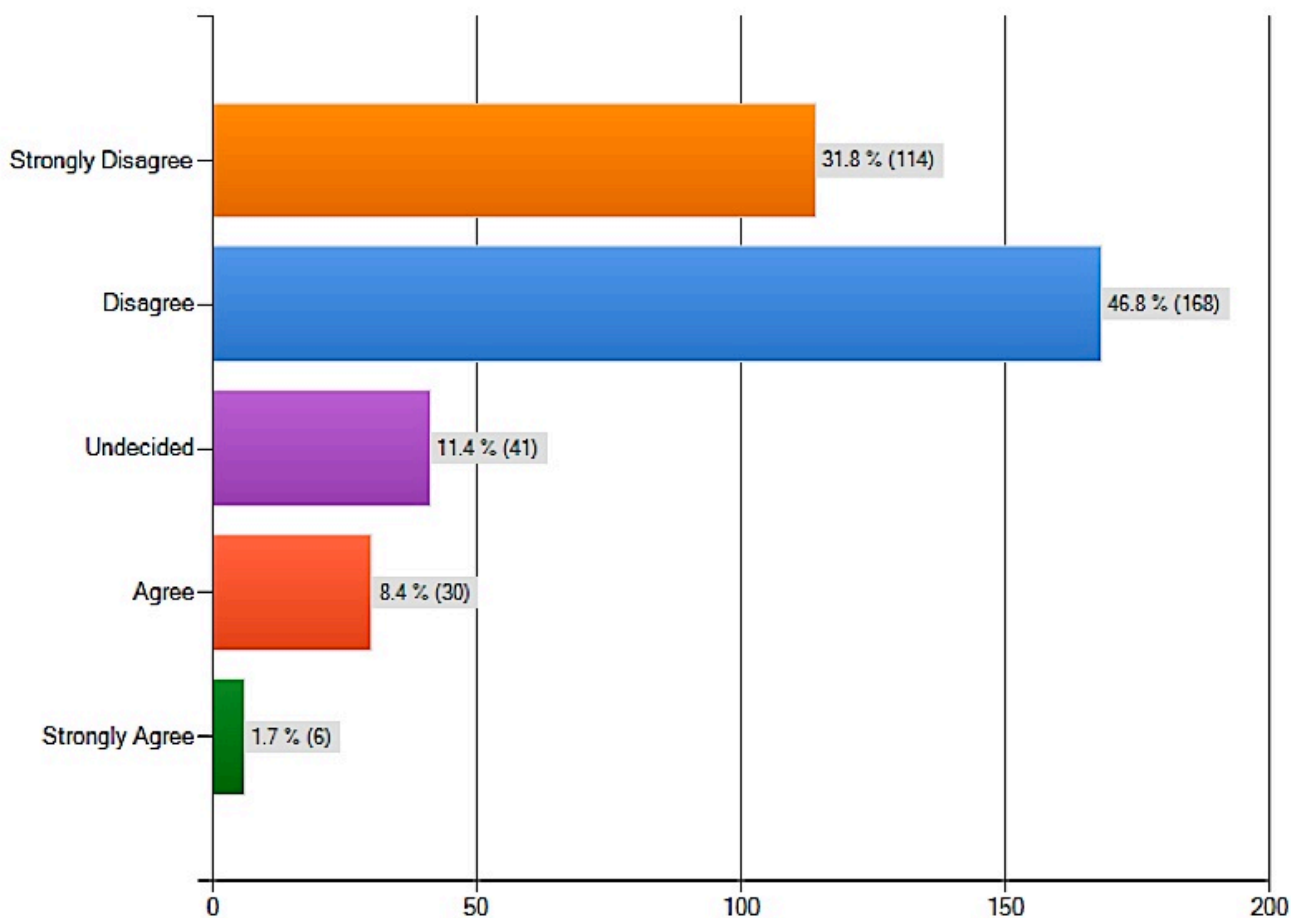


Table 15

I feel unsupported by my colleagues.

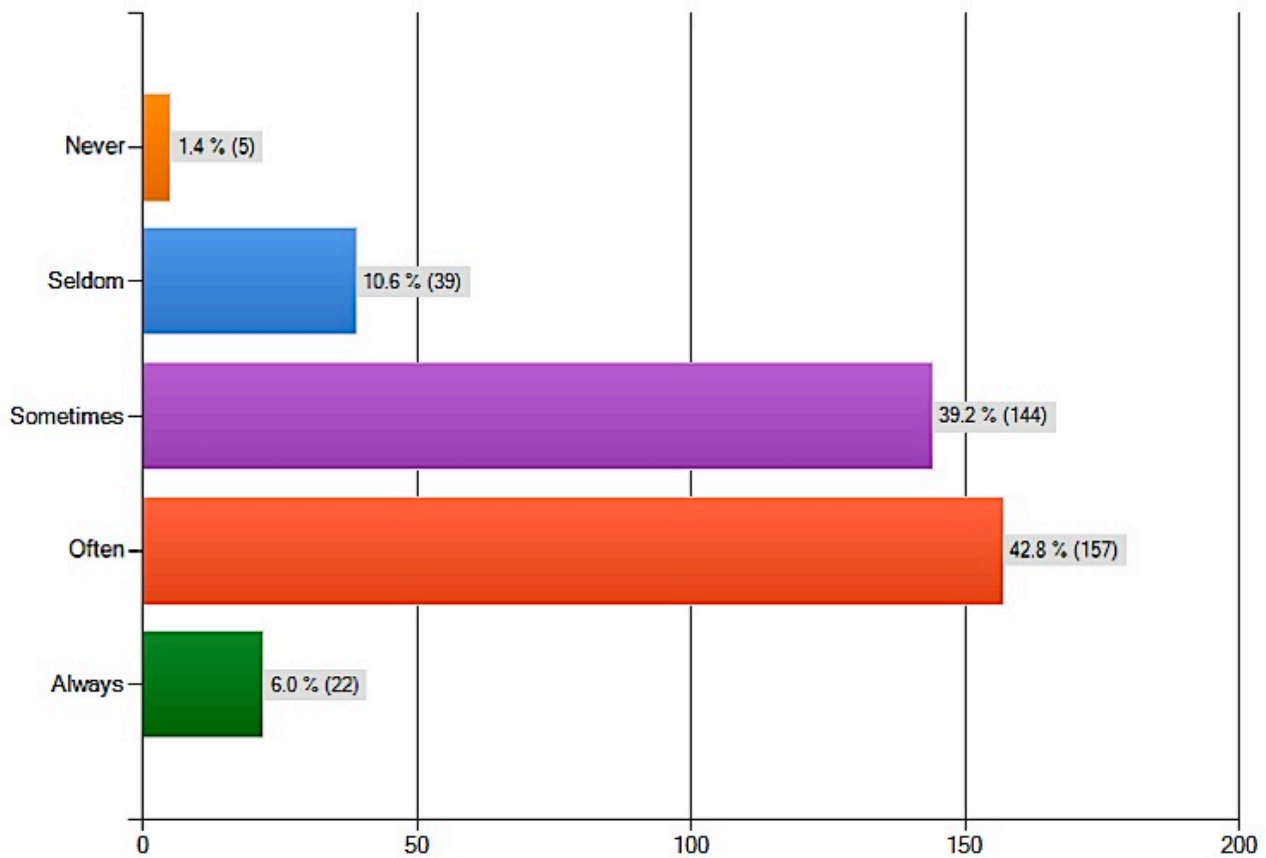


Section 4: Work Environment - Uncomfortable room temperatures:

88% of respondents identified working in uncomfortable working conditions in table 16; this could contribute to the number of respondents who suffer from headaches or tiredness. The employer has a legal duty to ensure that work temperature is "reasonable".

Table 16

How often do you work in uncomfortable room temperatures e.g. too warm or cold and/or humid?

