WORK AND WELL-BEING
IN THE
COLORADO CANNABIS INDUSTRY

“QUICK HITS”
PROJECT RESULTS & REPORT

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PROJECT SUMMARY

The WORK AND WELL-BEING IN THE COLORADO CANNABIS INDUSTRY project was conducted by researchers at Colorado State University and the Center for Health, Work & Environment at the Colorado School of Public Health in conjunction with partners in the Colorado cannabis industry. The purpose of this project was to conduct a survey about work-related health, stress, and well-being among workers in the cannabis industry of Colorado. Our project team collected survey data from cannabis industry workers employed in the state Colorado (with a majority of survey participants working in the Front Range) to develop a report to give back to the industry with recommendations for best practices, training, and health and safety policies. For example, we asked cannabis industry workers various questions about their current health and safety training programs, experiences at work, general health and well-being, feelings of work stress, and personal cannabis and tobacco use, among others. Using the results of this survey, we developed a number of recommendations that are included in this report.

Data for this project were collected via an online survey of 214 workers in the Colorado cannabis industry. Survey responses were collected from March – June 2015. This “Quick Hits” report is a summary of the project results.

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WORK AND WELL-BEING IN THE COLORADO CANNABIS INDUSTRY

DESCRIPTING THE INDUSTRY
- The majority of Colorado cannabis industry workers were Caucasian, male, below age 30, and had attended some level of college. The majority of workers also made less than $35,000 a year, worked day shifts, and did not have any other jobs.
- Three-quarters of workers had some kind of health insurance, but most workers reported that their businesses did not pay for any of their health care coverage. Most workers’ employers offered discounts on cannabis products to employees. One-fifth of employers also offered retirement benefits, and one-quarter offered other types of benefits.
- Most cannabis industry business were young (< 5 years old) and had around 20 employees. The majority of businesses had an indoor grow and a dispensary to sell both medical and recreational cannabis and cannabis products.

HEALTH AND SAFETY IN THE INDUSTRY
- Cannabis industry workers generally felt like their businesses have strong safety policies, procedures, and practices. They felt strongly that management values their safety, but less strongly about the extent of health and safety training at work.
- 23% of workers never received health and safety training on the job.
- When workers did receive health and safety training, it varied greatly from business to business (in terms of both quality and quantity of training).
- Workers felt like the physical work environment was not that hazardous, but expressed the most concern for ergonomic issues and air quality.
- Some workers had experienced a number of symptoms after handling pesticides on the job, with the top three symptoms being skin irritation, headache/dizziness, and eye irritation.
- Workers generally viewed their health as only “fair”, and reported a number of general health symptoms such as back pain; discomfort in hands, wrists, and fingers; and knee pain. Additionally, a number of workers said they cough or bring up phlegm fairly regularly.
- 10 workers had injuries requiring medical attention in the 3 months prior to the survey.
- While workers expressed not being very interested in learning about health and safety topics, our results suggest that workers should be trained on a variety of these topics.

WORKER WELL-BEING
- Cannabis industry workers worked an average of 39 hrs/week during normal weeks, and 45 hrs/week during busy weeks.
- Workers felt some stigma from society for the work that they do, but generally did not feel stigma from family and friends. Workers also felt secure in their jobs and understood their work roles, but did feel some conflicting demands and moderate amounts of stress.
- The vast majority of workers were satisfied with their jobs and their lives, and felt committed to their businesses. However, workers reported feeling a little burned out and some wanted to leave their jobs.
- Cannabis industry workers felt like their jobs were meaningful, and thought they could get work elsewhere in the industry if they lost their job. They also felt supported from their businesses and had control over their jobs. Across jobs and industries, when workers feel any or all of these things, it can help them to better meet the demands of their jobs.
CANNABIS AND TOBACCO USE IN THE INDUSTRY

- A majority of industry workers had used cannabis and/or caffeine in the 8 hours prior to the survey
- Two-thirds of workers had a medical card, and nearly all workers used cannabis to some extent
- 78% of workers used cannabis at least once a day; many used cannabis before and during work shifts
- 3 out of 10 workers currently used tobacco at the time of the survey

GENERAL RECOMMENDATIONS FOR THE INDUSTRY

- Cannabis industry businesses, leaders, and workers are encouraged to follow these recommendations, that address physical and psychosocial aspects of work. The physical (e.g., work conditions) and psychosocial (e.g., social support) work environments both impact health, safety, and well-being
- Businesses are encouraged to reference the Guide to Worker Health and Safety in the Marijuana Industry created by the Colorado Marijuana Health and Safety Work Group (2017)
- There was alarming variability in the quantity and quality of health and safety training workers received
- Cannabis industry businesses should develop, implement, and repeatedly evaluate formal health and safety training programs for all cannabis industry workers. Continuous, high-quality health and safety training programs are beneficial for businesses and workers, such as through reductions in injuries, workplace accidents, lost time, and health care costs
- Recommendations include best practices for before, during, and after training programs take place
- Recommended training topics include but are not limited to:
  - Unique cannabis industry hazards, such as those involved with growing, cultivating, trimming, and selling cannabis
  - General health and safety training programs including ergonomics, emergency preparedness, and the proper use of PPE (Personal Protective Equipment)
- Key relevant training topics are linked to training programs offered by Pinnacol Assurance, the largest worker’s compensation provider in the state of Colorado and provider to many businesses in the Colorado cannabis industry
- Cannabis industry businesses are encouraged to consider local and diverse populations when recruiting and hiring employees, and to become involved with cannabis industry sustainability
- Cannabis industry businesses, leaders, and managers are also encouraged to provide supports to workers, such as autonomy on the job, formal employee support systems, and emphasizing the purpose for working in the cannabis industry
- Cannabis industry businesses should establish formal policies and training programs regarding cannabis use before shifts, on-the-job and while driving motor vehicles at work

