Mental Health and Sun/ Heat Exposure of Agricultural Workers in the Alexander Skutch Biological Corridor

By

Andre Gabriel Moura

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YORK UNIVERSITY, TORONTO, ONTARIO, CANADA

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Abstract

Objective: This major paper and the embedded study investigate and discuss whether or not agricultural workers in the Alexander Skutch Biological Corridor (ASBC) Costa Rica are being affected by sun/ heat exposure contributing to poor mental health/ psychological health outcomes. If so, to what extent are work environment conditions such as sun/ heat exposure contributing to poor mental health/ psychological health outcomes in workers? In addition, what other exposure variables in the ASBC may affect these mental health outcomes? How does this apply to an agricultural business sustainability context and climate change context?

Methods: Observational mixed methods survey, retrospective cross-sectional study.

Results & Conclusion: This investigation is the first known agricultural worker mental health study to be conducted within the Alexander Skutch Biological Corridor (ASBC). The use of the K6 psych test provided a good standardised method for investigating the potential occurrence of mental health distress among workers. Continuous direct sunlight exposure was not found to be directly associated with the occurrence of overall mental health distress and mental health/ psychological health outcomes. However, other variables such as sex, breaks taken at work, sleep, and work organization type, appear to be more strongly associated with the experience of mental health distress or mental health related feelings within the 3 ASBC communities of Santa Elena, Quizarra and Montecarlo, and thus warrants further investigation. More importantly, female workers appear to be at an increased risk of experiencing mental health related issues compared to men and should be the primary target population for any future policy or business sustainability intervention. These interventions might include: 1. Supporting the uptake of more staff to offset any labour shortages as well as provide more time off for workers to reduce

general fatigue and improve the total sleep hours and rest periods available for agricultural workers. 2. Supporting activities that promote self-worth among workers by allowing for more autonomy in decision making at work among work organization members. 3. Investing more resources into gender equity programing to improve female agricultural worker mental health outcomes. 4. Increasing technological uptake supports available (ex: government subsidies) for business to improve farm output efficiency, improve operational bottom line, reduce mental health distress occurrence potentially caused by over work.

Foreward

This major paper and research encompass components laid out in my plan of study (POS) with the ultimate goal of this paper being an example of how to use intersectionality and transdisciplinary thinking when tackling issues pertaining to business environment and health. These POS components include ecological and environmental systems, sustainable business practices, strategies, adaptability and economics, and human health outcomes and the impact on worker mental health.

In the first component, the research aided me in gaining a deeper skill-based understanding of the interconnectedness of ecological and environmental systems and how they impact other business and health systems. Conducting mixed method interviews through the study showed how important firsthand accounts are in shaping how we understand particular environmental problems. Understanding this relation and developing the associated practical skills are necessary when conducting environmental impact assessments, working to create sustainable community development projects, and in working to develop sustainable business practices for both private and public sector interests. In order to improve a system their needs to be a total understanding of how the system operates. In the context of the Alexander Skutch Biological Corridor (ASBC) understanding the individual lifestyles and concerns of participants shape how they see their own environment and in what ways interventions can be targeted to better improve key areas such as the economy, sustainability or human well-being.

In the second component, this research helped me to develop strong masterful research related skillsets related to sustainable and adaptive business practices regarding human capacity building for economic growth. The data collection methods used helped to create a larger picture

of what otherwise may be overlooked through more focused studies. By immersing yourself within a community you are able to take on an anthropological approach to data collection in addition to seeing challenges that may arise. I learned how to become more adaptable and more resilient when conducting research. For example, by understanding the work life of individuals you can adapt a better data collection schedule to improve your participant pool and restrict the potential annoyance caused by inconvenient questioning. In addition, the research conducted before hand was essential in fully understanding the community context and in how to shape questioning within Costa Rica. This encompassed the academic research but also the forming of person to person connection, and the understanding of local language and politics that ultimately aided my ability to conduct the research. This understanding provides a basis for recommendation development that apply to sustainability and adaptive business practices within the ASBC.

For the final component, this research aided me in gaining additional theoretical knowledge regarding health systems and mental health that complements my undergraduate degree in global health. Major focus is on how environments can positively or negatively effect human health and the mental health of workers in the global south. I've learnt that vulnerable populations are still under researched and thus require more attention including within the Alexander Skutch Biological Corridor (ASBC) context. In addition, the research helped me to gain strong masterful skills related to developing and applying health promotion strategies and recommendations within an environment and business context. Achievement of this objective came in the development of recommendations that can be used by the ASBC community members at the end of this major paper.

Acknowledgements

The following individuals, groups and institutions were instrumental in this final project's success.

Thank you to the communities and members of the Alexander Skutch Biological Corridor for their generous hospitality and help during the data collection phase of the project. Thank you to Julian Cruz for your great friendship and for your excellent translator and anthropological services during both pre, during and post data collection phases.

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Finally, a very special thank you to professors Martin Bunch, Felipe Montoya, Douglas Barraza and Berna Van Wendel for your shared support and advise throughout the entire project process; For without your continued guidance and support this project would not have materialized.

This major paper was also written in dedication to my grandparents and family. My family immigrated to Canada and left behind a traditional rural lifestyle for city life. This project was a way in which I could reconnect with my ancestral heritage and become closer to understanding some of the hardships and joys faced by my ancestors. Hopefully through this paper others can better understand agricultural work and use this information to improve the lives of the people around them.

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1.0 Introduction

As the understanding of disease and the body continues to improve so too does our understanding of the mind and its associated diseases. In recent decades there has been a growing shift in how society now understands mental health and psychological well-being. Based on information from the World Health Organization, "One in four people in the world will be affected by mental or neurological disorders at some point in their lives. Around 450 million people currently suffer from such conditions, placing mental disorders among the leading causes of ill-health and disability worldwide" (WHO, 2019).

It is estimated that "depression and anxiety disorders alone cost the global economy US$ 1 trillion each year in lost productivity … A negative working environment may lead to physical and mental health problems, harmful use of substances or alcohol, absenteeism and lost productivity. Workplaces that promote mental health and support people with mental disorders are more likely to reduce absenteeism, increase productivity and benefit from associated economic gains" (WHO, 2019*).*

In addition, mental health and psychological health interventions are largely ignored or under implemented in occupational environments within the developing world (Kortum, et., al 2010). Although there are various studies that delve into occupational variables that may contribute to the development of psychological/ mental health problems/ distress; less is known on what work organization styles play on either increasing or decreasing variable exposure in a workplace environment. Very few studies have done a deep dive into how particular environmental variables ultimately contribute to psychological/ mental health problems

especially in an age of increased climate change unpredictability where workplace environments are becoming more extreme. Based on current climate trends the average global temperature has increased to 0.82ºC hotter in 2018 when compared to 1950s climate data (NASA, 2019). This means that heat/ sun exposure for workers and its effect on psychological and mental health may become more impactful as these climate change trends continue.

This lack of deeper investigation into psychological/ mental health problems/ mental distress and work environments creates unknowns for policy makers and business owners as to how and where intervention strategies should be targeted. From a business and sustainability standpoint, more investigation must be conducted in order to better understand the different influencing variables contributing to occupation related mental health outcomes, and in how to better target poor mental health prevention projects more effectively in the developing world. In addition, research and future interventions must target vulnerable populations such as agricultural workers to create the greatest amount of good for the greatest amount of people. Therefore, it is important to consider how work environment variables such as sun/ heat exposure in the modern context of climate change can contribute to the development of poor mental health outcomes and in how it may impact business sustainability and agricultural worker health in the developing world.

More importantly, the issue of who is most vulnerable determines whether or not someone experiences more detrimental health outcomes in comparison to others. Not all workers experience the same environmental conditions or health outcomes. Therefore, in the context of climate change, identifying who is at most risk creates an opportunity to better target

interventions and improve the greatest amount of lives. “In 2012, of the world's 7.1 billion people, an estimated 1.3 billion (19 percent) were directly engaged in farming” (Alston, et., al. 2014). Almost 1/5 of the world is therefore exposed to some form of agricultural work-related environment. In addition, “2016 analyses found that 65% of poor working adults made a living through agriculture” (The World Bank, 2020). Agricultural workers are therefore a large part of the global work force who are already at higher risk due to poverty. Agricultural workers are an ideal target population where further investigation should be focused to improve or mitigate future outcomes as a result of changing climate related work environment conditions.

The purpose of this major paper and the embedded study is to investigate and discuss whether or not agricultural workers in the Alexander Skutch Biological Corridor (ASBC) Costa Rica are being affected by sun/ heat exposure contributing to poor mental health/ psychological health outcomes. If so, to what extent are work environment conditions such as sun/ heat exposure contributing to poor mental health/ psychological health outcomes in workers? In addition, what other exposure variables in the ASBC may affect these mental health outcomes? How does this apply to an agricultural business sustainability context and climate change context? For this investigation it is assumed that agricultural work is very much exposed to the sun and is therefore exposed to higher heat conditions by default.

This paper will guide the reader through various sections that will form the first known agricultural worker and mental health study of the ASBC.

The reader will begin with current literature where you will develop an understanding of what ideas and conclusions from other scholars were integral to developing the knowledge basis for the major paper's investigation. This literature provides the groundwork and support for investigating the questions being posed in this paper. The literature in tales the discussion of articles regarding occupational health and systems in the developing world, targeting agricultural populations in the developing world, focusing on psychological/ mental health outcome for sustainability, work environment conditions in a climate change context, and an overview of the Alexander Skutch Biological Corridor (ASBC).

Next, the reader will be introduced to the purpose, hypothesis and methodology sections used for the paper's investigation. The methodology section will dive into areas such as how the investigation was designed, implemented and analyzed. The sections will also include figures that will help the reader in understanding the overall methodological design of this investigation.

Afterwards, you will be able to read through the results and discussion sections of the investigation. In this section you will see key findings regarding the associations and risks of particular exposure outcome variables, how they were interpreted and what potential limitation exist in the study. This section also includes tables that depict study results.

Finally, as a way of connecting the literature with the results of the investigation you will read through sections pertaining to the study implications, and the recommendations that were developed that can be put towards community health and business sustainability. Furthermore, a conclusion section will follow to summarize many of the key components discussed in this paper

as well as show what questions were answered, and what questions remain for future investigations.

2.0 Current Literature

2.1.1 Occupational Health and Systems in the Developing World

To understand how a modern world system operates, it is important not to take a reductionist approach for analyzing a particular system (Robertson, & Lechner, 1985). This is especially true when looking at improving occupational health in the developing world through systems change. Occupational health is in itself influenced by a varying degree of factors such as "competing social, economic, and political challenges" (Nuwayhid, 2004). Nuwayhid, 2004 argues that improving occupational health requires researchers to take on a broader social justice approach by incorporating more societal stakeholders and by collaborating with researchers of various disciplines. With this in mind, systems change that supports increased union powers and reforms international trade in a way that is more in line with the UN sustainable development goals (SDGs) can help to facilitate better outcomes from an occupational health perspective (Loewenson, 2001). There therefore needs to be a shift in how occupational health is addressed. Global markets must embrace fair playing fields that support workers and avoid the old way of profit driven decision making. Harmonized markets can create a more worker focused lens that will only help to improve health outcomes in the developing world and protect workers producing consumer goods (Lucchini, & London, 2014). Embracing these changes in global systems will lead to the improvement of occupational health outcomes.