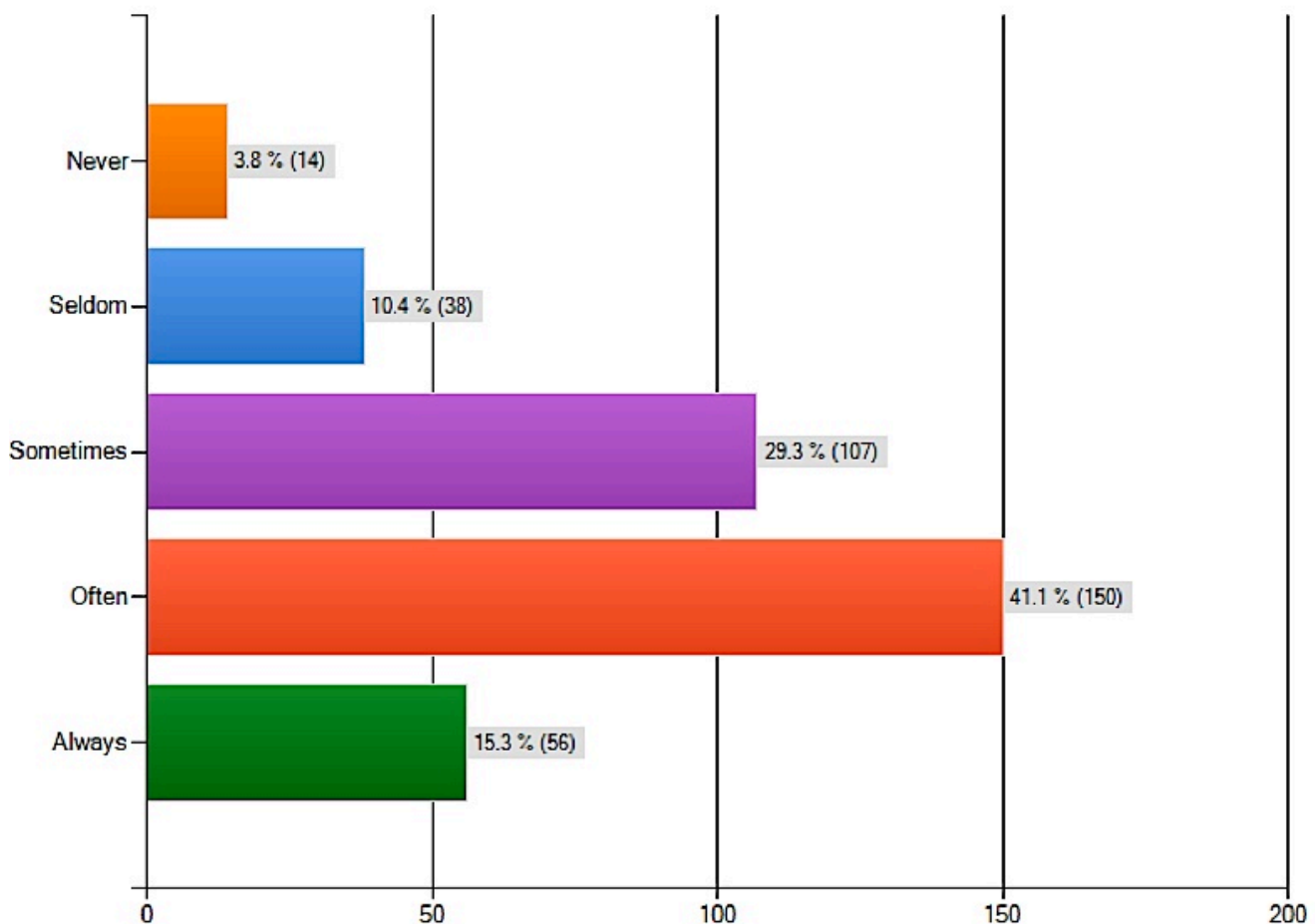


Lighting

The employer has a legal duty to provide suitable and sufficient lighting under the Workplace (Health, Safety and Welfare) Regulations 1992. If lighting is insufficient in the work areas this could account for the number of respondents who suffer from headaches 15.3% or respondents stated that lighting is adequate.

Table 17

How often is the lighting in the room(s) adequate?



Workstations

The employer has a duty to carry out a suitable analysis of the workstation to assess the health and safety risks of people using them and to make changes to any risks that are identified. The employer should ensure compliance with the guidance laid down by the Health and Safety Executive on workstation minimum requirements.

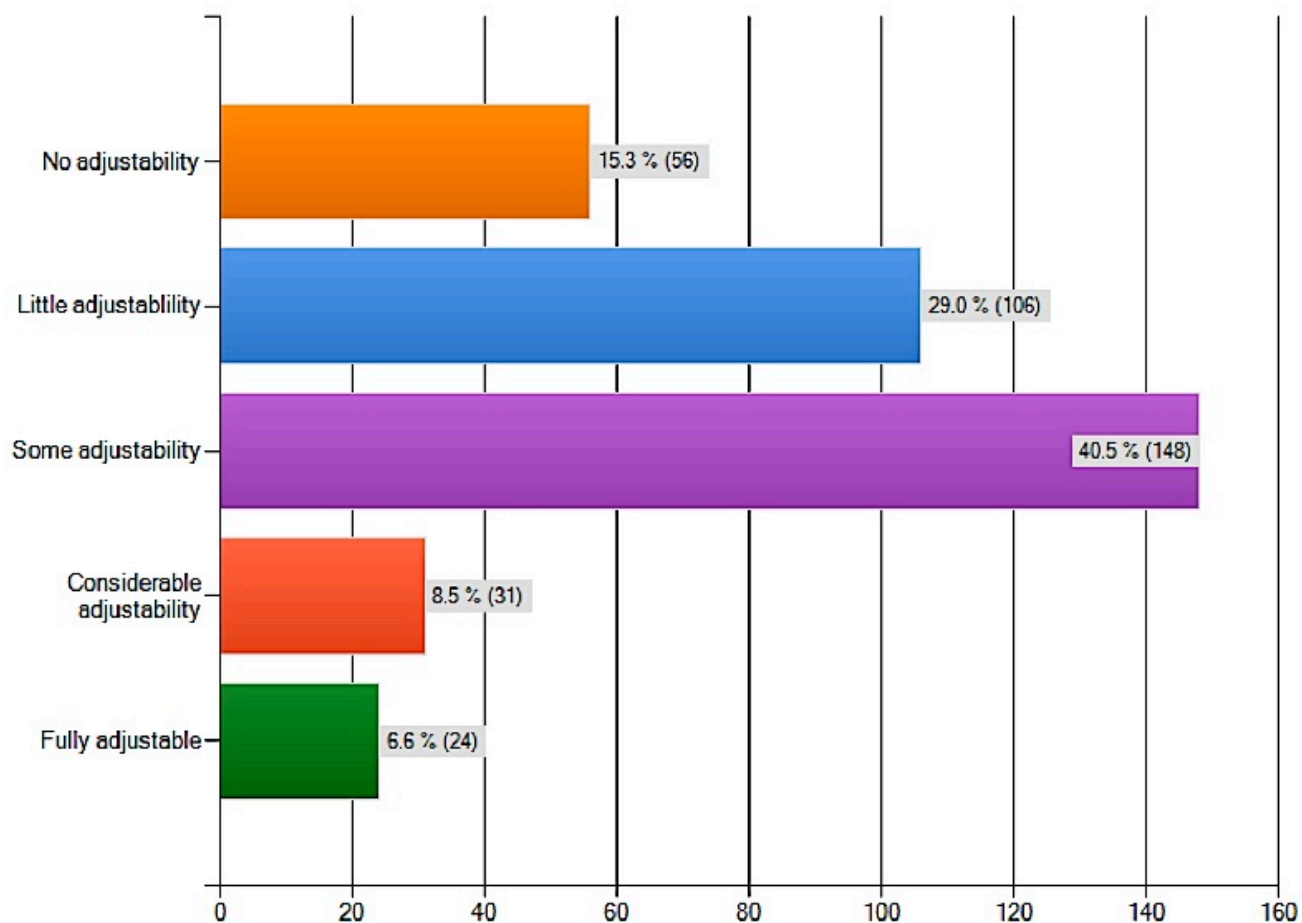
SoR, members are increasingly using computers while at work. This has caused a marked increase in the number of members complaining of a range of upper limb disorders (commonly known as repetitive strain injury) including pains in the neck, arms, elbows, wrists, hands and fingers; back ache (from inappropriate seating), fatigue and eye strain.

The watchword for workstations is adjustability. As many features as possible should be under the direct control of the operator who should also have the opportunity to make frequent changes of posture. Where workstations are to be used by more than one person, this adjustability becomes even more crucial - it must not just cater for all the varieties of movement which one operator may wish to adopt, but must also allow for those of other workers who will be of different shapes, sizes, ages and abilities.

29% of respondents within table 18 commented they had little adjustability whilst 15.3% identified no adjustability to their workstations, this is a clear breach of the employers legal duty under health and safety legislation, and can lead to the onset of musculoskeletal disorders.