JOB TYPES OF STUDY PARTICIPANTS

<table>
<thead>
<tr>
<th>JOB TYPE (N=214)</th>
<th># OF WORKERS</th>
<th>% OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker: Growing/Cultivating/Trimming</td>
<td>46</td>
<td>22%</td>
</tr>
<tr>
<td>Worker: Dispensary/Retail</td>
<td>76</td>
<td>36%</td>
</tr>
<tr>
<td>Manager: Growing/Cultivating/Trimming</td>
<td>11</td>
<td>5%</td>
</tr>
<tr>
<td>Manager: Dispensary/Retail</td>
<td>30</td>
<td>14%</td>
</tr>
<tr>
<td>Manager: Other Departments</td>
<td>15</td>
<td>7%</td>
</tr>
<tr>
<td>Upper-Level Management</td>
<td>14</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>22</td>
<td>10%</td>
</tr>
</tbody>
</table>
Cannabis Industry Workers in Colorado

- Most workers were male (57%), below the age of 30 (66%), and Caucasian/White (76%)
- Workers had also typically attended some college (40%) or attained a 2- or 4-year degree (39%)
- 74% of workers earned hourly wages, and most earned less than $35,000/year (80%)
- 80% of workers worked day shifts – others worked rotating shifts (7%), afternoon shifts (5%), irregular/on-call shifts (4%), split shifts (3%), and night shifts (1%)
- At the time of the survey, 25% of workers had other jobs besides their job in the cannabis industry

Workers’ Health Care Access

- 134 of 185 workers (72%) said that they had some kind of health care insurance or coverage
- Of the workers that had some kind of health care insurance or coverage:
  - 18 workers (10%) reported that their employer paid for 100% of their health care premiums
  - 51 workers (28%) reported that their employer paid for a portion of their health care premiums
  - 116 workers (63%) reported that their employer did not pay for any of their health care coverage
- Workers reported that their cannabis industry businesses also offered the following benefits:
  - Retirement benefits or a retirement plan (n=38 workers)
  - Matching retirement plan contributions (n=20)
  - Other various benefits (e.g., paid time off, vacation/sick days, dental coverage, life insurance, etc.; n=54)
  - 138 workers also reported that their business offered discounts on cannabis products to employees. Among those who received cannabis discounts, the extent of the discounts varied widely (e.g., cannabis at cost, discounts ranging from 5% to 75% off cannabis, $5 grams, $5 eighths, free half-ounces each month, etc.)

Cannabis Industry Businesses

- To protect participant anonymity, no data were collected that could specify how many unique businesses were represented by the sample of workers
- Workers reported their businesses were less than 5 years old on average, and most often had approximately 20 employees
- Workers (N=188) reported that a majority of businesses have an indoor grow facility (n=165; 88%) and a dispensary (n=152; 81%)
- Of the businesses with a dispensary, 20% sold only medical cannabis, 4% sold only recreational cannabis, and 76% sold both
- Workers (N=188) also reported that their businesses had cannabinoid extractions facilities (n=74; 39%), cannabis product manufacturing facilities (n=55; 29%), greenhouse grows (n=21; 11%), and outdoor grow operations (n=11; 6%)
SAFETY CLIMATE

Safety climate refers to how workers perceive (or feel about) their workplaces’ safety policies, procedures, and practices. Safety climate is important for businesses to consider, because the strength of a safety climate influences workers’ motivation to perform safe (or unsafe) behaviors on the job. Additionally, strengthening and improving the safety climate can lead to a reduction in workplace accidents.

In this study, individual workers responded to questions about safety climate at their respective workplaces – these responses were statistically combined to make a group-level safety climate. The group-level safety climate is reported as a mean (or average) score (Mean). The scores are also reported with a standard deviation (Standard Deviation or St. Dev.), which shows how much variability there was in individual responses. In other words, a low standard deviation indicates that most people answered close to the average score, and a high standard deviation (e.g., St. Dev. larger than 1.0) shows that there were a wider range of answers.

These Mean safety climate scores range from a 1 – 5 scale, where:
- A score of 1 indicates a very weak safety climate
- A score around 2.5 indicates a moderate safety climate
- A score of 5 indicates a very strong safety climate

As a group, cannabis industry workers’ responses showed that:
- On average, workers perceived (or felt) a strong safety climate at their businesses (Mean = 3.7, Standard Deviation = 0.9)
- Workers felt the strongest safety climate in regards to management valuing safety in the workplace (Mean = 4.0, St. Dev. = 1.0).
- In descending order (from highest to lowest), workers also felt relatively strong safety climate with regard to:
  - How safety information is communicated in the workplace (Mean = 3.8, St. Dev. = 1.0)
  - The physical work environment (Mean = 3.6, St. Dev. = 0.8)
  - Health and safety training at work (Mean = 3.5, St. Dev. = 1.1)

WORKER HEALTH & INJURIES

To assess general health among cannabis industry workers, we asked workers the following question:

Would you say that in general your health is:
- 5 - Excellent
- 4 - Very Good
- 3 - Good
- 2 - Fair
- 1 – Poor

This question is commonly used in applied health research to get a rather accurate sense of individuals’ general health. On average, Colorado cannabis industry workers rated their health at a score of 2.3, indicating that workers generally view their health somewhere between “fair” and “good”.