Although a full systems change may be a more appealing solution to addressing occupational health challenges in the developing world, the work and cooperation needed by various levels of local and international stakeholders may ultimately be the restricting factor to

making these grand transitions. Instead the more rational solution may be to understand how current systems with minute changes may be better adapted to target occupational health problems such as through the mechanisms addressed above.

2.1.2 Targeting Agricultural Populations in the Developing World

When investigating occupational health in the developing world one of the major investigation problems that seem to arise is via the use of pesticides contributing to poor health outcomes. At first glance there seems to be almost an overabundance of articles that investigate pesticide exposure. Examples of this include articles by authors such as: Jeyaratnam, (1990), Rainbird, & O'Neill, (1995), Wesseling, et., al (1999), Wesseling, Castillo, & Elinder, (1993), Litchfield, (2005), Barraza, Jansen, de Joode, & Wesseling, (2011). These articles investigate agricultural workers which are a primary workforce in many developing countries. This is an important distinction to mention because when developing countries, policy makers, or business executives choose to intervene in occupational health issues; targeting the agricultural industry may create the greatest amount of good for the greatest amount of people. This target focus is supported by the article titled, "*Occupational Health in Central America. International Journal of Occupational and Environmental Health".* The authors gathered reporting information on occupational health in central America. They found that occupational disease is misdiagnosed, and underreported. The number of incidents in Costa Rica alone are expected to be underestimated. The authors suggest the Pan American health organization program will help strengthen local ministries of health to assist in reporting and intervention. There needs to be more focus on informal work and more focus on agriculture and under/ unemployment to better

influence policies that support the Pan American health organization programs (Wesseling et., al, 2002). Therefore, agricultural workers in the developing world continue to be a large at-risk population in need of more diverse occupational health study and intervention.

Ultimately, if a particular occupational intervention were to take place within the developing world, targeting agricultural populations are the most ideal way of creating the greatest impact for the greatest amount of people. This means that increasing our knowledge of agricultural workers in the developing world through increased research is necessary to help create more affective intervention strategies for this population.

2.1.3 Focusing on Psychological/ Mental Health Outcome for Sustainability

Although there is a lot of information on occupational health problems in the developing world more focus needs to be put on psychological/ mental health outcomes associated with the work environment/ occupational health. This is an area that needs more in-depth research and intervention. Knowing this can play a major role in encouraging business and government to uptake interventions as well as improve overall sustainability. In the article, "Ta*ckling psychosocial risks and work-related stress in developing countries: The need for a multilevel intervention framework*", the authors gathered 121 experts that were subject to interviews and focus groups in order to build consensus. The findings showed that the psychosocial risks need to be a priority for occupational health in developing countries to reduce the negative economic, health or business impacts that poor psychosocial work environments can produce (Kortum, et., al, 2014). "There is lack of research, infrastructure, information, and motivation by policymakers

to act and a pressing need for capacity building, stakeholder mobilization, and international exchange and collaboration" (Kortum, et., al, 2014). This lack of research makes it harder for policy makers or business to want to intervene and address psychological health related occupational health and safety. These research gaps in knowledge fail to provide the adequate understanding needed to remove intervention barriers that hinder progress when addressing work and psychological/ mental health outcomes. In an article titled, "*Psychosocial risks and work-related stress in developing countries: health impact, priorities, barriers and solutions*", 127 experts were interviewed, and 4 focus groups were conducted totaling 37 participants. The authors found that concern for the need to tackle psychological risks and work-related stress health impacts were strongly expressed. Also, the level of knowledge on mental health and risks seem to be the same between developing and industrialized nation experts. The only differences appeared to be in how developing versus industrialized countries choose to priorities mental health interventions. Developing countries were less likely to develop interventions for these concerns. Socioeconomics was stated as a potential factor. The authors identified potential barriers such as the fears of unionization, lack of resources enforcement or political will, and the failure to reach the greater work force through intervention. However, the major solutions proposed were in better stakeholder engagement, the refining of interventional approaches, and the need for better statistics (Kortum, et., al, 2010). This suggests that further research and community engagement will lead to better intervention development for both types of nations but more so for developing ones. The challenge of convincing policy makers and business to intervene in these areas of interest must be discussed as an issue of sustainability. Stephan Bevan in a report titled "*The Business Case for Employees Health and Wellbeing*", outlines exactly why occupational health interventions are important for a business. The author argues that by

intervening in occupational health related issues a company can reduce employee absence from work, reduce accidents at work, improve retention, create higher labor productivity, enhance employer brand, and create greater employee resilience. This ultimately can create major cost savings for a company (Bevan, 2010). Cost savings can then help a company achieve long-term business sustainability and become more resilient to future risks.

There are therefore clear challenges in how nation and business address these issues but also why they ultimately should. As seen, there is a need for more research regarding psychological/ mental health in the developing world with relation to occupational work environments. One of the greatest challenges seem to come from a nations ability to target interventions and create the most affect due to a lack of resources, political will, statistics and other addressed barriers. Unfortunately, this is a common theme in developing nations which leads them to be more vulnerable and less likely to intervene in addressing these areas of concern. However, by intervening nations and business can become more sustainable long term. Therefore, this warrants the increased need for research to help provide better capacity for interventions to succeed in targeted work populations of developing nations as well as to provide more evidence for why occupational health intervention in the mental health of workers is more sustainable for business.

2.1.4 Work Environment Conditions in a Climate Change Context

When investigating occupational health related issues, a major focus is on how environmental variables factor into the incidence or protection of certain health related

outcomes. By understanding the environmental conditions, you can target intervention strategies for better worker health outcomes especially in relation to the psychological/ mental health of workers. Not knowing information between work environment and psychological/ mental health of workers is an issue that can hinder the development of sustainable and effective intervention strategies. This is important to consider when facing a world of increased climate variability that has made global temperatures and work environments more extreme. This extreme change makes vulnerable populations especially in low income countries more at risk of being negatively affected especially through indirect mechanisms such as heat stress affecting their mental health (Berry, et., al, 2010). This is why understanding these indirect links with how environment can affect issues such as mental health is important to better understand. In an article titled, "*Effects of Heat Stress on Working Populations when Facing Climate Change*", a literature review of 85 sources was conducted. The purpose was to further understand the implications of heat stress on workers in a modern climate change context. The findings suggested that there was a lack of information with regards to the how heat stress may exacerbate within the future/ present context of climate change. What was know is that physical work and developing country context play a major role in heat stress exacerbation. Moreover, developing countries located within the tropical regions will be more affected into the future due to the historically warmer climates. The authors suggested that increased temperatures will ultimately decrease work productivity and shrink world economic activity which therefore creates the urgency for more sustainable solutions that look into economic, environmental and social aspects of the problem. The authors recommend that more research be done into how work environment influences heat stress, how heat stress affects vulnerable populations such as woman and elderly, as well as the overall social and health effects that the work environments pose on the individual

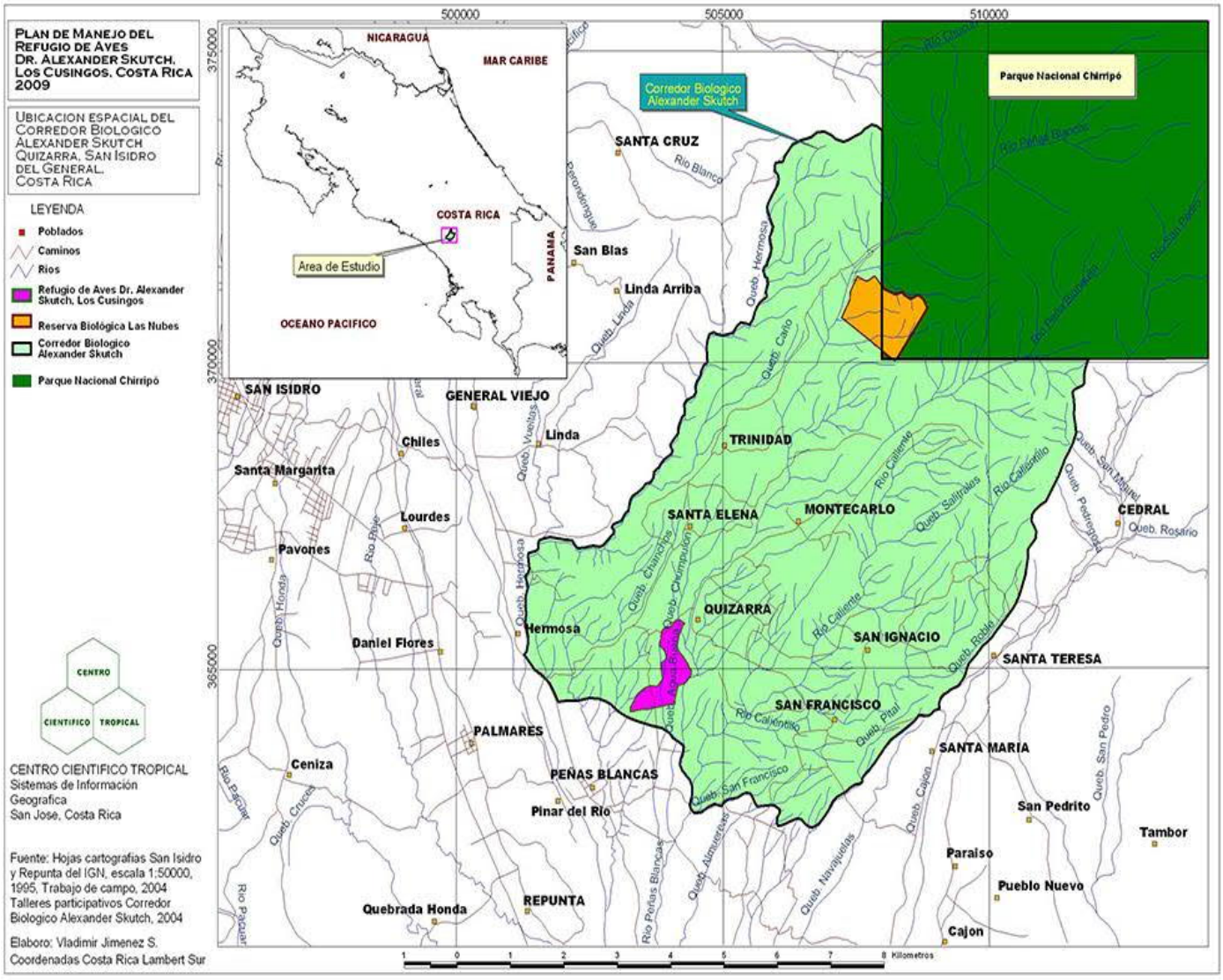
or country level (Lundgren, et., al, 2012). If sustainable intervention strategies are to be developed, focusing on vulnerable populations most at risk of experiencing climate change related work environmental risks such as people living in the tropics should be a global priority. It is important to note that some evidence has been found regarding how work environmental conditions in these tropical regions may affect worker health within a climate change context. In an article titled, "*The association between overall health, psychological distress, and occupational heat stress among a large national cohort of 40,913 Thai workers*", the authors conducted a national cohort study of over 40,000 people in Thailand. They were able to determine that males were more likely than females to be exposed to heat stress and that overall heat stress exposure was about 18% of the study population. The authors conclude by saying their needs to be more public health attention dedicated to this issue as climate change becomes more severe. The authors note that heat stress can lead to a variety of other health issues from kidney disease to mental health issues to lung and heart diseases. Ultimately, the authors suggest that there needs to be more research into understanding the relationship heat stress has with mental health (Tawatsupa, et., al, 2010). This reemphasizes how little is currently known regarding work environments and psychological/ mental health of workers but, how increased investigation into these climate change related environmental factors are crucial for improving overall worker health.