Table 18

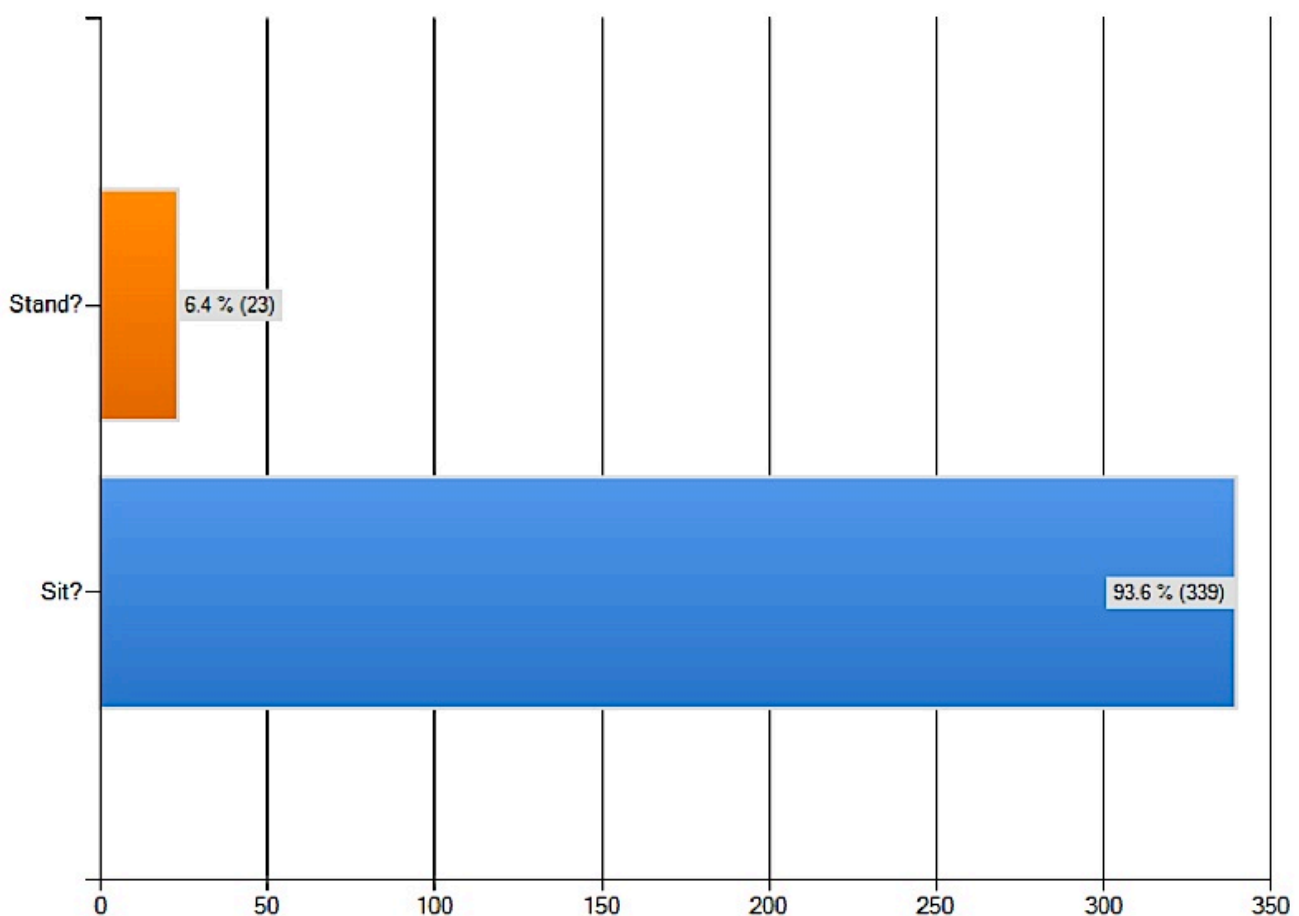
If you use a computer workstation, is it adjustable to suit your body size?



At a visit to a radiotherapy centre, the SoR Health and Safety Officer was concerned to see that members were sitting on stools whilst using workstations which were designed for standing use- this would cause clear strain on their necks and back. Table 19 identifies that 93.6% of respondents sit at a computer, we need to ensure the workstation has been risk assessed, act on the findings and ensure they do not stoop over to use the pc.

Table 19

If you use a computer do you?



Section 5: Awkward Positioning:

MSD injuries are associated with effort, movement, posture and vibration, but are also influenced by work organisation and psychosocial factors. Therapeutic radiographers regularly (during each appointment slot 10-20 minute intervals) adopt awkward positions whilst positioning patients precisely to millimetre accuracy on radiotherapy treatment couches, this type of positioning is indeed a risk factor in developing a musculoskeletal disorder. Table 21 confirms that 82.9% of SoR members manoeuvre into positions which could possibly result in them having to be referred for assessment and treatment of their own conditions as the repetitive nature of their work continues to impact and ultimately time away from their workplace.

The frequency, speed and acceleration of movements, external forces (clients / patients / equipment) and extreme postures are risk factors classically associated with MSD;

Identifying alternative ergonomically friendly machinery, when using PCs such as the use of "saddle" seats to avoid unnecessary stooping and kneeling may seem expensive from the employers perspective but would outweigh the indirect costs associated with staff sickness. Table 22 shows 54.5% stand when delivering treatment whilst 45.5% sit. These however offer no solution to positioning patients on the treatment couch prior to the delivery of radiotherapy.

Table 20 identifies that 76.7% of respondents typically twist or bend their body during a typical working day - adopting one poor position could lead to a tear or strain.

Table 20

How often do you twist or bend your body during a typical working day (as a therapeutic radiographer)?

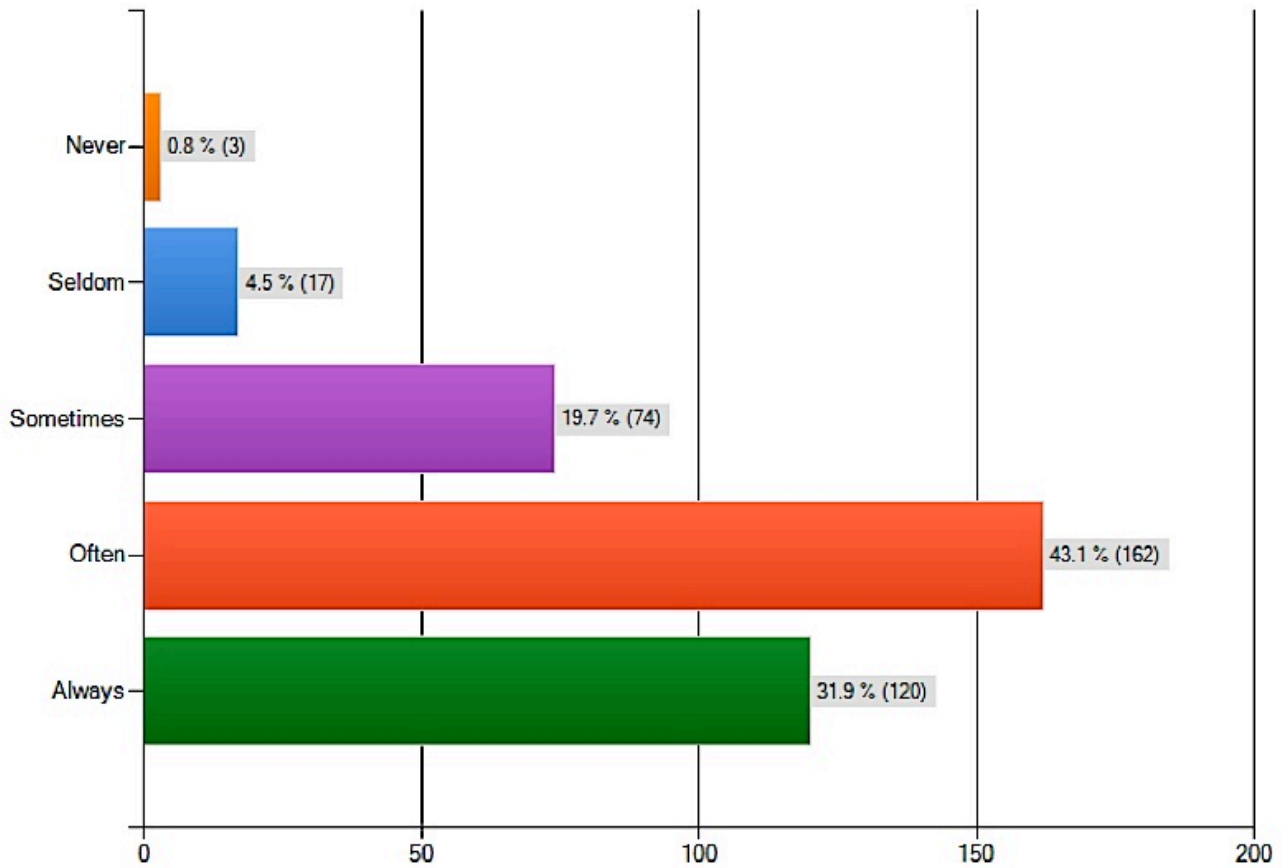


Table 21

How often do you have to manoeuvre yourself in awkward positions to undertake your normal duties?