WORK AND WELL-BEING IN THE COLORADO CANNABIS INDUSTRY
We asked industry workers a number of questions about their experiences with general health symptoms. Results showed that, in the past 12 months, workers in the industry had experienced the following symptoms every day for at least a week or more (at work and/or outside of work):

<table>
<thead>
<tr>
<th>HEALTH SYMPTOM (N=187)</th>
<th>NUMBER AND PERCENTAGE OF WORKERS THAT EXPERIENCED THE SYMPTOM EVERY DAY FOR AT LEAST A WEEK OR MORE IN THE PAST YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># OF WORKERS</td>
</tr>
<tr>
<td>Back Pain</td>
<td>101</td>
</tr>
<tr>
<td>Discomfort in hands, wrists, or fingers (such as pain, burning, stiffness, numbness, or tingling)</td>
<td>53</td>
</tr>
<tr>
<td>Knee pain</td>
<td>43</td>
</tr>
<tr>
<td>Hip joint pain</td>
<td>26</td>
</tr>
<tr>
<td>Pain in any other joints</td>
<td>23</td>
</tr>
<tr>
<td>Swelling of joints with pain when touched</td>
<td>11</td>
</tr>
<tr>
<td>None of these symptoms</td>
<td>64</td>
</tr>
</tbody>
</table>

We also asked workers if they had experienced injuries (at work and/or outside of work) in the three months prior to the survey that required at least 4 hours of restricted activity or required medical attention. Of the workers that responded to these questions (N=187), 10 workers said “Yes,” 169 workers said “No,” 6 workers didn’t know, and 2 workers preferred not to say. Of the workers who said “Yes,” more information about their injuries is summarized in the following table:

<table>
<thead>
<tr>
<th>SEEK MEDICAL ATTENTION?</th>
<th>LOCATION OF INJURY</th>
<th>TYPE OF INJURY</th>
<th>WHAT HAPPENED TO THE WORKER?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Neck</td>
<td>Crushed/mangled</td>
<td>Hit by a forklift</td>
</tr>
<tr>
<td>Yes</td>
<td>Right thumb joint</td>
<td>Sprain/strain/torn ligament</td>
<td>Forced to wear a brace for approx. 2 weeks due to the strain of constantly opening jars while selling cannabis</td>
</tr>
<tr>
<td>Yes</td>
<td>Hand/wrist/finger</td>
<td>Broken bone/fracture</td>
<td>Punched a wall due to frustration with business leadership</td>
</tr>
<tr>
<td>No</td>
<td>Shoulder/chest/back</td>
<td>Not sure</td>
<td>Unsure, but experienced notable pain</td>
</tr>
<tr>
<td>Yes</td>
<td>Shoulder/chest/back</td>
<td>Sprain/strain/torn ligament</td>
<td>Reoccurring injury from a previous job</td>
</tr>
<tr>
<td>Didn’t say</td>
<td>Shoulder/chest/back</td>
<td>Didn’t say</td>
<td>Generic back injury</td>
</tr>
<tr>
<td>Yes</td>
<td>Lungs</td>
<td>Pneumonia</td>
<td>Didn’t say</td>
</tr>
<tr>
<td>Yes</td>
<td>Eye</td>
<td>Cut/laceration</td>
<td>Cut by the corner of a laminated sign</td>
</tr>
<tr>
<td>Yes</td>
<td>Leg</td>
<td>Sprain/strain/torn ligament</td>
<td>Hurt while exercising</td>
</tr>
<tr>
<td>Yes</td>
<td>Feet/ankles/toes</td>
<td>Broken bone/fracture</td>
<td>Didn’t say</td>
</tr>
</tbody>
</table>
WORKER HEALTH & INJURIES (CONTINUED)

To assess respiratory issues, we asked industry workers about their experiences with coughing and bringing up phlegm. Results showed that, for 3 consecutive months or more during the year prior to the survey (i.e., one-quarter of the previous year):

- 36 workers reported that they coughed on most days. Among these 36 workers:
  - 13 smoked cigarettes
  - 34 used cannabis at least daily:
    - 19 used cannabis more than 4 times a day (4 of whom smoked cigarettes)
    - 12 used cannabis 2-4 times a day (7 smoked cigarettes)
    - 3 used cannabis once a day (1 smoked cigarettes)
  - 1 used cannabis less than weekly and smoked cigarettes
  - 1 did not use cannabis or smoke cigarettes

- 34 workers reported that they brought up phlegm on most days. Among these 34 workers:
  - 9 smoked cigarettes
  - 32 used cannabis at least daily:
    - 20 used cannabis more than 4 times a day (3 of whom smoked cigarettes)
    - 11 used cannabis 2-4 times a day (5 smoked cigarettes)
    - 1 used cannabis once a day and did not smoke cigarettes
  - 1 used cannabis once a week and did not smoke cigarettes
  - 1 used cannabis less than weekly and smoked cigarettes

PHYSICAL WORKPLACE HAZARDS

Cannabis industry workers were asked questions about whether they felt like certain physical hazards were or were not present in their workplaces. Workers generally were more likely to disagree that there were hazards in the workplace. Similar to safety climate scores, individual workers’ responses were statistically combined to make a group-level mean score (M). These scores range from a 1 – 5 scale, where:

- A score of 1 indicates that workers strongly disagreed that the hazard was present in their workplaces
- A score around 2.5 indicates that workers felt neutrally about the hazard
- A score of 5 indicates that workers strongly agreed that the hazard was present

As a group, cannabis industry workers’ responses showed that:

- Workers expressed the most concern for ergonomics issues (M = 2.8) and air quality (M = 2.5)
- In descending order (in terms of how concerned workers were, from highest to lowest amounts of concern), individuals also answered questions about:
  - Physical safety on the job (M = 2.3)
  - Respiratory issues (M = 2.3)
  - Slips, trips, and falls hazards (M = 2.2)
  - Exposure to pesticides (M = 2.2)
  - Temperature from lighting systems (M = 2.0)
  - Absorbing chemicals through skin (M = 2.0)

- Workers were also given the chance to mention other hazards of concern that were not included in the survey options. Other commonly mentioned hazards included:
  - Robbery (n=14)
  - Various ergonomic issues (e.g., back issues, standing all day, etc.; n=7)
  - Cannabis dust/powder/mold in the air (n=6)
HEALTH & SAFETY TRAINING

Workers were asked open-ended questions (i.e., they were free to write in their responses) about the extent of health and safety training they received at their cannabis industry jobs. To provide an overview of training in the industry, workers’ open-ended responses were fit into one of six different training categories:

- **No health and safety training (n=49):** Workers in this category stated that they had never received any H&S training at their jobs. Example responses include:
  - “I received no safety and health training for my position”
  - “No specific training in the store for safety and health. Problems are handled if they occur”