The dangers of climate change and its effect on work environment are therefore extremely important to consider when investigating occupational health interventions. These considerations are crucial in order to better understand and investigate how these environmental work conditions ultimately affect worker psychological/ mental health. Further understanding

these links will help to prepare vulnerable populations and improve sustainable intervention strategies.

2.1.5 Overview of The Alexander Skutch Biological Corridor (ASBC)

Figure 1.



Map of the Alexander Skutch Biological Corridor

Note. This map shows the currently defined boundaries of the Alexander Skutch Biological Corridor. Current map does not include the communities of Santa Maria and Santa Marta in the defined boundary illustration.

Source: (Retrieved from: CoBas., 2015).

The Alexander Skutch Biological Corridor (ASBC) is a region located in the La Amistad Biosphere (CoBas, 2015). It is attached to the Chiripo National Park with the closest major city being San Isidro in Perez Zeledon, and includes the Penas Blancas water shed. The goal of the corridor project is to connect the patches of forest between the Las Nubes Forest Reserve neighbouring Chiripo National Park to the Los Cusingos bird sanctuary. The corridor was established in 2005 and is in current partnership with the Tropical Science Centre, and York University (Rapson, et., al. 2012) The ASBC encompasses the communities of Santa Elena, Quizarra, Monte Carlo, San Francisco, San Ignacio, Santa Marta and Santa Maria. "The goal of the larger project is to improve ecological health and human well-being" (Bunch, et., al, 2015). These communities of the ASBC are very much rooted in rural agricultural lifestyles and have been trying to become more sustainable in their approaches since the inception of the biological corridor. Historically, major agricultural products produced in these communities include coffee, sugar cane and pasture-based farming (Daugherty, 2005). Most of which can still be seen today (see Figures 2, 3 and 4).

Figure 2.

Sugar Cane Field in the ASBC Community of Santa Elena, Costa Rica
Note. Image was taken during the time of February-March of 2018.

Figure 3.

Mixed Coffee and Banana Plantation in the ASBC Community of Montecarlo, Costa Rica
Note. Image was taken during the time of February-March of 2018.

Figure 4.

Cattle Stall in the ASBC Community of Quizarra, Costa Rica
Note. Image was taken during the time of February-March of 2018.

The city of San Isidro located a short distance from the ASBC recorded record breaking daytime temperatures from January to March of 2020. The temperature in this region reached as low as 26°C and as high as 33°C. Historical averages for these months were normally between

26-28°C. This shows how climate change may be beginning to create dangerous temperature conditions for this region (AccuWeather, 2020). Therefore, it is important to understand how agricultural workers of this region may be impacted in the future by their workplace environmental conditions. The rurality and observed tropical climate conditions in the nearby city make the people of the ASBC ideal participants for the proposed investigation. In addition, there is no known studies available regarding the mental health of agricultural workers in the ASBC. Therefore, more data is needed on this subject to better understand the ASBC and to better support the local community's needs for the advancement of the corridor's goals in conjunction with the partner institutions.

3.0 Purpose

Recall, the purpose of this major paper and the embedded study is to investigate and discuss whether or not agricultural workers in the Alexander Skutch Biological Corridor (ASBC) Costa Rica are being affected by sun/ heat exposure contributing to poor mental health/ psychological health outcomes. If so, to what extent are work environment conditions such as sun/ heat exposure contributing to poor mental health/ psychological health outcomes in workers? In addition, what other exposure variables in the ASBC may affect these mental health outcomes? How does this apply to an agricultural business sustainability context and climate change context? For this investigation it is assumed that agricultural work is very much exposed to the sun and is therefore exposed to higher heat conditions by default.

3.1 Hypothesis

The assumed null hypothesis (H_0) for this analysis will be that there is no association between the investigated exposure and outcome response variables.

The assumed alternative hypothesis (H_a) for this analysis with be that there is a positive association between the investigated exposure and outcome response variables.

3.2 Methods

3.2.1 Determining Sample Size

Beginning in February and ending in March of the year 2018, researches collected per household occupational health data throughout the ASBC. This study will be referred to in this paper as: (OHASBC 2018). No data from this study has yet been formally published however the data collected was used to inform the creation of the 2020 "Mental Health and Sun/ Heat Exposure of Agricultural Workers in the Alexander Skutch Biological Corridor" study which is the focus of this major paper. This study will be referred to as: (MHASBC 2020). The previous occupational health study (OHASBC 2018) was used to inform the sample size that will be further discussed in the methodology section of this major paper.

An observational census style survey design was used in the (OHASBC 2018) study. Interviewers traveled door to door and asked questions pertaining to demographics in each of the 7 communities of the ASBC. 219 households were interviewed. The questions included, what community do you live in? and how many people live in your home? In addition, using a tally system, interviewers drove throughout the corridor and counted the total number of perceived occupied and unoccupied homes. It was estimated that 880 homes were occupied. Based on the 213 households that responded to the question how many people live in your home? and the question which community do you live in? It was determined that the average number of individuals living within the corridor is approximately 3.5774647 people per home. The average number of people per home was than multiplied by the number of counted occupied homes (880) which gave the estimated total population of the ASBC. The estimated population of the ASBC

was therefore approximately 3148.1689 people. Of the 213 responded households 69 (32.39%) were from Santa Elena, 40 (18.77%) were from Quizarra, 20 (9.39%) were from Montecarlo, 22 (10.32%) were from San Francisco, 12 (5.63%) were from San Ignacio, 16 (7.51%) were from Santa Marta, and 34 (15.96%) were from Santa Maria.

For the (MHASBC 2020) study the communities of Santa Elena, Quizarra and Montecarlo were selected as primary population targets for this investigation due to their close proximity to each other, and because combined these three communities account for an estimated 60.55% of the ASBC's estimated population/ approximately 1906 people previously determined by the (OHASBC 2018) study. This means that for the purpose of the (MHASBC 2020) investigation a minimum of 92 participants were needed to have a representative sample size and confidence interval of 95% with a 10% margin of error (+ or – 10%). Individuals must have been 18 or older and work in agriculture to participate in this study. The 3 communities and people within the ASBC met the standards for this investigation because of their rural status and their potential vulnerability to climate change a focus of the (MHASBC 2020) investigation. The results of this study will be outlined later in the results section of this paper.

3.2.2 Questionnaire Design

In June of 2019, a reconnaissance team entered the Alexander Skutch Biological Corridor (ASBC) in Costa Rica to report back data from the previous (OHASBC 2018) study. From there data was presented to some community leaders in the form of a brochure infographic. Any lingering questions or commentary by community members was then gathered to help inform the

(MHASBC 2020) survey design. An observational mixed methods questionnaire was developed. The questionnaire is a shorter version of the (OHASBC 2018) questionnaire and retains a similar style to the format used by (Benavides, et., al, 2016). The newly developed self-reported questionnaire includes more mixed method options as well adaptions to support the Kessler Psychological Distress Scale (K6) (Kessler, et., al, 2010).

The new (MHASBC 2020) questionnaire follows the same census style used in (OHASBC 2018) study. This mixed methods questionnaire included 82 questions such as: "how old are you? how often are you exposed to continuous direct sunlight while at work?, how many breaks on average do you take per day," etc.… This mixed methods design was used to collect data pertaining to demographics, socioeconomics, work environment conditions, and the health of participants.

The K6 test was selected based on its rigorous use by various institutions including but not limited to the U.S. National Health Interview Survey (NHIS), the Canadian and Australian equivalents and the World Health Organization World Mental Health (WMH) Initiative surveys. The (K6) questions included 16 questions with the primary focus of determining whether or not someone may be experiencing mental distress (Kessler, et., al, 2003). (See Figure 1. in Appendix B. for K6 questions in English). The census style mixed methods questionnaire was administered first while the K6 test questions were embedded as the second last section of the questionnaire (see Figure 1. in Appendix B. for Mental Health and Sun/ Heat Exposure of Agricultural Workers in the Alexander Skutch Biological Corridor (MHASBC 2020) Questionnaire in English). The survey was translated into Spanish by a local translator and anthropology student

from the Universidad Costa Rica. Ultimately, this questionnaire was designed for the goal of answering the questions proposed in the purpose section of this major paper.

3.2.3 Data Collection Methodology

After receiving ethical approval from York University, the newly designed (MHASBC 2020) questionnaire was administered to agricultural workers 18 years or older in the Alexander Skutch Biological Corridor (ASBC) starting February 20th, 2020 and ending March 14th, 2020. The questionnaire was administered orally to create a more comfortable and conversational atmosphere for participants as well as to ensure better question understanding that may not occur from independent reading and responding. A local translator was used for data collection and oral questionnaire administration. Researchers went door to door within the communities during the hours of 10am- 12pm and 2pm-7pm. These times were selected based on agricultural worker availability and to prevent inconveniencing community members at busy times (Note: the months of February- March is the busy sugar cane harvesting season and therefore required a lot of flexibility on the part of researchers for finding the best times for administering the survey). These times were also selected to for researcher safety purposes. If a participant was unable to participate on first interaction but wanted to participate at a later time, appointments were set up to administer the questionnaire.

No foreseeable risks to participants were expected. In order to mitigate any potential risks confidentiality was re-emphasized throughout the survey process and training was provided to the translator to ensure participant anonymity. In addition, the right to stop participation at any

time was also re-emphasized to ensure participants knew their rights in the highly unlikely event they might feel uncomfortable with a question during the survey process. The potential benefits to participation may include having an increased knowledge of social and environmental health in the corridor and may include being more empowered in management decisions about work safety and development in and around the corridor. Participants that responded to experiencing poor mental health were also privately given the number of a local mental health help line by the researchers. Oral administration was also selected because the community members may be more warry of outsiders seeking to steal land title via unethical signature tactic concerns previously expressed by community members and stakeholders. These steps were taken to ensure proper informed consent practices were followed.