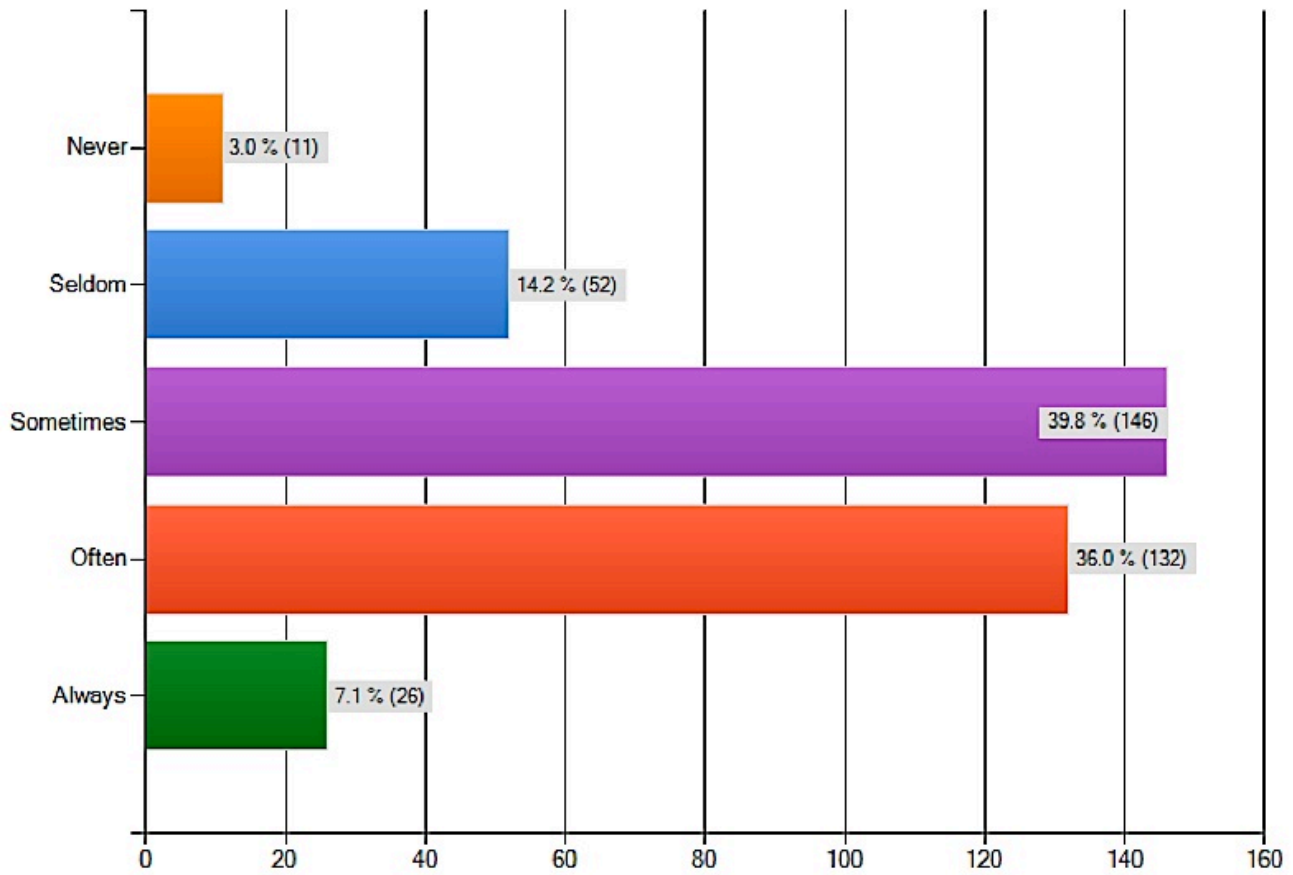
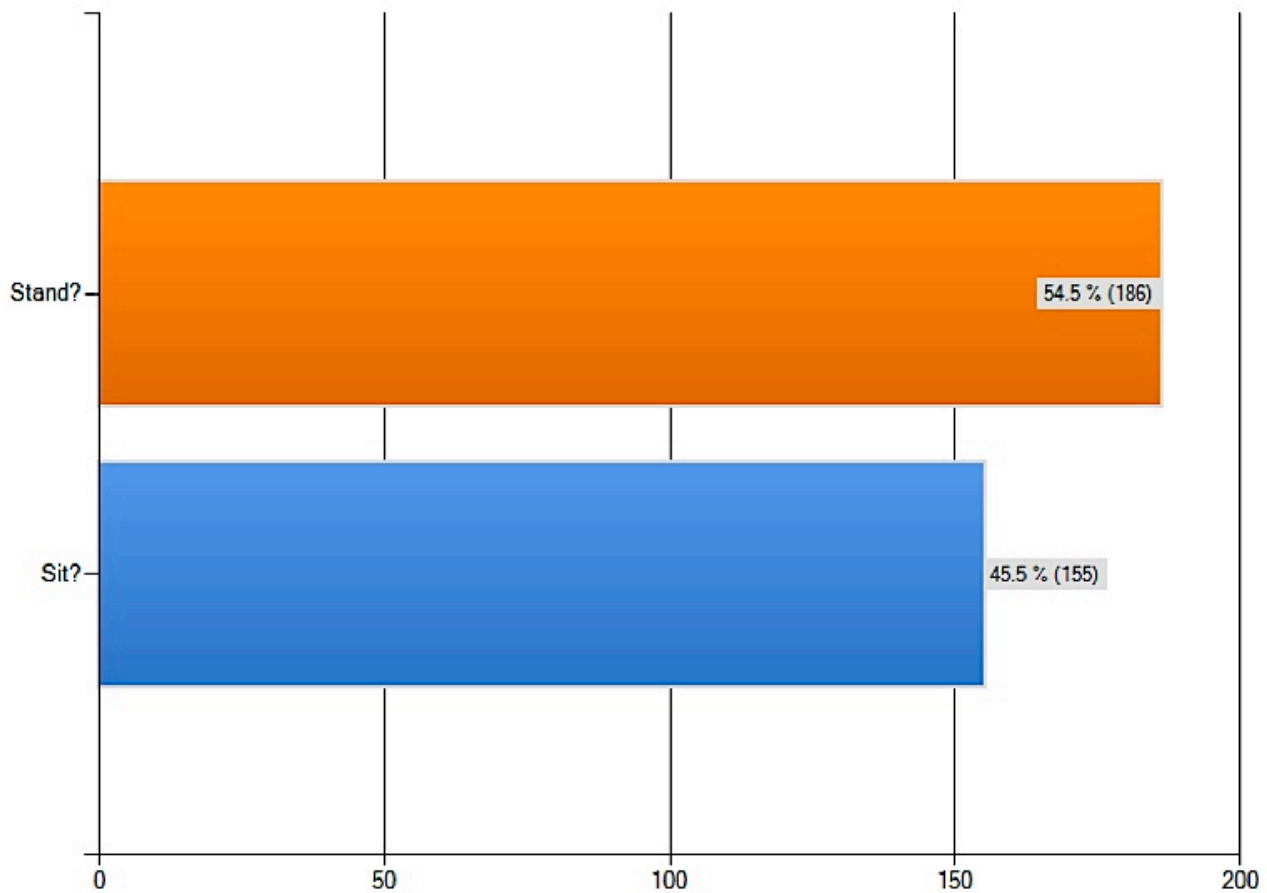


Table 22

When treating patients: Do you?