- **Sparse training, one-time (n=49):** These workers stated that they received some extent of training, but it generally occurred only once (e.g., at orientation) and also was rather informal and/or limited. For example:
  - “A piece of paper”
  - “There isn’t really anything aside from what is in the employee manual”

- **Structured and/or elaborate training, one-time (n=51):** Workers in this category stated that they received training only once, but it was more structured, formal, and/or content-rich than those in the previous category. For example:
  - “SOPs, ServSafe, pesticide training, METRC training”
  - “Employee manual and first week of training with a veteran employee”

- **Unstructured on-the-job training (n=5):** Workers in this category stated that they received training on-the-job (rather that at a specific time), but the training was informal and/or limited in content. Example responses included:
  - “All training is on-the-job and varies greatly depending on who is doing the training as there is no prescribed training course”
  - “Free-form discussions and education”

- **Structured and/or elaborate training, continuous (n=31):** These workers said they received training on an ongoing basis, and it was also rather structured, formal, and/or content-rich. For example:
  - “On-site training, regular meeting to reiterate training guidelines and online training available anytime”
  - “We are told what to do in case of a dangerous situation and are frequently re-trained as different situations arise”

- **Not applicable/No response (n=29):** These workers either did not respond to this question or said the question was not applicable
The table below includes a breakdown of how many workers fit into each of the categories described on the previous page. For reference, the table includes both the number of workers and the percentage of total workers that fit into each category.

<table>
<thead>
<tr>
<th>Extent of Training (N=214)</th>
<th># of Workers</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received no health &amp; safety training</td>
<td>49</td>
<td>23%</td>
</tr>
<tr>
<td>Sparse training, one-time (e.g., brief discussion at time of hire)</td>
<td>49</td>
<td>23%</td>
</tr>
<tr>
<td>Structured and/or elaborate training, one-time (e.g., multiple training sessions at time of hire)</td>
<td>51</td>
<td>24%</td>
</tr>
<tr>
<td>Unstructured on-the-job training (e.g., varies based on trainer)</td>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td>Structured and/or elaborate training, continuous (e.g., at time of hire and at regular staff meetings)</td>
<td>31</td>
<td>15%</td>
</tr>
<tr>
<td>Not applicable / No response</td>
<td>29</td>
<td>14%</td>
</tr>
</tbody>
</table>

These results show an alarming variability in both the quantity and the quality of training that workers have received. For example, 15% of all workers reported that they received structured, continuous training programs, whereas 23% of all workers had never received any health and safety training. This variability (i.e., in the quantity and quality of training programs) was consistent throughout the sample of workers, regardless of their reported business size. The following table demonstrates this across businesses of various sizes:

<table>
<thead>
<tr>
<th>Size of Workers’ Organization</th>
<th>Number of Workers in Each Training Category (N = 214)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Health &amp; Safety Training</td>
</tr>
<tr>
<td>1-10 Employees</td>
<td>10</td>
</tr>
<tr>
<td>11-20 Employees</td>
<td>15</td>
</tr>
<tr>
<td>21-30 Employees</td>
<td>9</td>
</tr>
<tr>
<td>31-40 Employees</td>
<td>2</td>
</tr>
<tr>
<td>41-50 Employees</td>
<td>1</td>
</tr>
<tr>
<td>51+ Employees</td>
<td>7</td>
</tr>
<tr>
<td>No Response</td>
<td>5</td>
</tr>
<tr>
<td>Total Responses</td>
<td>49</td>
</tr>
</tbody>
</table>
To provide more detail on how health and safety training varied in the Colorado cannabis industry, the table to the right describes the extent of training that workers said they had received at their particular jobs.

**Note**: The percentages in this table represent the percent of workers in **that job role** who received each respective type of training. For example, of the 46 workers in growing/cultivating/trimming jobs that participated in this study, 28% (13/46 workers) had never received health and safety training at their job.
**SYMPTOMS AFTER HANDLING PESTICIDES**

Pesticide use is common in the Colorado cannabis industry. To investigate negative health effects of pesticide use, we asked workers if they had ever experienced a number of symptoms after handling pesticides. Of the workers that responded (N=187), 66% reported that they had **never** had symptoms after handling pesticides. However, study results showed that many workers had experienced the following symptoms:

<table>
<thead>
<tr>
<th>Health Symptom (N=187)</th>
<th># of Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irritation</td>
<td>33</td>
</tr>
<tr>
<td>Headache/Dizziness</td>
<td>27</td>
</tr>
<tr>
<td>Eye Irritation</td>
<td>25</td>
</tr>
<tr>
<td>Difficulty Breathing</td>
<td>13</td>
</tr>
<tr>
<td>Chest Discomfort</td>
<td>11</td>
</tr>
<tr>
<td>Excessively Tired</td>
<td>8</td>
</tr>
<tr>
<td>Nausea/Vomiting</td>
<td>8</td>
</tr>
<tr>
<td>Blurred Vision</td>
<td>6</td>
</tr>
<tr>
<td>Excess Sweating</td>
<td>4</td>
</tr>
<tr>
<td>Muscle Twitches</td>
<td>2</td>
</tr>
<tr>
<td>Nose Bleed</td>
<td>1</td>
</tr>
<tr>
<td>Other Symptoms Not Listed</td>
<td>14</td>
</tr>
<tr>
<td>Never Had Any of These Symptoms</td>
<td>123</td>
</tr>
</tbody>
</table>

**HEALTH & SAFETY INTERESTS**

We also asked workers about their interest in learning about 17 different topics on occupational health and safety. In order of interest (with #1, Nutrition, being the aspects that workers are **most interested in**), results showed cannabis industry workers’ interest in learning about:

1. Nutrition
2. Stress Management
3. Fitness
4. Leadership and Management Training
5. Sleep
6. Chronic Pain
7. Work-Life (Family and relationship dynamics)
8. Ergonomics (The scientific study of how people interact with their work environment)
9. Understanding Health Insurance
10. Chronic Disease Prevention (Diabetes, heart disease, etc.)
11. Chronic Disease Management (Diabetes, heart disease, etc.)
12. Women’s Health
13. Violence Prevention
14. How to Identify Safety Hazards at Work
15. Allergy and Asthma
16. How to Use Personal Protective Equipment (PPE)
17. Safe Driving
WORKER WELL-BEING

WORKING HOURS

On average, workers in the cannabis industry:

- Worked 39 hrs/week during normal weeks
  - 27% of workers said they work more than 40 hrs/week during normal weeks
- Worked 45 hrs/week during busy weeks
  - 52% of workers said they work more than 40 hrs/week during busy weeks
- 11% of workers never had to work extra hours (i.e., never above 40 hrs/week)
- When individuals did have to work extra hours (above 40 hrs/week):
  - 20% said that it was required by their employer
  - 69% said that it was not required by their employer

SOURCES OF STRESS

Workers in the cannabis industry answered many questions about sources of stress at work. These results suggested that:

- Workers felt a moderate amount of stigma from society (in general) for working in the cannabis industry, but only low amounts of stigma from family or from friends
- Workers generally felt secure in their jobs
- Workers generally understood their role (and its requirements) at work
- To a moderate extent, workers did feel conflicting demands from their roles at work
- Workers felt a moderate amount of stress from their jobs

OUTCOMES OF STRESS

Work (both job tasks and the stress associated with those tasks) can lead to important outcomes for workers and businesses. These outcomes can be positive (i.e., beneficial) or negative (i.e., harmful). On average:

- Workers were highly satisfied with their jobs in the cannabis industry
- Workers were mostly satisfied with their lives in general
- Workers felt committed to their business
- Workers felt a slight desire to turnover/leave their jobs
- Workers felt slightly burned out from their jobs
**Workplace Supports**

*Workplace supports* (or just *supports*) are resources on the job and in the workplace that may help protect worker health and well-being. When supports are present, they help workers to cope with job demands. We asked cannabis industry workers questions about how they felt about several different workplace supports. Results showed that, on average:

- Workers strongly felt that their work in the cannabis industry is meaningful
- If they were to lose their job for some reason, cannabis industry workers typically felt like they were employable at other jobs (i.e., they could get a new job if they needed to)
- Workers felt like their organization supported them and cared for their well-being, beyond just caring about the work that they do
- Workers mostly felt like they have control or autonomy over their jobs (such as the tasks they do, and when they do them)

When workers have a lot on their plate and/or need to put extra effort into their jobs (for example, during busy days or weeks), the presence of certain workplace supports can sometimes *buffer* negative outcomes – in other words, having these supports helps workers to better accomplish what is expected of them, especially when demands are high. Our results show that:

- When workers felt a high sense of control or autonomy over their jobs, it could:
  - Reduce turnover intentions during busy work weeks (> 40 working hours)
  - Boost workers’ commitment to their organizations during busy work weeks
  - Boost job satisfaction when workers feel stigmatized by friends and also during busy work weeks (> 40 working hours)
- When cannabis industry workers felt strongly that their work is meaningful, it could boost job satisfaction:
  - At all times – during normal work weeks (40 working hours or less) and during busy work weeks (> 40 working hours)
  - When workers feel insecure about their jobs and fear they might lose their job soon
  - When workers feel unsure about how to perform their role at work
- When workers felt strongly that their organization supported and cared for their well-being, it could boost job satisfaction:
  - During busy weeks (> 40 working hours)
  - When workers feel stigmatized by friends
CANNABIS AND TOBACCO USE IN THE INDUSTRY

SUBSTANCE USE BEFORE THE SURVEY

In the 8 hours prior to the survey:

- 58% of workers had consumed cannabis
- 54% of workers had consumed caffeine
- 21% of workers had consumed tobacco
- 5% of workers had consumed alcohol

CANNABIS USE IN THE INDUSTRY

- Two-thirds of workers in the industry were medical cardholders, and the majority had been cardholders for less than two years (58%)
- At the time of the survey, 60% of workers said they had first tried cannabis more than 10 years ago
- 95% of workers used cannabis - of those that did so:
  - 21% used cannabis once daily
  - 28% used 2-4 times/day
  - 29% used more than 4 times/day
- 49% of workers used cannabis before work at least once a week, 29% used during work at least once a week, and 85% of workers used cannabis after work at least once a week

TOBACCO USE IN THE INDUSTRY

- 29% of industry workers currently used tobacco at the time of the survey
  - For comparison, the Centers for Disease Control and Prevention (CDC) reports that 17% of the US adult population smoked cigarettes in 2014 (defined as smoking every day or some days; CDC, 2016)
- Workers that used tobacco did so in varying amounts, ranging from 1 cigarette per day to 1.5 packs per day:
  - 1-5 cigarettes/day: 14 workers
  - 6-10 cigarettes/day: 17 workers
  - 11-15 cigarettes/day: 9 workers
  - 16-20 cigarettes/day: 2 workers
  - 1 pack/day: 7 workers
  - 1.5 packs/day: 1 worker
- 3 workers who used tobacco primarily used it in a different form (for example, chewing tobacco or smoking a pipe)
OVERVIEW

In this section, a number of recommendations are provided for the Colorado cannabis industry, such as recommendations on training content, training implementation, and other general well-being recommendations. These recommendations address both physical (e.g., workplace hazards) and psychosocial (e.g., social support) aspects of work, because both aspects of the work environment influence the health, safety, and well-being of workers in all jobs. Colorado cannabis industry businesses, leaders, and workers are encouraged to follow these recommendations to maximize gains for businesses and workers, such as through reductions in workplace injuries and accidents, lost time due to accidents, and health care costs.