3.2.4 Analysis Methodology

After having collected the data; the data was analyzed using JMP 8 statistical software. Data was compiled into mosaic plots and contingency tables where then a 2-tailed fisher test was used to determine if there were any significant differences present between populations. *p-values* (*p)* greater than (>) .05 are not statistically significant and thus the H_0 can be accepted, *p- values* less than (<) .05 is statistically significant and thus the H_0 can be rejected. The odds ratio (OR) was found in order to determine the probability of association between the selected exposure and outcome variables. OR > 1 indicates a higher probability of the exposure variable affecting the outcome variable, OR < 1 indicates a lesser probability of the exposure variable affecting the outcome variable. For the OR to be statistically significant the 95% confidence interval cannot include 1. The relative risk (RR) was also found to determine the risk of particular exposure(s)

affecting the outcome(s). For the RR to be statistically significant the 95% confidence interval cannot include 1 (Andrade, 2015). An RR greater than 1 indicates a positive association/ increased risk of exposure affecting an outcome in favor of the H_a. An RR less than 1 suggests an exposure as a potential protective factor against an outcome (Patterson, 2001).

The data responses must meet the minimum predetermined 95% confidence interval (CI) sample size population requirement of 92 respondents to be included in the analysis as previously outlined in section 3.2.1. The questions that did not meet this participant response threshold were ignored.

The question response variables that were analyzed and meet the participant threshold were:

- How often do you work in direct sunlight? (SOL (3)),
- How many breaks do you take per day (including lunch if applicable)? (BREAKS_D (02)),
- On average, for how long per day do you work in continuous direct sunlight? (SOL_T (02)),
- What parts of your body is not covered in clothes while working? (CORP (2)),
- What is your sex? (SEX),
- On average, for the past 30 days, how many hours of continuous sleep do you get per night? (SLEEP (01)),
- How do you consider your mental health status? (MENTAL_S (04)),
- Do you belong to a Work organization type group (ex: Association, Union, Cooperative) or are you Private/ Independent? (AD_1 (02)),

- In general, how do you feel? (This refers to an emotional state) (EMOT (1)),
- What is your age in years? (AGE (02)),
- During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2)),
- During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2)),
- During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2)),
- During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2)),
- During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2)),
- During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2)),
- What is your K6 Test Score Total? (K6_TOTAL (1)),

Note. Abbreviations to the questions are included within the brackets ( ).

The responses to these questions were then grouped into two groupings (see Table 1.).

Table 1.
Question Variable Response Groupings

Question Variables	Response Grouping A	Response Grouping B
How often do you work in direct sunlight? (SOL (3))	Never or Almost Never	Sometimes, Often or Very Often
How many breaks do you take per day (including lunch if applicable)? (BREAKS_D (02))	0 breaks	At least 1 break
On average, for how long per day do you work in continuous direct sunlight? (SOL_T (02))	1-6 hours	Greater than 6 hours
What parts of your body is not covered in clothes while working? (CORP (2))	0-9% exposed	> 9% exposed

What is your sex? (SEX),	Man (Male)	Woman (Female)
On average, for the past 30 days, how many hours of continuous sleep do you get per night? (SLEEP (01))	0-6 hours	6 + hours
How do you consider your mental health status? (MENTAL_S (04))	OK	Good or Very Good
Do you belong to a Work organization type group (ex: Association, Union, Cooperative) or are you Private/ Independent? (AD_1 (02))	Private	Group (Association, Union or Cooperative)
In general, how do you feel? (This refers to an emotional state) (EMOT (1))	OK	Good or Very Good
What is your age in years? (AGE (02))	18-64 years old	65 + years old
During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	Never or Almost Never	Sometimes, Almost Always or Always
What is your K6 Test Score Total? (K6_TOTAL (1))	15 or lower	Greater than 15

For outcome variables EMOT (1) and MENTAL_S (04), grouping response "OK" means not good but also not bad. For the purpose of the analysis "OK" is a lesser response compared to the grouped response of "Good or Very Good". "Good or Very Good" is considered the more favorable response. All outcome variables were selected based on their perceived dependency on exposure variable(s) and all exposure variables were selected based on their perceived plausibility of influence on the outcome variables (see Table 2.).

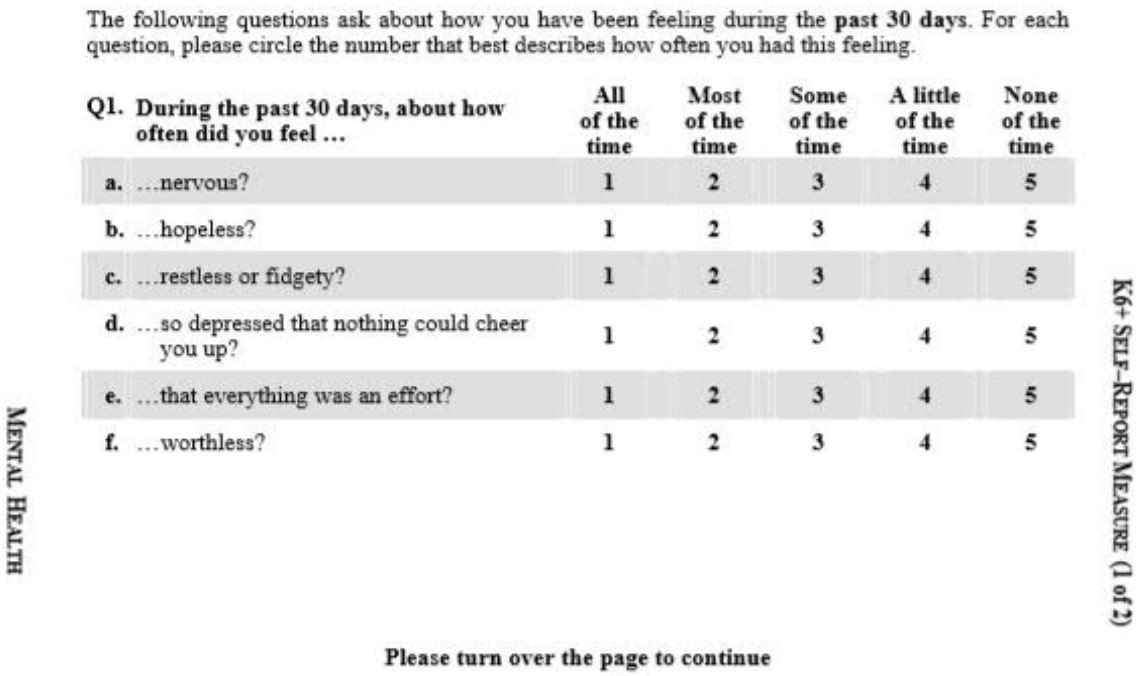
Table 2.
Determined Exposure and Outcome Variables

Determined Exposure Variables	Determined Outcome Variables
- Sunlight (SOL (3)) - Break(s) at work (BREAKS_D (02)) - Sex (SEX) - Sleep (hours) (SLEEP (01)) - Work Organization Type (AD_1 (02)) - Age (Years) (AGE (02)) - Exposed Skin Percentage (CORP (02))	- Length of work in direct sunlight (hours) (SOL_T (02)) - Sunlight Exposure (SOL (3)) - Feelings of Nervousness (K6_Q1_A (2)) - Feelings of Hopelessness (K6_Q1_B (2)) - Feeling Restless or Fidgety (K6_Q1_C (2)) - Feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) - Feeling like everything was an effort (K6_Q1_E (2)) - Feeling worthless (K6_Q1_F (2)) - Mental Distress Score (K6_TOTAL (1)) - Self-perceived emotional status (EMOT (1)) - Self-perceived mental health status (MENTAL_S (04)) - Number of break(s) taken at work (BREAKS_D (02))

Note. The ( ) abbreviations for the determined exposure outcome variables correspond with the questions asked; Some exposures are also considered outcomes because of their assumed potential influential relationship with the other exposure and outcome variables.

The K6 scores will be averaged to determine the potential occurrence of mental health distress within the ASBC. K6 scores will be broken down based on the responses to questions (K6_Q1_A (2)), (K6_Q1_B (2)), (K6_Q1_C (2)), (K6_Q1_D (2)), (K6_Q1_E (2)), and (K6_Q1_F (2)). Response score breakdown will be as such:1= all of the time, 2= most of the time, 3= some of the time, 4= a little of the time 5= none of the time. Scores were summed to provide the total mental health distress score (K6_TOTAL (1)) per participant. Score range total can go from a minimum of 6 to a maximum of 30. The scores were grouped into total score "15 or lower" or total score "greater than 15". Scores closest to 30 (greater than 15) indicate a low or no case of self-reported mental distress in a participant. Scores closest to 6 (15 or lower) indicate a potential or higher case of self-reported mental distress in a participant (see Figure 5. below for the breakdown of K6 questions and response scores in English for questions: (K6_Q1_A (2)), (K6_Q1_B (2)), (K6_Q1_C (2)), (K6_Q1_D (2)), (K6_Q1_E (2)), and (K6_Q1_F (2)).

Figure 5.



MENTAL HEALTH

The following questions ask about how you have been feeling during the **past 30 days**. For each question, please circle the number that best describes how often you had this feeling.

Q1. During the past 30 days, about how often did you feel …	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. …nervous?	1	2	3	4	5
b. …hopeless?	1	2	3	4	5
c. …restless or fidgety?	1	2	3	4	5
d. …so depressed that nothing could cheer you up?	1	2	3	4	5
e. …that everything was an effort?	1	2	3	4	5
f. …worthless?	1	2	3	4	5