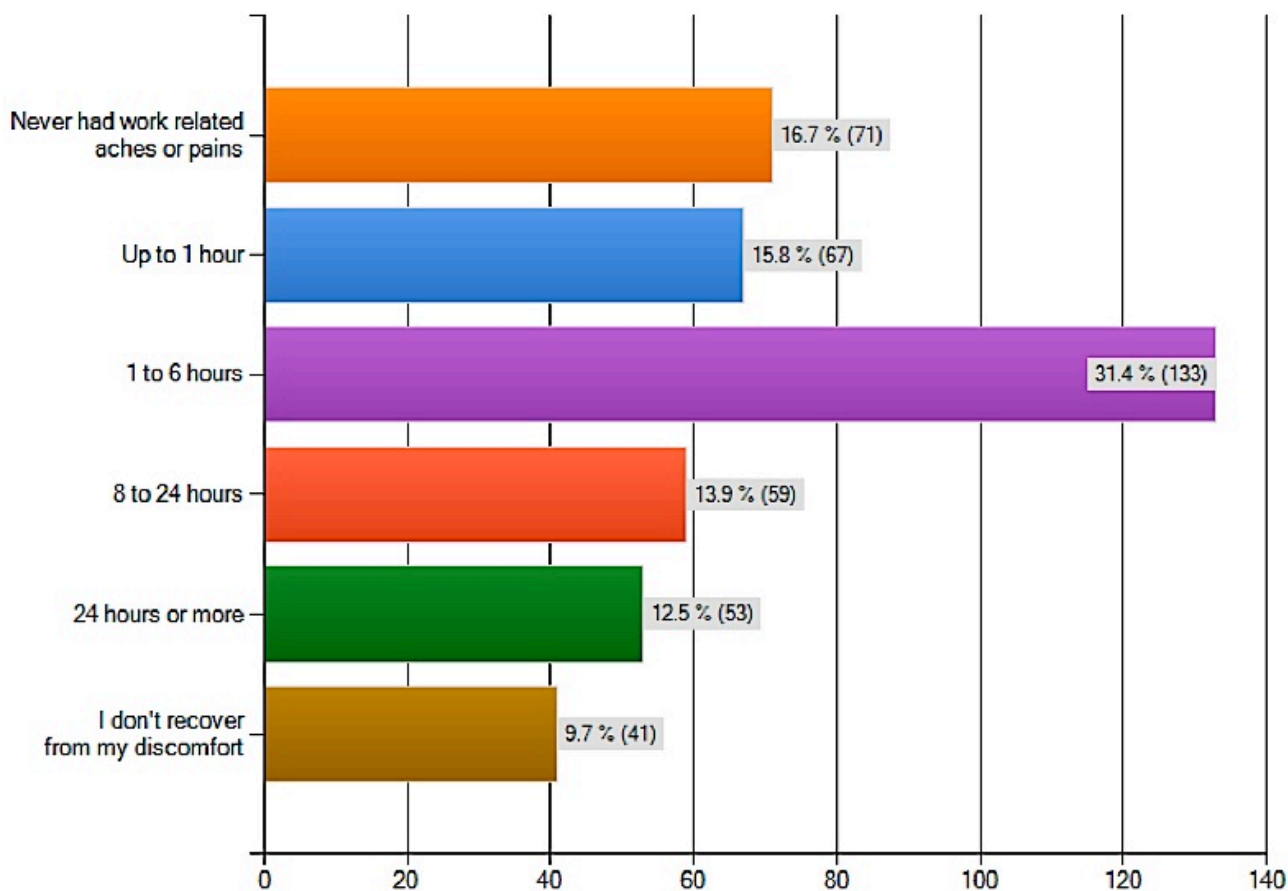


Section 6: Recovery from aches and pains:

Table 23 asked members how long it takes them to recover from aches and pains they felt were work related. 9.7% felt they never recovered from their discomfort, this is of great concern to the SoR, and (members should seek a referral to occupational health to discuss potential remedies) whilst 12.5 stated it took 24 hours or more to recover, 13.9% stated 8-24 hours. MSD injury takes much longer to recover from when symptoms continue through to the next day, it may be a sign that the condition is not merely muscle fatigue, but something more serious. While muscle fatigue should cease within minutes of stopping the activity that has caused it or, in extreme cases, after a nights rest, which would emphasise the 15.8% who stated their aches and pains ceased after one hour.

Table 23

After a shift, in general how long does it take you to recover from aches and/or pains that you feel are work related?

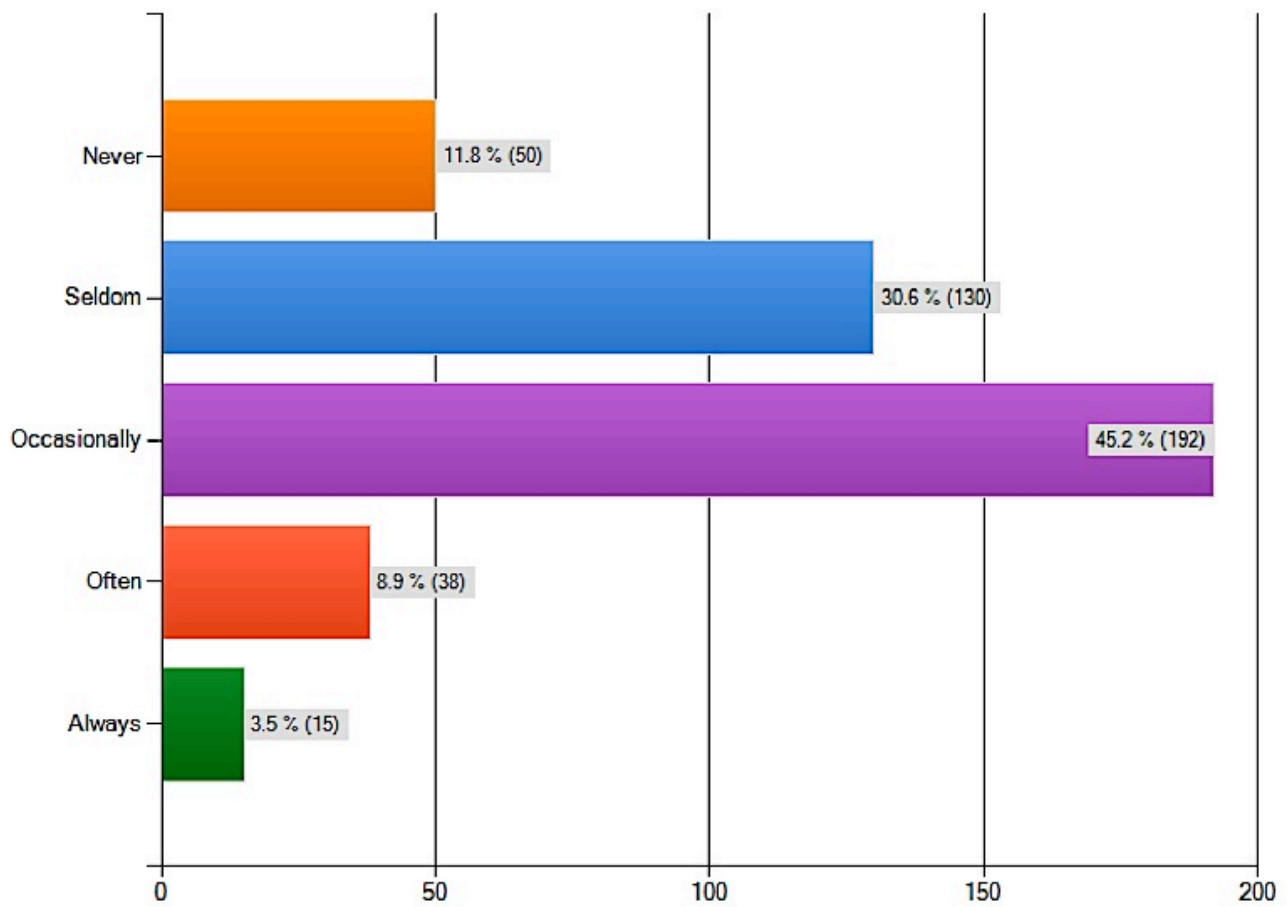


During a shift, do you feel that your health influences your work performances?

Employee's health safety and welfare should be of utmost importance to employers. Whilst we understand the NHS is a patient led service, SoR members both underpin the NHS and indeed the services delivered to patients. Only 11.8% of respondents in table 24 did not feel their health influenced their work, whilst 80.2% felt it did indeed influence their work. We must encourage employers to become proactive, identifying the warning signs and putting into place preventative measures, thus will save the incurrence of indirect costs associated with members sickness and possible liability claims.

