**Determining Cost-Effective Methods for Increasing Workstation Ergonomics at the Crisis Intervention and Suicide Prevention Centre of BC**

For

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**Introduction**

Workstation comfort and office furniture wear-and-tear is a problem for any organization, however, due to the Centre Phone Room operating 24/7, the rate of wear on office furniture is far greater than that of a typical office. However, there is often limited budget available to replace aging or malfunctioning office furniture in the phone room, and this may pose problems to volunteer and staff health.

One common health issue that could result is musculoskeletal injuries (MSIs), which according to Work Safe BC (“Ergonomics”), is an injury of the muscles, tendons, ligaments, and other soft tissue surrounding joints that can become sprained, strained, or inflamed due to repetitive motions associated with work. Awkward postures, long periods of repetitive motion, and other factors can increase the risk of MSIs. For example, if the computer chair height at a workstation cannot be adjusted (say, due to a malfunction), a proper typing posture cannot be achieved, potentially causing awkward or painful arm and wrist angles, or prolonged contact of hands with the desk due to insufficient height clearance, and other posture-related issues.

If volunteers or staff are exposed to MSI risks as part of their regular work, they may need to take time away from the Centre to rest and recover. This may in turn cause a reduction in the number of call-takers who will be available to take calls, and may lead to more calls going unanswered due to staffing shortages. Finding a cost-effective source of high-quality furniture can increase call-taker comfort and mitigate the risks of sustaining MSIs as part of their work. This may result in increased staffing availability due to less time needed to recover after a shift.

The goal of this report is to identify potential sources of MSI Phone Room users may experience as part of their work through direct observation, survey users to assess current levels of discomfort experienced in the Phone Room, and finally compare offer recommendations for cost-effective solutions to the ergonomics issue.

**Data** **Section**

**Sources of Potential MSI in the Phone Room**

After an examination of the volunteer workstations and spending time observing volunteers in the room during an average shift, the following were noted:

* Volunteers typically spent over 90% of their shift sitting at their workstation, either taking calls or writing reports
* Volunteers occasionally left their stations to take breaks, use the washroom, or to talk to staff about calls they have taken
* At the beginning of their shifts, some volunteers exchanged the computer chair at their station with others that were either newer, or were more comfortable to sit in for the volunteer
* Some volunteers complained of keyboards that were difficult to type on: the cause seemed to be due to sticky keys, different style of keyboard than what they are used to (mechanical or not), or an inability to adjust the typing angle for the keyboard
* Desk and monitor height were not found to be significant factors for volunteers: when volunteers had access to chairs with a range of adjustable heights, they usually found a sitting height that compensated for the desk and monitor height

The following furniture and equipment were identified as the primary points of contact for volunteers during their shift, and most likely to cause MSI through repeated use if they were not in a functional state.

**Chairs.** Examination of the computer chairs in the room revealed that there is a large variation in their age, condition, and amount of adjustability available. Most of the chairs show some signs of wear-and-tear: worn covering material, flattened cushioning, and adjustment mechanisms that no longer work. All 10 chairs in the room were inspected and the following was found:

* 2 new chairs that were donated last year which were fully functional and generally deemed by the volunteers to be the most comfortable to sit in. Volunteers most often picked these chairs over others
* All other chairs are at least 5+ years old
* 4 chairs had height adjustment mechanisms that were no longer functional, and were all stuck at their lowest height level. Volunteers most often exchanged these chairs for others
* 1 chair with its seat covering partially worn away and offered little cushioning when sat on. However, it still offered good back support, and some volunteers preferred this chair
* All chairs except one were found to have functioning armrest adjustment mechanisms
* 3 chairs provided full back support (high-backed chairs), all other chairs had partial backrests of varying sizes that offered less back support

[will include photos of some example chairs later]

**Keyboards.** An inspection of the 10 keyboards in the Phone room found the following:

* 3 keyboards had keys that occasionally became stuck in a depressed position after being pressed
* 6 keyboards either had no typing angle adjustment mechanism or had broken typing angle adjustment mechanisms
* 3 keyboards were of different brand to the other keyboards, 2 of which had keys that had significantly different typing characteristics compared to the rest of the keyboards (keys requiring different pressure to depress, different resistance to key press, etc.)