TRAINING CONTENT

As described previously in this report, there is alarming variability in the quantity and quality of health and safety training in the cannabis industry. For example, nearly one-quarter of workers that we surveyed had never received any health and safety training at their job in the cannabis industry. Among the other three-quarters of workers, some received very short, low-quality training, and others had received much longer and higher-quality training. Given that the quantity and quality of training programs varied throughout the industry (i.e., across businesses of various sizes), we recommend that all businesses adopt these recommendations.

With all of these project results in mind, our research team recommends the following regarding employee training in the cannabis industry of Colorado:

- All Colorado cannabis industry businesses should develop, implement, and repeatedly evaluate formal health and safety training programs for all cannabis industry workers
  - Businesses should follow evidence-based best practices to maximize training effectiveness (see “Training Implementation” below)
  - Businesses are also encouraged to use the Guide to Worker Safety and Health in the Marijuana Industry (see “Other General Recommendations” on page 22 of this report for more info)

- Cannabis industry businesses should educate and train industry workers on hazards specific to work in the cannabis industry, such as:
  - Hazards involving with growing cannabis, such as:
    - Hazard identification in grow facilities (indoor and outdoor)
    - Pesticide Use:
      - Current regulations on pesticide use (i.e., what’s legal and what’s not?)
      - Proper pesticide handling procedures
      - Personal protective equipment (PPE) best practices
    - Ergonomic issues associated with cramped growhouse spaces, awkward postures, etc., such as bending over/hunching/squatting for long periods of time when tending or cloning plants, or doing other growhouse work
    - Listening to music at potentially hazardous levels (i.e., with headphones or stereo equipment)
    - Dermal and respiratory protection to avoid absorbing cannabis through the skin or lungs

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**Training Content (continued)**

- **Hazards involved with cultivating and trimming cannabis**, such as:
  - Using scissors/trimmers and/or staying in one place for long periods of time when trimming buds – encourage proper trimming techniques, posture, and breaks throughout shifts
  - Listening to music at potentially hazardous levels (i.e., with headphones or stereo equipment)
  - Ergonomic issues associated with bending over/hunching/squatting for long periods of time when trimming
  - Laboratory safety when extracting or manufacturing cannabis products
  - Respiratory protection, especially when trimming cannabis and spraying applicants during cultivation cycles
  - Businesses should also provide PPE (e.g., gloves) to protect against dermal absorption of cannabinoids and other materials through the skin (i.e., to avoid absorbing chemicals through the skin or hands)

- **Hazards involved with selling cannabis**, such as:
  - Emergency preparedness plans in case of robbery or other emergencies
  - Best practices in dealing with customers
  - How to handle difficult situations
  - Conflict management
  - Proper posture and use of breaks when standing or sitting for long periods of time

- **Management skills, especially those specific to working in the cannabis industry**
  - For example, extra emphasis may be placed on providing supports to employees, such as those listed in the following “General Recommendations” section

- **Cannabis industry businesses should also train employees on a variety of general health and safety topics, such as:**
  - Accident Investigation
  - Conflict Management
  - Effective Communication
  - Emergency Preparedness
  - General Workplace Safety
  - Health Promotion and Disease Prevention
  - Identifying Workplace Hazards
  - Injury and Illness Prevention
  - OSHA Recordkeeping
  - Slips, Trips, and Fall Prevention
  - Stress Management
  - Team Building
  - Tobacco Cessation
  - Workplace Bullying and Violence

In addition to the topics mentioned above, we have identified a number of relevant training programs and opportunities that address some of these areas or may be especially beneficial for workers in the cannabis industry. These training programs and opportunities are described in the following pages.
For example, Cannabis Trainers™ is a Colorado-based company that was founded by the current Chief Facilitator, Maureen McNamara. Cannabis Trainers™ provides customized training on the safe and responsible sale of cannabis in compliance with Colorado state legislation, such as ServSafe® Food Safety Certification and Sell-SMaRT™ Responsible Vendor Program training. Additionally, other relevant topics include training for workplace trainers (i.e., “train the trainer”), communication and leadership training, conflict management, customer service, and effective coaching. Cannabis Trainers’™ training program offerings may expand in the future to include other training programs as well. More information on these training offerings can be found at www.cannabistrainers.com.

For another example, Pinnacol Assurance is the largest worker’s compensation provider in the state of Colorado and reportedly provides insurance policies to many businesses in the cannabis industry. Pinnacol Assurance works with individual policyholders (i.e., individual businesses) to provide online interactive and/or video-based training programs via J. J. Keller & Associates, Inc.

Relevant to the cannabis industry, below are some of the video-based and/or interactive on-demand training program content areas available from Pinnacol to individual policy holders:

- **DRIVING:**
  - Accident and Emergency Procedures
  - Alcohol & Drug Testing
  - Backing and Parking Techniques
  - Cargo Securement
  - City Driving
  - Defensive Driving
  - Distracted Driving
  - Drivers, Drugs, and Drinking
  - Driving in Various Weather Conditions
  - Hazard Identification
  - Night Driving

- **HAZARDOUS MATERIALS (HAZMAT):**
  - Globally Harmonized System for the Classification and Labeling of Chemicals (GHS)
  - Hazard Communications (for when working with hazardous chemicals)
  - Hazmat: Awareness, labeling, loading/unloading, marking, packaging, reporting, etc.
  - Hazmat Emergency Response Training
  - Hazmat: Security Awareness and Safety

- **HR & LEGAL COMPLIANCE:**
  - Active-Shooter Preparedness
  - Americans with Disabilities Act (ADA) for Supervisors
  - Addressing Personal Issues
  - Business Etiquette

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1 Our project team would like to note that Cannabis Trainers™ is just one possible training program provider for cannabis industry businesses. Similar training content may be available elsewhere as well; we mention Cannabis Trainers™ simply because our partners in the cannabis industry have identified Cannabis Trainers™ as a helpful resource for many industry businesses.