Table 24

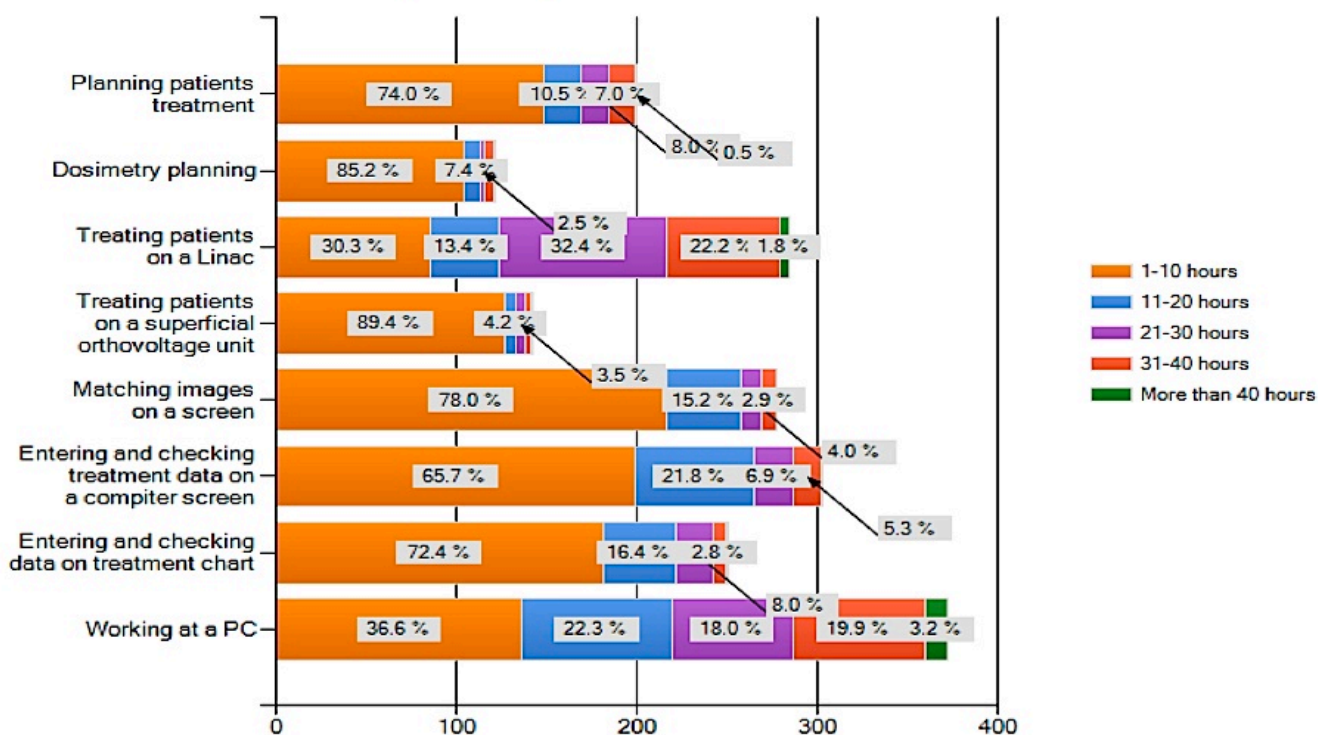
During a shift, do you feel that your health influences your work performance?



Time spent performing task:

Table 25

In a typical working week, how many hours do you spend performing:



Section 7: Affects on daily life:

Musculoskeletal disorders not only affect the working life of our members, but in most cases they affect their home life. Worst case scenario can lead to a member being unable to simply fill a kettle, or comb their hair. But these can be prevented, through identifying the causes, the risks associated and acted upon.

Table 26

Musculoskeletal Disorders in Therapeutic Radiographers

Published on Society of Radiographers (<https://www.sor.org>)

If you have had this trouble during the last seven days please indicate where and severity?

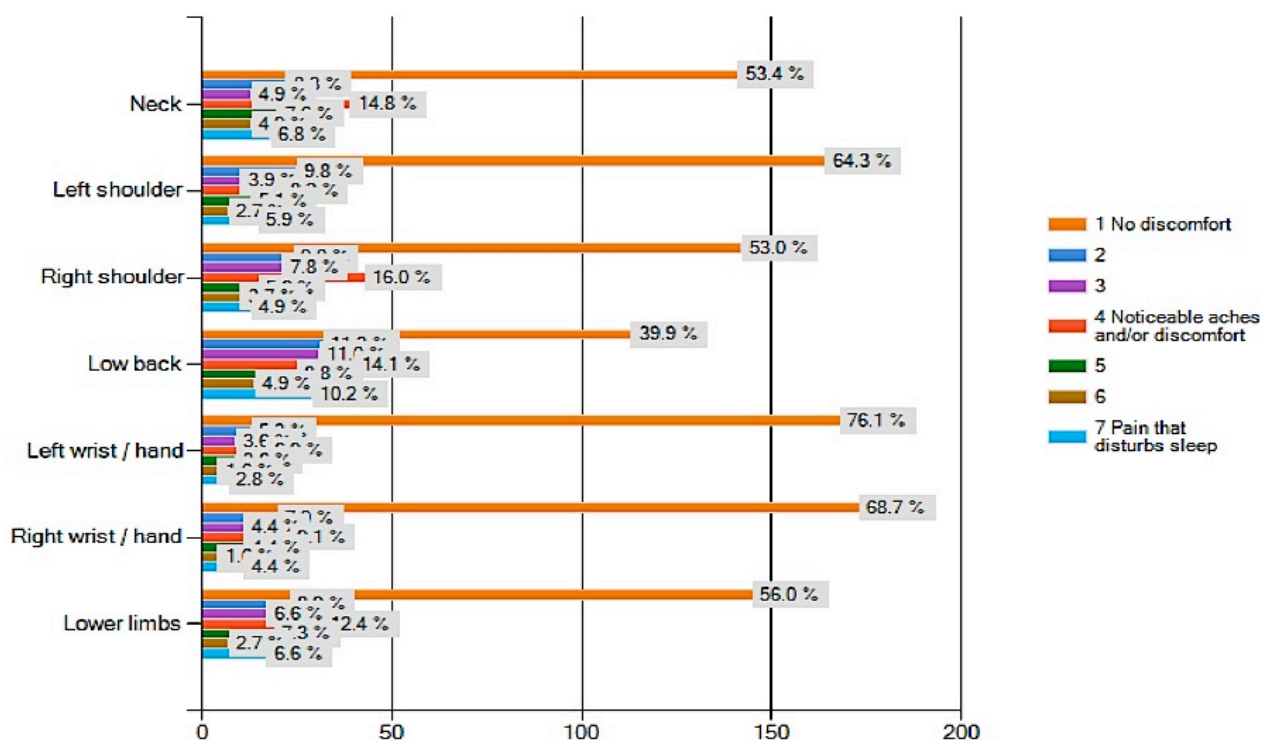


Table 27

On a scale of 1 to 7 (1 being no discomfort and 7 being pain that disturbs your sleep) have you at any time during the last three months had trouble in your:

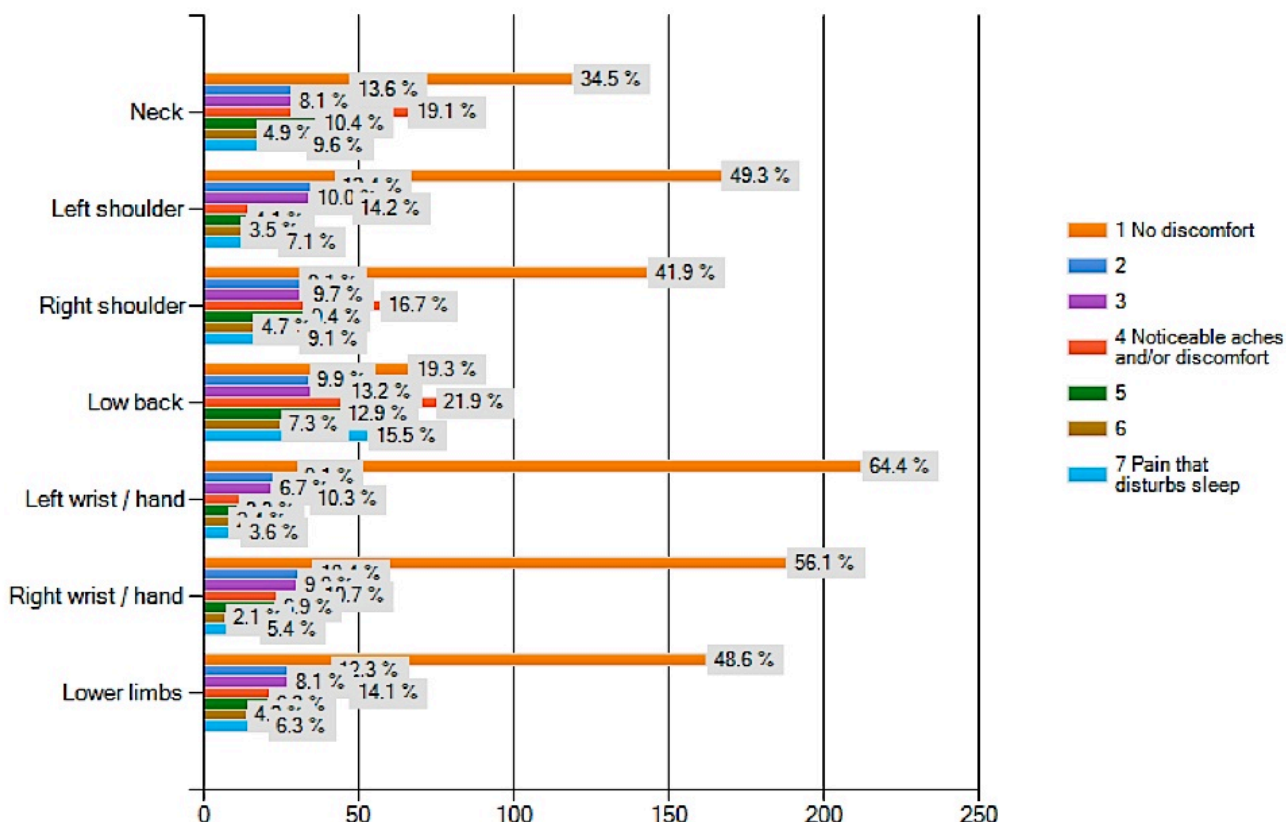


Table 28

During the last three months has this trouble been caused or made worse by your job?

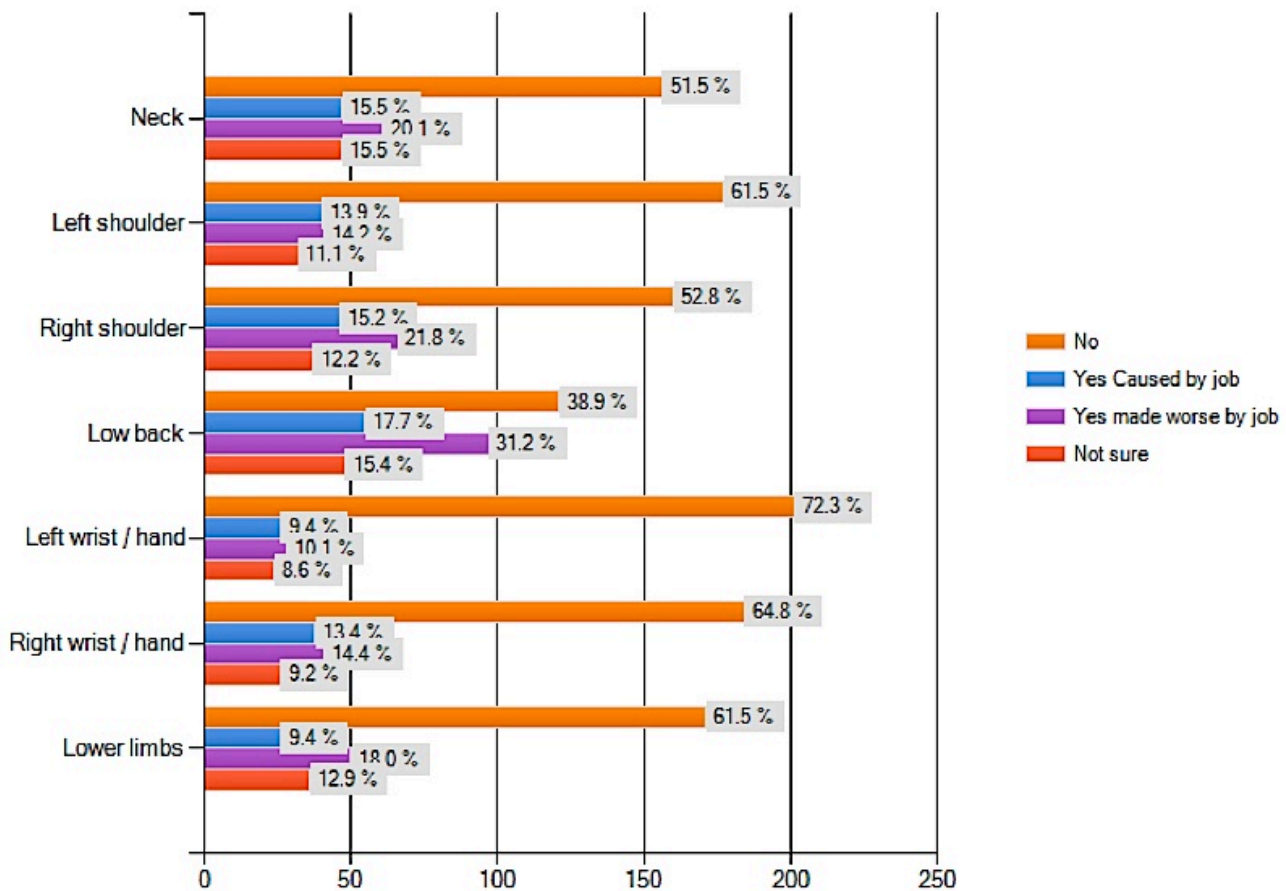
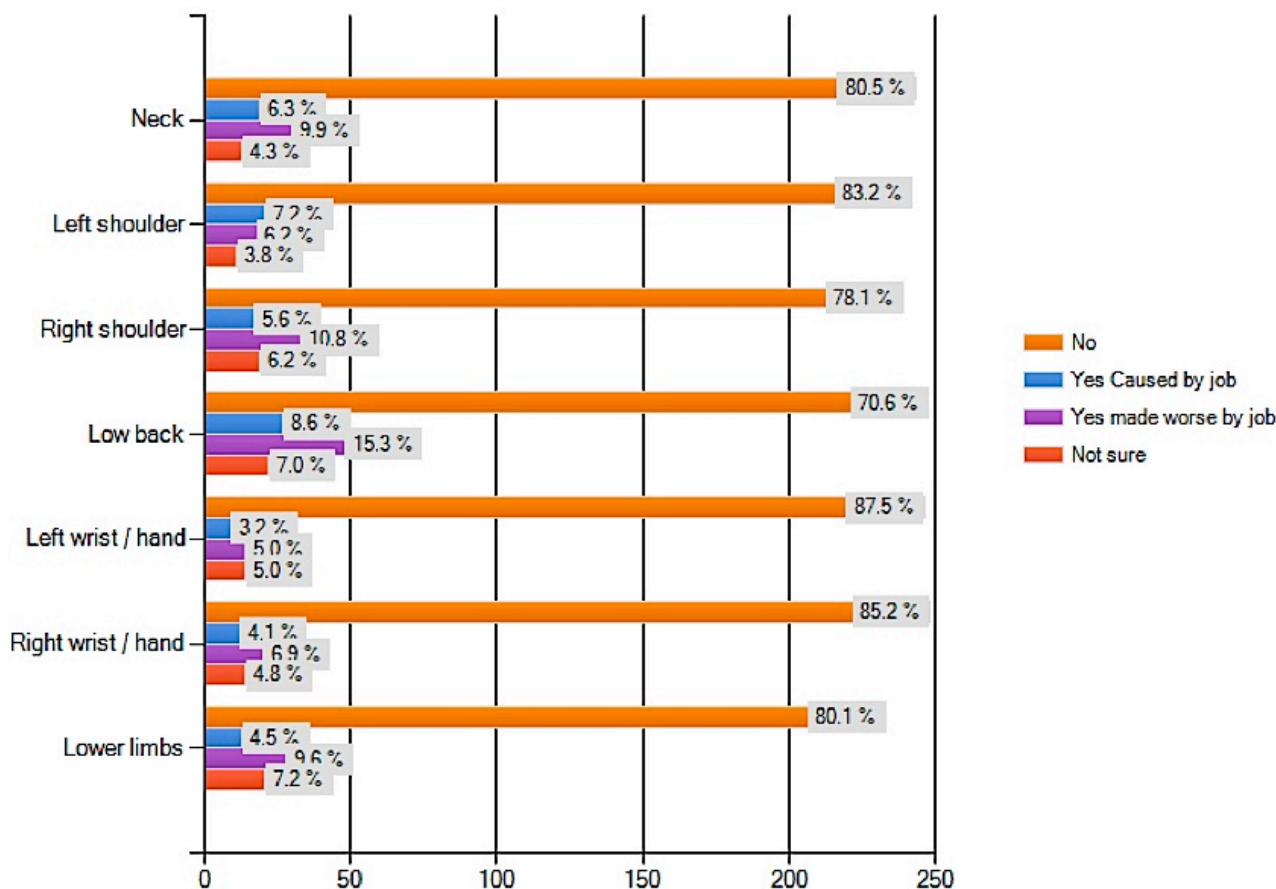


Table 29

During the last three months has this trouble prevented you carrying out normal activities (e.g. job, housework)?