Although the stuck keys seemed problematic for volunteers to deal with, it is not an ergonomics issue, therefore is outside the scope of this report.

Despite the fact many keyboards could not be adjusted, what adjustments could be made on the other keyboards were minimal (approximately a difference of 10 degrees in typing angle), therefore chair adjustability likely plays a bigger role in achieving a comfortable typing posture that minimises MSIs.

**Survey**

Initially it was planned to administer the survey to volunteers and staff separately. However, during administering process it was found having one survey for everyone reduced confusion and streamlined the data-gathering process.

**Results.** In total, 79 volunteers/staff completed the survey, out of approximately 200 active volunteers and staff.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Always Positive | Often Positive | Sometimes Positive | Often Negative | Always Negative |
| Chair comfort | 7 | 16 | 32 | 21 | 3 |
| Chair adjust | 1 | 5 | 24 | 36 | 13 |
| Armrest comfort | 9 | 13 | 41 | 16 | 0 |
| Armrest adjust | 22 | 48 | 7 | 1 | 1 |
| Keyboard comfort | 6 | 26 | 29 | 14 | 4 |
| Keyboard adjust | 1 | 5 | 21 | 25 | 27 |
| Back Support | 18 | N/A | 23 | N/A | 38 |

Table 1: Raw Survey results

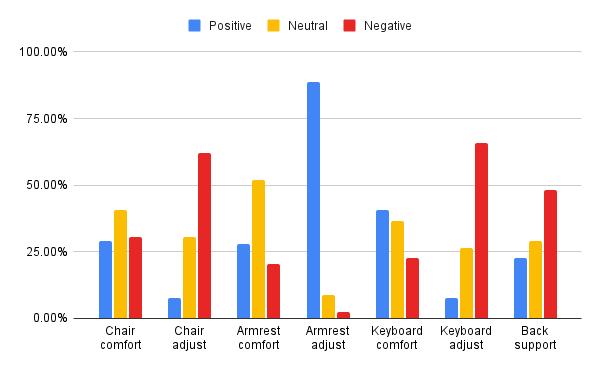


Figure 1: Aggregated Survey Results in percentage of respondents

**Discussion of Results.**

* Computer chairs:
  + Chair comfort was better than expected: less than 30% of respondents found the chairs to be generally uncomfortable to sit in. However, from a workplace comfort perspective, having more comfortable chairs would likely help volunteers have a more comfortable experience during their shifts
  + Matching observations of the high number of chairs that had limited adjustability, more than half of respondents generally found the chairs difficult to adjust
* Back Support:
  + Almost 50% of respondents reported the chairs had poor back support
* Chair armrest:
  + Most respondents found armrests easy to adjust
  + Only 20% of respondents found armrests uncomfortable
* Keyboards
  + In line with observations, 70% of respondents found keyboards difficult to adjust
  + Despite this, less than 20% of respondents found the keyboards uncomfortable to use. One reason for this could be that respondents are able to find adjustable chairs which allows them to compensate for the keyboard. Another reason could be that that keyboard adjustability has little impact on keyboard comfort

**Possible Solutions**

**Option 1:** Join [Green Standards](https://greenstandardsltd.com/for-nonprofits/https:/greenstandardsltd.com/for-nonprofits/). Green Standards is a specialized environmental firm that works with corporations and government organizations to responsibly redistribute surplus office furniture, equipment and supplies, which can be a continuous source of gently-used office furniture for the Centre. Green Standards is a free service for non-profits and functions as a match-making service, directing slightly used office furniture from corporations that periodically renew their office furniture, transferring their used furniture to non-profits with limited budgets to purchase their own. All that will be needed from the Centre will be to sign up and specify what kind of furniture they are looking for, and when a local corporation is looking to renew their furniture, Green Standard can help facilitate the transfer of some of the needed furniture to the Centre.

**Conclusion**

**Summary of Findings**

* Many survey respondents found computer chair adjustability and back support could be improved

**Interpretation of Findings**

* This is likely resulting from the many chairs that had limited adjustability and only partial back support in the Phone Room
* This can be best remedied by acquiring functional computer chairs with full back support and replacing the aging chairs in the Phone Room

**Recommendations**

* Join Green Standards

References

“Ergonomics” *WorkSafeBC*, 5 July 2021, www.worksafebc.com/en/health-safety/hazards-exposures/ergonomics.