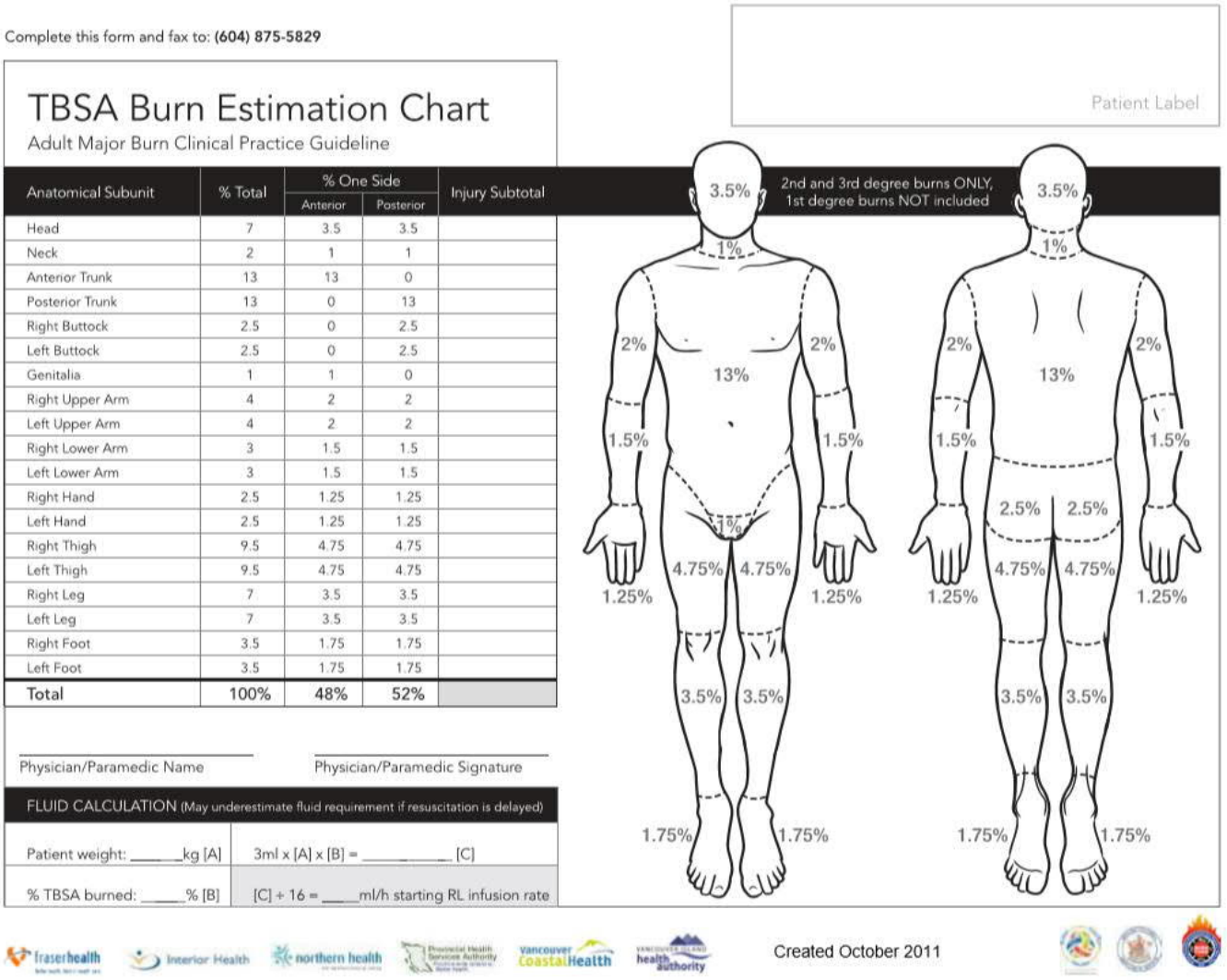
Please turn over the page to continue

K6+ SELF-REPORT MEASURE (1 of 2)

Breakdown of K6 Questions and Response Scores in English for Questions: (K6_Q1_A (2)), (K6_Q1_B (2)), (K6_Q1_C (2)), (K6_Q1_D (2)), (K6_Q1_E (2)), and (K6_Q1_F (2)). Source: (Retrieved from: https://www.hcp.med.harvard.edu/ncs/k6_scales.php)

Responses to the question *"what parts of your body are not covered with clothes while at work?"* (CORP (2)) was also estimated using a TBSA burn estimation chart to determine the estimated percentage of skin surface area exposed to the sun while at work (See Figure 6. below for TBSA burn estimation chart). For this study these estimation percentages represent what would be skin surface area exposure to sun. Participant responses were then grouped into two categories: 0-9% exposed", or "> 9% exposed". 0-9% exposed indicates a lesser percentage of body not covered while at work, > 9% exposed indicates a larger percentage of body not covered while at work.

Figure 6.



TBSA Burn Estimation Chart

Note. This figure shows the estimated body part surface area burn percentage of an adult human. Source: (Retrieved from: TBSA Burn Estimate Chart, 2011)

3.2.5 Future Reporting Methodology

The future plan would be to provide a community town hall style forum to outline the findings of this investigation and to receive community feedback with regards to improving future studies. In addition, community workshops would be used to gather any creative input from the community on ways to address these findings on a more locally organized level.

4.0 Results and Discussions

4.1 Results

Recall; The assumed null hypothesis (H_0) for this analysis will be that there is no association between the investigated exposure and outcome response variables. The assumed alternative hypothesis (H_a) for this analysis with be that there is a positive association between the investigated exposure and outcome response variables. A total of 101 participants were interviewed. After analysing the questionnaire response data some key findings emerged.

4.1.1 Exposure to Sunlight

Participants were asked the question "How often do you work in direct sunlight?" (SOL (3)). Responses were grouped into two categories: "Never or Almost Never", or "Sometimes, Often or Very Often". This exposure variable of "Sunlight" was then analyzed against the following outcome variables (see Table 3.). For the full corresponding results Analysis Figures, Contingency Analysis Mosaic Plot Figures and Contingency Analysis Tables please see Figures 1-7, Figures 58-64, and Tables 1-7 in Appendix A.

Table 3.
Exposure to Sunlight (SOL (3)) Association Results with Outcome Variables

Outcome Variables	n Total	Fisher's Exact 2-tailed test (*p-value*)	OR	95% CI
During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	101	1.00		
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	101	.77		
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	101	.059		
During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	101	.45		
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	101	< .01 **	4.07	[1.44, 11.45]
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	101	.35		
What is your K6 Test Score Total? (K6_TOTAL (1))	99	.61		

Note. n Total = total number of participants; OR= odds ratio; CI = confidence interval; * = *p-value* < .05, ** = *p-value* < .01.

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure Sunlight (SOL (3)) and the outcome of feeling like everything was an effort (K6_Q1_E (2)). The test was statistically significant where $p = .008$ ** (see Figure 5. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 4.07 with 95% CI of [1.44, 11.45] (see Figure 5. in Appendix A.). Therefore, because the OR is >1, this indicates that there is a higher probability of the exposure Sunlight (SOL (3)) affecting the outcome of feeling like everything was an effort (K6_Q1_E (2)).

The Relative Risk (RR) for the response Sometimes, Often or Very Often to being exposed to continuous direct sunlight while at work (SOL (3)) affecting the outcome of feeling like everything was an effort (K6_Q1_E (2)) for response Sometimes, Almost Always or Always was found. The RR= 2.26 with 95% CI of [1.10, 4.60] (see Figure 5. in Appendix A.). Therefore, those who responded Sometimes, Often or Very Often to being exposed to continuous direct sunlight while at work (SOL (3)) had 2.26 times the risk of also responding Sometimes, Almost Always or Always to feeling like everything was an effort (K6_Q1_E (2)) compared to those who responded Never or Almost Never to exposure being exposed to continuous direct sunlight while at work (SOL (3)).

All other *p-values* found were > .05 indicating that there was no statistically significant association between the exposure sunlight (SOL (3)) and the other outcome variables. The null hypothesis (H_0) that there is no association between the variables is accepted for these other tests (see Table 3. above).

4.1.1.1 Exposure to Sunlight Discussion

After testing the exposure sunlight (SOL (3)) against the outcome variable of mental health distress score (K6_TOTAL (1)), there is no way to say that continuous direct sunlight exposure while at work (SOL (3)) is associated with the mental health distress score total

(K6_TOTAL (1)) outcome because the *p-value was > .05* in support of the (H_0). In addition, when testing exposure sunlight (SOL (3)) against the other outcome variables of feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling so depressed that nothing could cheer you up (K6_Q1_D (2)), and feeling worthless (K6_Q1_F (2)) the *p-values* were also > .05 indicating no association.

Only one association was found between sunlight exposure (SOL (3)) and the outcome variable of feeling like everything was an effort (K6_Q1_E (2)) which had a *p-value* < .05 and an OR > 1. This suggests that although sunlight exposure (SOL (3)) does not have an association with the other responses and the overall outcome of mental health distress score (K6_TOTAL (1)); Sunlight exposure (SOL (3)) is associated with a higher probability of participants experiencing the outcome of feeling like everything was an effort (K6 _Q1_E (2)). In addition, those who responded sometimes, often or very often to being exposed to continuous direct sunlight while at work (SOL (3)) had 2.26 times the increased risk of also responding Sometimes, Almost Always or Always to the outcome of feeling like everything was an effort (K6_Q1_E (2)) compared to those who responded Never or Almost Never to being exposed to continuous direct sunlight while at work (SOL (3)). This may be more indicative of general fatigue caused by working in sunlight and by extension daytime heat exposure rather than sunlight itself.

In summation, the exposure sunlight (SOL (3)) was found to be only associated with the feeling that everything was an effort (K6_Q1_E (2)). This indicates that sunlight exposure (SOL (3)) does not have an association with the overall outcome of self- reported mental health distress scores but may be contributing to other factors such as the experience of general fatigue.

4.1.2 Exposure to Breaks at Work

Participants were asked the question "How many breaks do you take per day (including lunch if applicable)?" (BREAKS_D (02)). Responses were grouped into two categories: "0 Breaks", or "At Least 1 Break". The exposure variable of " Break(s) taken" was then analyzed against the following outcome variables (see Table 4.). For the full corresponding results Analysis Figures, Contingency Analysis Mosaic Plot Figures and Contingency Analysis Tables please see Figures 8-16, Figures 65-73, and Tables 8-16 in Appendix A.

Table 4.
Exposure to Breaks (BREAKS_D (02)) Association Results with Outcome Variables

Outcome Variables	n Total	Fisher's Exact 2-tailed test (*p-value*)	OR	95% CI
During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	97	.013 *	0.23	[0.08, 0.69]
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	97	.34		
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	97	.60		
During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	96	.18		
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	97	.06		
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	97	.07		
What is your K6 Test Score Total? (K6_TOTAL (1))	96	.04 *	7.60	[1.16, 49.45]

How often do you work in direct sunlight? (SOL (3))	97	.02 *	3.71	[1.24, 11.10]
On average, for how long per day do you work in continuous direct sunlight? (SOL_T (02))	94	.02 *	8.33	[1.04, 66.22]

Note. n Total = total number of participants; OR= odds ratio; CI = confidence interval; * = *p-value* < .05, ** = *p-value* < .01.

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure of breaks at work (BREAKS_D (02)) and the outcome variable of feeling nervousness (K6_Q1_A (2)). The test was statistically significant where $p = .013$ * (see Figure 8. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 0.23 with 95% CI of [0.08, 0.69] (see Figure 8. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure of breaks at work (BREAKS_D (02)) affecting the outcome of feeling nervousness (K6_Q1_A (2)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response 0 breaks to exposure of number of beaks at work (BREAKS_D (02)) affecting the outcome of feeling nervousness (K6_Q1_A (2)) for response Sometimes, Almost Always or Always was found. The RR= 2.63 with 95% CI of [1.37, 5.03] (see Figure 8. in Appendix A.). Therefore, those who responded 0 breaks for exposure number of breaks at work (BREAKS_D (02)) had 2.63 times the risk of also responding Sometimes, Almost Always or Always for the outcome of feeling nervousness (K6_Q1_A (2)) compared to those who responded at least 1 break for exposure number of breaks at work (BREAKS_D (02)).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure breaks at work (BREAKS_D (02)) and the outcome variable of mental health distress score (K6_TOTAL (1)). The test was statistically significant where $p = .044$ * (see Figure 14. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 7.6 with 95% CI of [1.16, 49.45] (see Figure 14. in Appendix A.). Therefore, because the OR is >1, this indicates that there is a higher probability of the exposure breaks at work (BREAKS_D (02)) affecting the outcome of mental health distress score (K6_TOTAL (1)).