Conclusion

These results confirm what the Society of Radiographers feared, there are risks and prevalence of musculoskeletal disorders for therapeutic radiographers and assistant practitioners within radiotherapy centres both in the treatment rooms when aligning patients prior to treatment but also when using P Cs to deliver the treatment and to verify treatment plans prior to treatment.

Numerous publications identify the factors which attribute to musculoskeletal disorders and this survey has indeed both identified and confirmed these factors exist amongst our members.

The results highlight further both the personal costs associated for SoR members (from pain, loss of use and indeed career ending injuries) and the potential for significant (and no doubt underestimated) financial costs to the health service as a whole.

Communication must commence between employers, SoR health and safety reps, occupational health advisors and indeed those affected - the employee's, our members, on the identification, prevention and elimination of musculoskeletal disorders within centres. We understand the control measures will be complex and challenging but no more challenging than the recruitment and training of experienced therapeutic radiographers and assistant practitioners - who are not expendable and whose wellbeing needs to be protected.

Change must start now; we cannot continue to brush this ticking time bomb under the carpet.

Recommendations

Work duties

The Health and Safety at Work Act 1974 require employers to consult with trade union appointed safety representatives; this is strengthened further by Regulation 4a of the Safety Reps and Safety Committee Regulations 1977. Both regulations state that safety representatives should be consulted in good time about:

- The introduction of any measure in the workplace which may substantially affect health and safety;
- Planning and organisation of health and safety training, (training can include reducing musculoskeletal disorders within the workplace and body mapping)

Staff reported feeling unsupported and stretched to breaking point, ascertaining the underlying issues would indeed be a positive step forward furthermore acting upon the findings may stem the problem. A positive culture would encourage the inclusion of staff thoughts and comments after all they are an untapped source of information as they operate at the forefront of the service delivered.

Including all staff (where possible) in discussions about the scheduling of patients, rotation of staff (again where possible) would enable staff who are experiencing problems time to recover.

Training

Employers have legal duties under the Health and Safety at Work Act 1974 and the Management of Health and Safety at Work Regulations 1999 to ensure that all staff receive training and it be recorded.

- Employers should conduct a risk assessment which will identify workplace hazards (including the need for training) findings must be acted upon through effective management and training of staff.
- Training which should include effective measures to reduce the risks associated with musculoskeletal disorders within the work place.

Manual Handling training

Manual handling training is mandatory and a legal responsibility under the Manual Handling Regulations 1992. Guidance has also been produced from NHS Employers Partnership for Occupational Safety and Health in Healthcare committee, which produced guidance entitled: "Back in Work"

Manual handling whilst training must be developed and tailored for the specific needs of the radiotherapy centre Trainers should spend time within radiotherapy centres and observe Therapeutic Radiographers and Assistant Practitioners during their work to recommend strategies which will minimise any risk's which are related to the unique requirements within radiotherapy Training which should include effective measures to reduce the risks associated with musculoskeletal disorders within the work place.

Work environment

Work related stress is defined as a harmful reaction people have to undue pressures and demands place on them at work.

Results from the Labour Force Survey (LFS) estimate that,

- The total number of cases of stress in 2010/11 was 400 000 out of a total of 1 152 000 for all work-related illnesses.
- The number of new cases of work-related stress has reduced to 211 000 from 233 000 in 2009/10 (change not statistically significant).
- The industries that reported the highest rates of total work-related stress in the last three years were health and social work, education and public administration.
- The occupations that reported the highest rates of total cases of work-related stress in the last three years were health and social service managers, teaching professionals and social welfare associate professionals.

Fatigue and stress

Stress does not discriminate between employee's gender; age, or indeed experience, stress can be caused by issues either within the employee's work life or personal life. Whilst the SoR welcome figures published which demonstrate a decline in work related stress sadly this is still an issue that needs to be addressed within the healthcare sector

Staff who suffer from stress related issues and fatigue function less efficiently so it is important that all healthcare organisations (trusts, health boards and private radiotherapy facilities) ascertain the true extent of the issue and consider strategies to reduce the negative influences affecting staff within the workplace when assigning work related tasks.

It is worth noting that whereas it might seem that the less experienced person is more likely to make mistakes, the more experienced person, by reason of having a greater number of responsibilities, may be more prone to errors due to distraction and workplace stress.

Working environment

Errors may be precipitated by such factors as poor design of equipment, poor room layout or the physical features associated with the workplace; for instance, excessive heat or cold. Staff cannot provide a safe and effective service with poorly designed, poorly maintained or out-of-date equipment. The support and active engagement of management is critical to maintaining and operating a safe service.

Lighting and workplace temperature

The employer has a legal duty to provide both suitable and sufficient lighting and workplace temperature under the Workplace (Health, Safety and Welfare) Regulations 1992. Safety reps conducting workplace inspections will identify the true extent of the problem and monitoring procedures should be already in place.

Workstations

The employer has a legal duty under The Health and Safety (Display Screen Equipment) Regulations 1992 to carry out a risk assessment of all workstations; this would identify health concerns which include headaches, eye strains, repetitive strain injuries, stress and fatigue.

- Employer's conducting a risk assessment, (which is a legal requirement) and acting upon any findings

The employer must comply with the minimum standards set down by the regulations.

Awkward Positioning

Awkward positioning on a continued basis is a risk factor in the development of a musculoskeletal

disorder; owing to the nature of the work therapy radiographers perform they are subsequently more at risk due to the frequency, speed, acceleration of movements, external forces (patients, hoists) all of which are further contributory factors

The identification of safe working postures, avoiding unnecessary stooping kneeling, purchasing of ergonomically friendly aides would encourage and prevent the workplace culture that exists.

A culture, that continues to exist because of time constraints and increased patient numbers.

Respiratory Troubles, headaches, excessive tiredness and fatigue: The need to ascertain the causes of the issues mentioned:

Employer's conducting a risk assessment, (which is a legal requirement) and acting upon any findings

- Health and safety reps conducting workplace inspections, which will identify any issues with lighting, temperature, which could be possible causes of headaches, excessive tiredness or fatigue.
- Health and safety reps and employees participating in body mapping exercise which will identify whether there is or is not a problem within the department. The body mapping will identify if this is a solitary problem affecting one employee
- Implementing the Health and safety Executives Stress Management Standards, a tool approved by NHS Employers - employers have a legal duty to protect the health, safety and welfare (including mental health of the employees)
- Identifying root causes of the problems including employees in discussions will remove levels of stress, which may attribute to symptoms.

Concentration at work

Members reported issues concentrating at work. Many decisions are being made during the patient's treatment involving delivery of high levels of radiation. There is a concern that if concentration is being effected that the risk of patient related incidents and errors will increase. The joint professional guidance "Towards Safer Radiotherapy" stated that Radiotherapy is a highly complex process, involving many steps and many individuals in the planning and delivery of the treatment. Such complexity leads to a multitude of opportunities for errors to occur. Though major incidents are infrequent, the consequences can be extremely serious, as evident from the few, but disturbing high-profile incidents that have been reported recently.

Recovery

Ensuring through effective management that staff receive and indeed take their breaks and lunch, this would at least allow time away for them to recover.

Time allowed for patients is realistic to their needs, (disabled patient, who requires the help of three therapy radiographers cannot be simply seen (safely) in the short time allocated.

Stopping the culture of applying more patients on already overfilled lists, (due to sickness absence and holidays)

Procedures in place for self-referral of employees who experience problems, procedures which include occupational health, support from a local group.

Ensure safe are aware of the procedures and the support available - enabling them to raise the issue without fear of repercussions.

Recruitment and retention of staff- who feel valued and protected by their employer. Employers, who do not protect and value their staff, have lower retention of staff than employers who do.

We understand that there is a severe shortage of therapeutic radiographers and assistant practitioners within the NHS, but unless we protect the health safety and welfare of the ones we have, this shortage will become worse.

References

- Towards Safer RT: https://www.rcr.ac.uk/sites/default/files/publication/Towards_saferRT_fi...
- Health and Safety Executive (2006) www.hse.gov.uk/msd/index.htm
- Labour Force Survey (2011): <http://www.hse.gov.uk/statistics/causdis/stress/stress.pdf>

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