2 Our project team would also like to note that Pinnacol Assurance is just one possible insurance provider for cannabis industry businesses. We mention Pinnacol and their offerings simply because they are the largest worker’s compensation provider in Colorado and currently insure many businesses in the Colorado cannabis industry.
TRAINING CONTENT (CONTINUED)

- **HR & LEGAL COMPLIANCE:**
  - Dealing with Difficult Situations
  - Effective Communication for Employees and Supervisors
  - Fair Labor Standards Act (FLSA)
  - Family and Medical Leave Act (FMLA) for Supervisors
  - HIPAA Privacy & Security
  - Injury and Illness Prevention
  - Maintaining a Cooperative Workforce
  - Managing Conflict
  - Preventing Discrimination and Harassment
  - Providing Performance Coaching
  - Record Management
  - Sexual Harassment Training (for supervisors and employees)
  - Substance Abuse (for supervisors and employees)
  - Team Building
  - Workplace Bullying and Violence
  - Workplace Stress

- **LAB SAFETY:**
  - Flammables and Explosives
  - Hazard Communication
  - Laboratory Ergonomics
  - Laboratory Safety
  - Laboratory Emergency Preparedness

- **WORKPLACE SAFETY:**
  - Accident Investigation
  - Back Safety
  - Confined Spaces
  - Ergonomics (in Industrial and/or Office settings)
  - Fall Prevention
  - Food Security Awareness
  - Forklift Training
  - General Workplace Safety
  - Hand, Wrist, and Finger Safety
  - Hazard Emergency Response Training
  - Identifying Workplace Hazards
  - OSHA Recordkeeping (for Employees and/or Supervisors and Managers)
  - PPE Training:
    - General PPE Essentials
    - Hand and Foot Protection
    - Head, Eye, and Face Protection
    - Hearing and Respiratory Protection
  - Respiratory Protection
  - Safety Audits
  - Slips, Trips, and Falls
TRAINING IMPLEMENTATION

When developing, implementing, and evaluating training programs in the cannabis industry, we also recommend that businesses follow evidence-based best practices to maximize training effectiveness. For example, we recommend that businesses offer health and safety training to workers soon after they are hired (e.g., during onboarding and general new-hire training), and to offer further training on a continuous, rolling basis to all workers. Businesses may also benefit from integrating health and safety into performance evaluations or performance management systems. Business leadership should also frequently communicate with all workers to encourage participation in health and safety training programs, and to encourage practicing newly acquired health and safety skills and protocol.

Additionally, training experts have suggested a number of best practices to use before, during, and after training programs. This is important because past research has shown that on average, less than half of training transfers to the actual job (Blume, Ford, Baldwin, & Huang, 2011), meaning that most of what is learned in training is not successfully applied on the job.

The recommendations in the following pages were adapted from a 2012 journal article titled “The Science of Training and Development in Organizations: What Matters in Practice” by Eduardo Salas, Scott Tannenbaum, Kurt Kraiger, & Kimberly Smith-Jentsch, published in Psychological Science in the Public Interest.

Recommendations for training program implementation in the cannabis industry (before, during, and after training):

**BEFORE TRAINING:**

- **Conduct a training needs analysis/assessment** to determine:
  - Is training needed?
  - Who needs to be trained?
  - On what do they need to be trained?
  - Training needs should be based on the knowledge, skills, and abilities needed to successfully and safely perform the job as well as based on workers’ current knowledge, skills, and abilities.
  - In what context should they be trained – and how does this compare to the current training systems in place?
  - This report serves as a basis for training recommendations, but each business is different and therefore we encourage business-specific training needs assessments in addition to using this report.

- **Prepare the learning climate for workers:**
  - Have workers attend training when it would be helpful for their job, such as soon after they are hired or as soon as they have enough familiarity with the job to make the most out of training
  - Schedule training at a time of day that accommodates workers and allows them to apply what they learn in training to their job
  - Determine whether attendance should be mandatory for employees
  - Notify everyone about training (scheduling, importance, content, attendance policy if applicable, etc.)
  - Communicate the importance of the training to supervisors and managers and encourage them to place a strong value on high quality training.
  - Encourage supervisors and managers to support workers during and after training and to communicate the importance of the training to workers.
**TRAINING IMPLEMENTATION (CONTINUED)**

### DURING TRAINING:

- **Enable the right mindset for people going through training**
  - Boost workers’ motivation to learn
  - Engage workers in the training and build their interest by demonstrating the usefulness and benefits of training
  - Provide encouragement and support to complete the training and apply what they learn to the job
  - Positively reinforce good training performance
  - Encourage workers to truly learn the tasks, rather than just to seem capable of doing the tasks (i.e., encourage them to learn, rather than to fake learning)

- **Follow appropriate instructions, strategy, and design**
  - Give examples and demonstrations of both good and bad behaviors
  - Allow workers to practice what they learn
  - Give meaningful, helpful, and practical feedback
  - Encourage workers to learn on their own, but maintain their attention and keep them on task
  - Allow workers to make mistakes in training and provide guidance on how to manage or fix mistakes (it’s better to mess up during training than on the job!)

- **If the training calls for it, use technology wisely**
  - For example, if using computer-based training programs, provide direction when allowing workers to make their own decisions about the learning experience, such as when determining the order of training activities or which technology to use
  - If training workers about technology (for example, computer software, forklifts and other warehouse equipment, etc.), enhance learning through simulations and practice (for example, practicing with computer software or hazard-free test-runs on forklifts)

### AFTER TRAINING:

- **Encourage workers to transfer what they learned in training to what they do on the job**
  - Remove any obstacles that may interfere with workers applying the knowledge or skills obtained in training so that workers have enough time and opportunity to use what they learned
  - Provide tools, guidance, and advice for supervisors and managers to reinforce training through on-the-job experiences
  - Encourage supervisors and managers to use debriefs (and other reinforcements) to reflect on training content and how it all relates to on-the-job experiences

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Training Implementation (continued)

After Training (continued):

- Evaluate the training programs
  - Clearly identify and specify the purpose of the training programs and evaluate the training relative to that purpose
  - This may need to be done at multiple levels, such as upper-level management, shift managers, and workers in dispensaries or grow facilities
  - This also may need to be done across multiple evaluation criteria, such as (from Kirkpatrick, 1996):
    - **Reactions:** What did workers think/feel about the training program? Did they enjoy it? Was it relevant or applicable to them?
    - **Learning:** What did workers learn during training? Has their knowledge increased?
    - **Behavior:** How have workers’ on-the-job behaviors changed after the training program? Are they applying to the job what they learned in training?
    - **Results:** What is the bottom line – did the training program accomplish its goals? How will this impact the workers? The organization?
  - Link the evaluation back to the original training needs:
    - Were they fulfilled? If not, why weren’t they fulfilled? What can be done, now and in the future, to ensure that workers receive the training they need?