The Relative Risk (RR) for the response 0 breaks for exposure number of breaks at work (BREAKS_D (02)) affecting the outcome of mental health distress score (K6_TOTAL (1)) for the score of 15 or less was found. The RR= 6.5 with 95% CI of [1.17, 36.09] (see Figure 14. in Appendix A.). Therefore, those who responded 0 breaks for exposure number of breaks at work (BREAKS_D (02)) had 6.5 times the risk of also achieving a score of 15 or less for outcome mental health distress score (K6_TOTAL (1)) compared to those who responded at least 1 break for exposure number of breaks at work (BREAKS_D (02)).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure breaks at work (BREAKS_D (02)) and the outcome variable of sunlight exposure (SOL (3)). The test was statistically significant where $p = .026$ * (see Figure 15. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 3.71 with 95% CI of [1.24, 11.10] (see Figure 15. in Appendix A.). Therefore, because the OR is >1, this indicates that there is a higher probability of the exposure breaks at work (BREAKS_D (02)) affecting the outcome of sunlight exposure (SOL (3)).

The Relative Risk (RR) for the response at least 1 break for the exposure number of breaks at work (BREAKS_D (02)) affecting the outcome of sunlight exposure at work (SOL (3)) for the response Sometimes, Often or Very Often was found. The RR= 1.48 with 95% CI of [0.96, 2.27] (see Figure 15. in Appendix A.). However, because the 95% confidence interval includes 1 the RR is not statistically significant.

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure breaks at work (BREAKS_D (02)) and the outcome variable length of work in direct sunlight (SOL_T (02)). The test was statistically significant where $p = .02$ * (see Figure 16. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 8.33 with 95% CI of [1.04, 66.22] (see Figure 16. in Appendix A.). Therefore, because the OR is >1, this indicates that there is a higher probability of the exposure breaks at work (BREAKS_D (02)) affecting the outcome of length of work in direct sunlight (SOL_T (02)).

The Relative Risk (RR) for the response at least 1 break for exposure number of breaks at work (BREAKS_D (02)) affecting the outcome of length of work in direct sunlight (SOL_T (02)) for the response greater than 6 hours was found. The RR= 5.92 with 95% CI of [0.85, 40.85] (see Figure 16. in Appendix A.). However, because the 95% confidence interval includes 1 the RR is not statistically significant.

All other *p-values* found were > .05 indicating that there was no statistically significant association between the exposure breaks at work (BREAKS_D (02)) and the other outcome variables. The null hypothesis (H_0) that there is no association between the variables is accepted for these other tests (see Table 4. above).

4.1.2.1 Exposure to Breaks at Work Discussion

After testing the exposure variable breaks at work (BREAKS_D (02)) against the outcome variable mental health distress score (K6_TOTAL (1)) there is evidence to suggest that breaks at work (BREAKS_(02)) is associated with the mental health distress score (K6_TOTAL (1)) outcome because the *p-value* was < .05. In addition, the OR was also >1, which indicates that there is a higher probability of the exposure breaks at work (BREAKS_D (02)) affecting the outcome of mental health distress score (K6_TOTAL (1)). More importantly, based on the RR, those who responded 0 breaks for exposure number of breaks at work (BREAKS_D (02)) had 6.5 times the risk of also reporting a score of 15 or less for outcome mental health distress score (K6_TOTAL (1)) compared to those who responded at least 1 break for exposure number of breaks at work (BREAKS_D (02)). This shows a positive association in support of the (H_a).

However, when testing exposure breaks at work (BREAKS_D (02)) against the individual outcome variables of feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling so depressed that nothing could cheer you up (K6_Q1_D (2)), feeling like everything was an effort (K6_Q1_E (2)), and feeling worthless (K6_Q1_F (2)) the *p-values* were > .05 in favor of the (H_0). Only outcome variable feelings of nervousness

(K6_Q1_A (2)) had a *p-value* < .05. This means that although exposure breaks at work (BREAKS_D (02)) was found to not have an association with the other K6 individual outcome responses, breaks at work (BREAKS_D (02)) was found to be associated with the outcome variable of feelings of nervousness (K6 _Q1_A (2)). In addition, based on the RR, those who responded 0 breaks for exposure number of breaks at work (BREAKS_D (02)) had 2.63 times the risk of also responding Sometimes, Almost Always or Always for the outcome feeling of nervousness (K6_Q1_A (2)) compared to those who responded at least 1 break for exposure number of breaks at work (BREAKS_D (02)). This shows a positive association in support of the (H_a)

After testing the exposure variable breaks at work (BREAKS_D (02)) against the outcomes variable of sunlight exposure (SOL (3)), there is evidence to suggest that breaks at work (BREAKS_(02)) is associated with the outcome of sunlight exposure (SOL (3)) because the *p-value* was < .05. The OR was also > 1, which indicates that there is a higher probability of the exposure breaks at work (BREAKS_D (02)) affecting the outcome of sunlight exposure (SOL (3)). In addition, based on the RR, those who responded at least 1 break for exposure number of breaks at work (BREAKS_D (02)) had 1.48 times the risk of also responding Sometimes, Often or Very Often for the outcome of sunlight exposure (SOL (3)) compared to those who responded 0 breaks for exposure number of breaks at work (BREAKS_D (02)). However, the 95% confidence interval includes 1 for this RR which makes the RR not statistically significant. This may suggest that individuals who have at least 1 break may work more hours as a whole and therefore are more exposed to sunlight at work.

Finally, after testing the exposure breaks at work (BREAKS_D (02)) against the outcome length of work in direct sunlight (SOL_T (02)), there is evidence to suggest that breaks at work (BREAKS_(02)) is associated with the length of work in direct sunlight (SOL_T (02)) outcome because the *p-value* was < .05. The OR was also >1, which indicates that there is a higher probability of the exposure breaks at work (BREAKS_D (02)) affecting the outcome of length of work in direct sunlight (SOL_T (02)). In addition, based on the RR those who responded at least 1 break for exposure number of breaks at work (BREAKS_D (02)) had 5.92 times the risk of also responding greater than 6 hours for outcome length of work in direct sunlight (SOL_T (02)) compared to those who responded 0 breaks for exposure number of breaks at work (BREAKS_D (02)). However, because the 95% confidence interval includes 1 the RR is not statistically significant. This may suggest that individuals who have at least 1 break are also working longer hours and therefore spend more time in direct sunlight.

In summation, these results suggest that having at least 1 break at work provides an observed associated protective factor for agricultural workers against the more frequent feelings of nervousness and from scoring 15 or less on the K6 mental health distress score total. Ultimately those workers who do not experience at least 1 break are at an increased risk of reporting 15 or lower on the K6 mental health distress score total and are at an increased risk of reporting more frequent feelings of nervousness. The results also show how the exposure breaks at work (BREAKS_D (02)) is associated with the outcomes of sunlight exposure at work (SOL (3)) and the length of work in direct sunlight (SOL_T (02)) which suggests that those who have at least 1 break at work, work longer hours overall and are therefore more exposed to sunlight and spend more time in sunlight.

4.1.3 Exposure of Sex

Participants were asked the question "What is your Sex?" (SEX). Responses were grouped into two categories: "Man", or "Woman". This exposure variable of "Sex" was then analyzed against the following outcome variables (see Table 5.). For the full corresponding results Analysis Figures, Contingency Analysis Mosaic Plot Figures and Contingency Analysis Tables please see Figures 17-24, Figures 74-81 , and Tables 17-24 in Appendix A.

Table 5.
Exposure of Sex (SEX) Association Results with Outcome Variables

Outcome Variables	n Total	Fisher's Exact 2-tailed test (*p-value*)	OR	95% CI
In general, how do you feel? (This refers to an emotional state) (EMOT (1))	101	.01 *	0.23	[0.07, 0.68]
During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	101	< .01 **	0.17	[0.06, 0.53]
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	101	.03 *	0.26	[0.08, 0.81]
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	101	.18		
During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	99	.04 *	0.30	[0.11, 0.90]
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	101	.29		
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	101	.04 *	0.27	[0.08, 0.89]

What is your K6 Test Score Total? (K6_TOTAL (1))	99	< .01 **	12.31	[2.04, 74.13]

Note. n Total = total number of participants; OR= odds ratio; CI = confidence interval; * = *p-value* < .05, ** = *p-value* < .01.

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure variable of sex (SEX) and the outcome variable of self-perceived emotional status (EMOT (1)). The test was statistically significant where $p = .01$ (see Figure 17. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 0.23 with 95% CI of [0.07, 0.68] (see Figure 17. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure sex (SEX) affecting the outcome of self perceived emotional status (EMOT (1)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant

The Relative Risk (RR) for the response Woman for exposure sex (SEX) affecting the outcome of self perceived emotional status (EMOT (1)) for the response of OK was found. The RR= 2.82 with 95% CI of [1.40, 5.65] (see Figure 17. in Appendix A.). Therefore, those who responded Woman for the exposure variable of sex (SEX) had 2.82 times the risk of also responding OK to the outcome of self perceived emotional status (EMOT (1)) compared to those who responded Man for the exposure variable of (SEX).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure of sex (SEX) and the outcome variable of feelings of nervousness (K6_Q1_A (2)). The test was statistically significant where $p = .002$ ** (see Figure 18. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 0.17 with 95% CI of [0.06, 0.53] (see Figure 18. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure variable of sex (SEX) affecting the outcome of feelings of nervousness (K6_Q1_A (2)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response Woman for the exposure of sex (SEX) affecting the outcome variable of feelings of nervousness (K6_Q1_A (2)) for the response Sometimes, Almost Always or Always was found. The RR= 2.90 with 95% CI of [1.63, 5.20] (see Figure 18. in Appendix A.). Therefore, those who responded Woman for the exposure of sex (SEX) had 2.63 times the risk of also responding Sometimes, Almost Always or Always for the outcome variable of feelings of nervousness (K6_Q1_A (2)) compared to those who responded Man for exposure sex (SEX).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure of sex (SEX) and the outcome variable of feelings of hopelessness (K6_Q1_B (2)). The test was statistically significant where $p = .039$ * (see Figure 19. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 0.26 with 95% CI of [0.08, 0.81] (see Figure 19. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure variable sex (SEX) affecting the outcome variable of feelings of hopelessness (K6_Q1_B (2)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response Woman for exposure variable sex (SEX) affecting the outcome variable of feelings of hopelessness (K6_Q1_B (2)) for the response

Sometimes, Almost Always or Always was found. The RR= 2.66 with 95% CI of [1.24, 5.67] (see Figure 19. in Appendix A.). Therefore, those who responded Woman for exposure variable sex (SEX) had 2.66 times the risk of also responding Sometimes, Almost Always or Always for the outcome variable feelings of hopelessness (K6_Q1_B (2)) compared to those who responded Man for exposure variable sex (SEX).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure variable of sex (SEX) and the outcome variable of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)). The test was statistically significant where $p = .048$ * (see Figure 21. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 0.30 with 95% CI of [0.11, 0.90] (see Figure 21. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure variable sex (SEX) affecting the outcome of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response Woman for exposure variable sex (SEX) affecting the outcome variable of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) for the response Sometimes, Almost Always or Always was found. The RR= 1.92 with 95% CI of [1.15, 3.22] (see Figure 21. in Appendix A.). Therefore, those who responded Woman for exposure variable sex (SEX) had 1.92 times the risk of also responding Sometimes, Almost Always or Always for the outcome variable of feeling so depressed that

nothing could cheer you up (K6_Q1_D (2)) compared to those who responded Man for exposure variable sex (SEX).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure of sex (SEX) and the outcome variable of feeling worthless (K6_Q1_F (2)). The test was statistically significant where $p = .037$ * (see Figure 23. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 0.27 with 95% CI of [0.08, 0.89] (see Figure 23. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure variable sex (SEX) affecting the outcome of feeling worthless (K6_Q1_F (2)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response Woman for exposure variable sex (SEX) affecting the outcome variable of feeling worthless (K6_Q1_F (2)) for the response Sometimes, Almost Always or Always was found where RR= 2.69 with 95% CI of [1.15, 6.28] (see Figure 23. in Appendix A.). Therefore, those who responded Woman for exposure variable sex (SEX) had 2.69 times the risk of also responding Sometimes, Almost Always or Always to the outcome of feeling worthless (K6_Q1_F (2)) compared to those who responded Man for exposure sex (SEX).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure variable sex (SEX) and the outcome variable of mental health distress score (K6_TOTAL (1)). The test was statistically significant where $p = .008$ ** (see Figure 24. in

Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 12.31 with 95% CI of [2.04, 74.13] (see Figure 24. in Appendix A.). Therefore, because the OR is >1, this indicates that there is a higher probability of the exposure sex (SEX) affecting the outcome of mental health distress score (K6_TOTAL (1)).

The Relative Risk (RR) for the response Woman for the exposure variable of sex (SEX) affecting the outcome of mental health distress score (K6_TOTAL (1)) for the score of 15 or less was found. The RR= 9.64 with 95% CI of [1.91, 48.50] (see Figure 24. in Appendix A.). Therefore, those who responded Woman for exposure variable sex (SEX) had 9.64 times the risk of also scoring 15 or less for the outcome of mental health distress score (K6_TOTAL (1)) compared to those who responded Man for exposure variable sex (SEX).

All other *p-values* found were > .05 indicating that there was no statistically significant association between the exposure sex (SEX) and the other outcome variables. The null hypothesis (H_0) that there is no association between the variables is accepted for these other tests (see Table 5.).

4.1.3.1 Exposure Variable of Sex Discussion

After testing the exposure variable sex (SEX) against the outcome variable of mental health distress score (K6_TOTAL (1)) there is observed evidence to suggest that exposure variable sex (SEX) is associated with the mental health distress score (K6_TOTAL (1)) outcome because the *p-value* was < .05. In addition, the OR was also >1, which indicates that there is a

higher probability of the exposure sex (SEX) affecting the outcome of mental health distress score (K6_TOTAL (1)). More importantly, based on the RR, those who responded Woman for exposure variable sex (SEX) had 9.64 times the risk of also scoring 15 or less for the mental health distress score (K6_TOTAL (1)) outcome compared to those who responded Man for exposure variable of sex (SEX). This shows a positive association in support of the (H_a). This suggests that female agricultural workers are at an increased risk of experiencing mental health distress in comparison to their male counterparts. More investigation is needed as to why.

When testing exposure variable sex (SEX) against the individual outcome variables of feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling so depressed that nothing could cheer you up (K6_Q1_D (2)), feeling like everything was an effort (K6_Q1_E (2)), feeling worthless (K6_Q1_F (2)); only the outcome variables of feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling so depressed that nothing could cheer you up (K6_Q1_D (2)), and feeling worthless (K6_Q1_F (2)) had a *p-values* < .05. In addition, based on the Relative Risks, those who responded Woman for exposure variable sex (SEX) had 2.63 times the risk of also responding Sometimes, Almost Always or Always to the outcome of feelings of nervousness (K6_Q1_A (2)) compared to those who responded Man for exposure variable sex (SEX), 2.66 times the risk of also responding Sometimes, Almost Always or Always to the outcome of feelings of hopelessness (K6_Q1_B (2)) compared to those who responded Man for exposure variable sex (SEX), 1.92 times the risk of also responding Sometimes, Almost Always or Always to the outcome of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) compared to those who responded Man for exposure variable sex (SEX), and 2.69 times the risk

of also responding Sometimes, Almost Always or Always to the outcome of feeling worthless (K6_Q1_F (2)) compared to those who responded Man for exposure sex (SEX). All of which show a positive association in support of the (H_a). This shows that female agricultural workers are more likely to experience or share feelings of nervousness, hopelessness, so depressed that they can't be cheered up, and worthlessness compared to their male counterparts. More investigation is needed as to why.

Finally, after testing the exposure variable sex (SEX) against the outcome of self-perceived emotional status (EMOT (1)), there is evidence to suggest that the exposure sex (SEX) is associated with the self perceived emotional status (EMOT (1)) outcome because the *p-value* was < .05. In addition, based on the RR , those who responded Woman for exposure variable sex (SEX) had 2.82 times the risk of also responding OK to the outcome of self-perceived emotional status (EMOT (1)) compared to those who responded Man for exposure sex (SEX). This shows a positive association in support of the (H_a). This suggests that Woman are more likely to self perceive or share their self perceived emotional status to be just OK rather than good or very good when compared to their Male counterparts. More investigation is needed as to why.

In summation, the exposure variable of sex (SEX) has an observed positive association on the mental health distress score (K6_TOTAL (1)), feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling so depressed that nothing can cheer you up (K6_Q1_D (2)), and the feeling of worthlessness (K6_Q1_F (2)) outcome variables. More interestingly, the relative risks show that Woman were at an overall increased risk of reporting mental health distress scores of 15 or less, and the Sometimes, Almost Always or Always feeling of nervousness, hopelessness, worthlessness, and feeling so depressed that nothing can cheer you

up compared to the male workers. This is further backed up by the positive association found between a woman's self perceived emotional status and their increased risk of responding just Ok rather than good or very good in comparison to the men. These results indicate that female agricultural workers are more vulnerable to mental health/ psychological health/ mental health distress outcomes in comparison to men within the 3 ASBC communities. Within the context of climate change this particular population is therefore more vulnerable and may experience more negative effects in the future. One possible factor that may also explain this finding may be due to the willingness of Woman to share more information regarding their emotional well-being/ feelings compared to Men because of possible cultural/ social norms (machismo/ machisma culture) unidentified at the time of this study. Alternatively, Men may be more exposed to a currently unidentified protective factor. This warrants further investigation in future studies.

4.1.4 Exposure to Sleep

Participants were asked the question "On average, for the past 30 days, how many hours of continuous sleep do you get per night?" (SLEEP (01)). Responses were grouped into two categories: "0-6 hours", or "6+ hours". This exposure variable of "Sleep" was then analyzed against the following outcome variables (see Table 6.). For the full corresponding results Analysis Figures, Contingency Analysis Mosaic Plot Figures and Contingency Analysis Tables please see Figures 25-32, Figures 82-89, and Tables 25-32 in Appendix A.

Table 6.
Exposure to Sleep (SLEEP (01)) Association Results with Outcome Variables

Outcome Variables	n Total	Fisher's Exact 2-tailed test (*p-value*)	OR	95% CI
During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	101	.057		
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	101	.44		
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	101	.055		
During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	99	.014 *	0.32	[0.13, 0.78]
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	101	.40		
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	101	.41		
What is your K6 Test Score Total? (K6_TOTAL (1))	99	.08		
How do you consider your mental health status? (MENTAL_S (04))	97	.04 *	0.33	[0.12, 0.89]

Note. n Total = total number of participants; OR= odds ratio; CI = confidence interval; * = *p-value* < .05, ** = *p-value* < .01.

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure sleep (SLEEP (01)) and the outcome variable of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)). The test was statistically significant where p = .014 * (see Figure 28. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR = 0.32 with 95% CI of [0.13, 0.78] (see Figure 28. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure sleep (SLEEP (01)) affecting the outcome variable of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response 0-6 hours for the exposure variable of sleep (SLEEP (01)) affecting the outcome variable feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) for the response Sometimes, Almost Always or Always was found. The RR= 1.97 with 95% CI of [1.18, 3.29] (see Figure 28. in Appendix A.). Therefore, those who responded 0-6 hours for exposure sleep (SLEEP (01)) had 1.97 times the risk of also responding Sometimes, Almost Always or Always to the outcome of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) compared to those who responded 6+ hours for exposure variable sleep (SLEEP (01)).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure sleep (SLEEP (01)) and the outcome variable of self-perceived mental health status (MENTAL_S (04)). The test was statistically significant where $p = .041$ * (see Figure 32. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR = 0.33 with 95% CI of [0.12, 0.89] (see Figure 32. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure variable sleep (SLEEP (01)) affecting the outcome of self-perceived mental health status (MENTAL_S

(04)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response 0-6 hours for exposure sleep (SLEEP (01)) affecting the outcome of self perceived mental health status (MENTAL_S (04)) for the response OK was found. The RR= 2.21 with 95% CI of [1.10, 4.46] (see Figure 32. in Appendix A.). Therefore, those who responded 0-6 hours for exposure sleep (SLEEP (01)) had 2.21 times the risk of also responding OK for the outcome of self-perceived mental health status (MENTAL_S (04)) compared to those who responded 6+ hours for exposure sleep (SLEEP (01)).

All other *p-values* found were > .05 indicating that there was no statistically significant association between the exposure sleep (SLEEP (01)) and the other outcome variables. The null hypothesis (H_0) that there is no association between the variables is accepted for these other tests (see Table 6.).

4.1.4.1 Exposure Variable of Sleep Discussion

After testing the exposure variable of sleep (SLEEP (01) against the outcome variable of mental health distress score (K6_TOTAL (1)), there is evidence to suggest that sleep (SLEEP (01)) is not associated with the mental health distress score (K6_TOTAL (1)) outcome because the *p-value* was > .05 in support of the (H_0).

In addition, when testing the exposure sleep (SLEEP (01)) against the individual outcome variables of feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling like everything was an effort

(K6_Q1_E (2)), and feeling worthless (K6_Q1_F (2)); the *p-values* were > .05 in favor of the (H_0). Only the outcome variable of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) had a *p-value* < .05. Furthermore, based on the RR, those who responded 0-6 hours for exposure sleep (SLEEP (01)) had 1.97 times the risk of also responding Sometimes, Almost Always or Always for the outcome of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) compared to those who responded 6+ hours for exposure variable sleep (SLEEP (01)). This shows a positive association in support of the (H_a). These results suggest that agricultural workers who get only 0-6 hours of sleep per night are at an increased risk for feeling so depressed that nothing could cheer you up. In addition, those who get 6+ hours of sleep per night are more protected against feeling so depressed that nothing could cheer you up.