Other General Recommendations

In addition to the above training recommendations, we have a number of other general recommendations for the cannabis industry:

- Cannabis industry businesses are encouraged to reference and utilize the *Guide to Worker Health and Safety in the Marijuana Industry* created by the Colorado Marijuana Occupational Health and Safety Work Group via the CDPHE. The *Guide* can be found at: https://www.colorado.gov/pacific/cdphe/marijuana-occupational-safety-and-health.

The Colorado Marijuana Occupational Health and Safety Work Group is composed of professionals from a variety of disciplines, such as epidemiology, industrial hygiene, occupational medicine, occupational health psychology, other health and safety fields, and cannabis industry regulations. Several authors of this report (Walters, Fisher, and Tenney) participate in the Colorado Marijuana Occupational Health and Safety Work Group.

The purpose of the *Guide to Worker Health and Safety in the Marijuana Industry* is “to provide an overview of the health and safety hazards that may be present in the cultivation, processing, and sale of marijuana.” As such, the guide serves as an excellent resource for Colorado cannabis industry businesses in various ways (including, but not limited to):

- Recognizing occupational hazards associated with cannabis industry work and understanding ways to reduce such hazards, including:
  - Biological hazards (e.g., mold and sensitizers/allergens)
  - Chemical hazards (e.g., indoor air quality, pesticides, etc.)
  - Physical hazards (e.g., ergonomics, confined spaces, lighting, etc.)

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OTHER GENERAL RECOMMENDATIONS (CONTINUED)

- Understanding best practices in regards to general health and safety in the Colorado cannabis industry
- Writing formal workplace health and safety programs, such as:
  - Hazard communication plans
  - PPE assessment and protocol
  - Respiratory protection
  - Lockout/tagout
  - Emergency preparedness
- Developing formal health and safety training programs

The Guide also provides direct links to Federal OSHA Standards that are applicable to the Colorado cannabis industry, as well as to all regulations of the Colorado Department of Revenue’s Marijuana Enforcement Division (MED)

- **Cannabis industry businesses are encouraged to adopt health promotion programs (or other relevant programs focused on promoting general worker well-being).**

Although Colorado cannabis industry workers reported being a generally supportive, satisfied workforce, there were a number of concerns related to general worker well-being. On average, workers reported their overall health as only “fair.” Many workers also reported suffering back pain and other symptoms that could be related to a selection bias from those that are more attracted to work in the industry. Additionally, roughly 1 out of 3 workers in the industry used tobacco at the time of the survey, and nearly all workers used cannabis, with most using cannabis at least once per day. Thus, businesses are encouraged to adopt general health promotion programs, including tobacco cessation programs and educational programs on the health effects of cannabis use.

- **Owners and managers should strive to provide supports to cannabis industry workers, such as:**
  - Provide employee benefits, such as health insurance, paid leave, disability, and retirement
  - Autonomy or job control, such as through task rotation, flexible scheduling, or establishing autonomous work groups
  - Formally emphasize and implement ways to express support to workers, such as through employee recognition programs (ERPs), including workers in business decision-making processes, and steady communication from management to workers, and vice versa
  - Frame workers’ tasks around the greater “purpose” of working in the cannabis industry, such as by emphasizing the hundreds or even thousands of civilians and/or patients who rely on cannabis products to self-medicate any number of debilitations
  - Provide and support manager, supervisor and worker training for health and safety.
  - See the “Workplace Supports” section on pg. 13 of this report for more information on the benefits of these supports

- **In addition, owners and managers should especially strive to provide the above supports during busy weeks or busy periods of time, such as:**
  - During harvest times
  - Holidays
  - Market-specific peak work and sales times
  - Any other busy periods of time

Our research suggests that during these busy periods, working long hours might result in some negative outcomes, such as lower job satisfaction, a greater desire to quit the job, and less of a sense of commitment to workers’ respective businesses and organizations.
OTHER GENERAL RECOMMENDATIONS (CONTINUED)

That said, the good news is that our research also suggests that cannabis industry businesses may be able to reduce these negative outcomes by providing supports to workers during these busy weeks or busy periods of time.

In other words, providing extra support to workers during busy times may keep them more satisfied, and less likely to leave or feel uncommitted to work.

- **Cannabis industry businesses are encouraged to consider local and diverse populations when recruiting and hiring employees. Additionally, businesses are encouraged to be active in the community and industry on topics related to diversity and sustainability.**

These survey results show that cannabis industry workers are a relatively homogenous (or similar) population of workers (i.e., primarily young, Caucasian, and male). We encourage cannabis industry businesses to strive for a diverse and local workforce. Additionally, we encourage cannabis industry businesses to be active and involved in their communities and the industry as a whole, especially with regard to workforce diversity and sustainability.

- **Cannabis industry businesses should implement formal policies and regulations about when workers can use cannabis at work.**

Our study results show that a high number of industry workers use cannabis, with a fair amount using before or during work hours. Implementing formal policies about cannabis use at work may reduce negative outcomes or stigma related to cannabis use and work. Additionally, implementing these formal policies could reduce the possibility of workers driving while under the influence of cannabis (e.g., during work time or on the way to/from work).

REFERENCES