Finally, after testing exposure sleep (SLEEP (01)) against the outcome of self-perceived mental health status (MENTAL_S (04)), there is evidence to suggest that exposure sleep (SLEEP (01)) is associated with the outcome of self-perceived mental health status (MENTAL_S (04)) because the *p-value* was < .05. Interestingly, based on the RR, those who responded 0-6 hours for exposure sleep (SLEEP (01)) had 2.21 times the risk of also responding OK for outcome self-perceived mental health status (MENTAL_S (04)) compared to those who responded 6+ hours for exposure sleep (SLEEP (01)). This shows a positive association in support of the (H_a). This suggests that those who get between 0-6 hours of sleep per night are more at risk/ more likely of reporting their self-perceived mental health status to be just OK rather than good or very good compared to people who get 6+ hours of sleep.

In summation, the exposure variable of sleep (SLEEP (01)) does not have any observed associated affect on the mental health distress score (K6_TOTAL (1)), feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling like everything was an effort (K6_Q1_E (2)), and feeling worthless (K6_Q1_F (2)) outcomes. However, the exposure sleep (SLEEP (01)) does have an observed positive association with the feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) outcome and the self-perceived mental health status (MENTAL_S (04)) outcome. This warrants further investigation as to why some individuals are experiencing only 0-6 hours of sleep per night.

4.1.5 Exposure to Work Organization Type

Participants were asked the question “Do you belong to a Work organization type group (ex: Association, Union, Cooperative) or are you Private?” (AD_1 (02)). Responses were grouped into two categories: “GROUP (Association, Union or Cooperative)”, or “Private”. The exposure variable of “work organization type” was then analyzed against the following outcome variables (see Table 7.). For the full corresponding results Analysis Figures, Contingency Analysis Mosaic Plot Figures and Contingency Analysis Tables please see Figures 33-40 , Figures 90-97, and Tables 33-40 in Appendix A.

Table 7.
Exposure to Work Organization Type (AD_1 (02)) Association Results with Outcome Variables

Outcome Variables	n Total	Fisher's Exact 2-tailed test (*p-value*)	OR	95% CI
In general, how do you feel? (This refers to an emotional state) (EMOT (1))	99	.028 *	0.30	[0.11, 0.88]
During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	99	.51		
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	99	.14		
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	99	.84		
During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	97	.21		
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	99	.54		
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	99	.017 *	0.24	[0.07, 0.80]
What is your K6 Test Score Total? (K6_TOTAL (1))	97	.44		

Note. n Total = total number of participants; OR= odds ratio; CI = confidence interval; * = *p-value* < .05, ** = *p-value* < .01.

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure work organization type (AD_1 (02)) and the outcome variable of self perceived emotional status (EMOT (1)). The test was statistically significant where $p = .028$ * (see Figure 33. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR = 0.30 with 95% CI of [0.11, 0.88] (see Figure 33. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure of work organization type (AD_1 (02)) affecting the outcome of self-perceived emotional status (EMOT (1)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response private of exposure variable work organization type (AD_1 (02)) affecting the outcome of self-perceived emotional status (EMOT (1)) for the response Good or Very Good was found. The RR= 1.26 with 95% CI of [1.03, 1.56] (see Figure 33. in Appendix A.). Therefore, those who responded private for exposure work organization type (AD_1 (02)) had 1.26 times the risk of also responding Good or Very Good to outcome self-perceived emotional status (EMOT (1)) compared to those who responded GROUP (Association, Union or Cooperative) for exposure work organization type (AD_ 1 (02)).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure work organization type (AD_1 (02)) and the outcome variable of feeling worthless (K6_Q1_F (2)). The test was statistically significant where p = .017 * (see Figure 39. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR = 0.24 with 95% CI of [0.07, 0.80] (see Figure 39. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure work organization type (AD_1 (02)) affecting the outcome of feeling worthless (K6_Q1_F (2)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response GROUP (Association, Union or Cooperative) for exposure variable work organization type (AD_1 (02)) affecting the outcome of feeling worthless (K6_Q1_F (2)) for the response Sometimes, Almost Always or Always was found. The RR= 3.31 with 95% CI of [1.16, 9.47] (see Figure 39. in Appendix A.). Therefore, those who responded GROUP (Association, Union or Cooperative) for exposure work organization type (AD_1 (02)) had 3.31 times the risk of also responding Sometimes, Almost Always, or Always to the outcome of feeling worthless (K6_Q1_F (2)) compared to those who responded private for exposure work organization type (AD_1 (02)).

All other *p-values* found were > .05 indicating that there was no statistically significant association between the exposure work organization type (AD_1 (02)) and the other outcome variables. The null hypothesis (H_0) that there is no association between the variables is accepted for these other tests (see Table 7.).

4.1.5.1 Exposure to Work Organization Type Discussion

After testing the exposure work organization type (AD_1 (02)) against the outcome variable of mental health distress score (K6_TOTAL (1)) there is evidence to suggest that work organization type (AD_1 (02)) is not associated with the mental health distress score (K6_TOTAL (1)) outcome because the *p-value* was > .05 in support of the (H_0).

In addition, when testing exposure work organization type (AD_1 (02)) against the individual outcome variables of feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling so depressed that nothing

could cheer you up (K6_Q1_D (2)), and feeling like everything was an effort (K6_Q1_E (2)), the *p-values* were also > .05 in favor of the (H_0). Only outcome variable feeling worthless (K6_Q1_F (2)) had a *p-value* < .05. Furthermore, based on the RR, those who responded GROUP (Association, Union or Cooperative) for exposure work organization type (AD_1 (02)) had 3.31 times the risk of also responding Sometimes, Almost Always or Always for the outcome of feeling worthless (K6_Q1_F (2)) compared to those who responded private for exposure work organization type (AD_1 (02)). This shows a positive association in support of the (H_a). This result suggests that agricultural workers who belong to a Group organization work type were at an increased risk of feeling worthless sometimes, almost always or always. Alternatively, those workers who are private and do not belonging to a work organization type seem to be protected against the sometimes, almost always or always feeling of worthlessness.

Finally, after testing exposure work organization type (AD_1 (02)) against the outcome variable self-perceived emotional status (EMOT (1)) there is evidence to suggest that work organization type (AD_1 (02)) is associated with the self-perceived emotional status (EMOT (1)) outcome because the *p-value* was < .05. In addition, based on the RR, those who responded private for exposure work organization type (AD_1 (02)) had 1.26 times the risk of also responding good or very good for the outcome of self-perceived emotional status (EMOT (1)) compared to those who responded GROUP (Association, Union or Cooperative) for exposure variable work organization type (AD_ 1 (02)). This shows a positive association in support of the (H_a). This suggests that workers who are private are at an increased risk of self-reporting their emotional status to be good or very good rather than just OK compared to those workers who belong to a work organization GROUP (ex: association, cooperative, union).

In summation, the exposure work organization type (AD_1 (02)) does not have any observed associated affect on the mental health distress score (K6_TOTAL (1)), feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling so depressed that nothing could cheer you up (K6_Q1_D (2)), and the feeling like everything was an effort (K6_Q1_E (2)). However, the exposure work organization type (AD_1 (02)) does have an observed positive association with the feeling worthless (K6_Q1_F (2)) outcome variable and the self-perceived emotional status (EMOT (1)) outcome variable. This suggests that local work organization types like unions, cooperatives and or associations may be contributing to a worker's increased risk of feeling worthless. This is also supported by the increased risk of private workers reporting good or very good to their self-perceived emotional status rather than just OK compared to the workers that belonged to a GROUP (association, union or cooperative). This may be because work organizations are creating barriers to an agricultural workers ability to have autonomy in their own decision making with regards to their business or employment. This in turn may make agricultural workers feel underappreciated by the work organization contributing to increased feelings of worthlessness. These results may also be explained by a potential inequity that exists for individuals who belong to a work organization type. For example, agricultural workers who have experienced an economic downturn and earn less income may be more inclined to join a work organization type versus an agricultural worker who is earning more. Therefore, the feelings of worthlessness could be more associated with socioeconomic status of the workers belonging to the work organization rather than the work organization itself. Alternatively, respondents may be measuring their worth based on economic success which might be a by-product of a person's stage of life. For example; individuals who are middle aged or older may be more preoccupied

with earning money in order to support a family and therefore earning less overall could be what influences a respondent's feelings of worthlessness. More research is needed into how work organization types such as associations, unions or cooperatives are associated with the feeling of worthlessness in ASBC agricultural workers.

4.1.6 Exposure of Age

Participants were asked the question "What is your Age?" (AGE (02)). Responses were grouped into two categories: "18-64 years old", or "65 + years old". The exposure variable of "Age" was then analyzed against the following outcome variables (see Table 8.). For the full corresponding results Analysis Figures, Contingency Analysis Mosaic Plot Figures and Contingency Analysis Tables please see Figures 41-50, Figures 98-107, and Tables 41-50 in Appendix A.

Table 8.
Exposure of Age (AGE (02)) Association Results with Outcome Variables

Outcome Variables	n Total	Fisher's Exact 2-tailed test (*p-value*)	OR	95% CI
How many breaks do you take per day (including lunch if applicable)? (BREAKS_D (02))	97	.022 *	0.27	[0.09, 0.78]
During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	101	.22		
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	101	1.0		
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	101	.13		

During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	99	1.0		
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	101	.28		
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	101	.39		
What is your K6 Test Score Total? (K6_TOTAL (1))	99	.36		
How often do you work in direct sunlight? (SOL (3))	101	.07		
On average, for how long per day do you work in continuous direct sunlight? (SOL_T (02))	98	.013 *	0.21	[0.05, 0.74]

Note. n Total = total number of participants; OR= odds ratio; CI = confidence interval; * = *p-value* < .05, ** = *p-value* < .01.

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure variable of age (AGE (02)) and the outcome variable of breaks at work (BREAKS_D (02)). The test was statistically significant where $p = .022$ * (see Figure 41. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR = 0.27 with 95% CI of [0.09, 0.78] (see Figure 41. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure age (AGE (02)) affecting the outcome of breaks at work (BREAKS_D (02)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response 65 + years old for the exposure variable age (AGE (02)) affecting the outcome variable of number of breaks taken at work (BREAKS_D (02)) for the response 0 breaks was found. The RR= 2.79 with 95% CI of [1.22, 6.36] (see Figure 41. in Appendix A.). Therefore, those who responded 65 + years old for exposure age (AGE

(02)) had 2.79 times the risk of also responding 0 breaks for the outcome number of breaks taken at work (BREAKS_D (02)) compared to those who responded 18-64 years old for exposure age (AGE (02)).

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure of age (AGE (02)) and the outcome length of work in direct sunlight (SOL_T (02)). The test was statistically significant where $p = .013$ * (see Figure 50. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR = 0.21 with 95% CI of [0.05, 0.74] (see Figure 50. in Appendix A.). Therefore, because the OR is <1, this indicates that there is a lower probability of the exposure age (AGE (02)) affecting the outcome of length of work in direct sunlight (SOL_T (02)). However, the 95% confidence interval includes 1 meaning the OR is not statistically significant.

The Relative Risk (RR) for the response 18-64 years old to exposure (AGE (02)) affecting the outcome (SOL_T (02)) for the response greater than 6 hours was found. The RR= 3.54 with 95% CI of [1.15, 10.92] (see Figure 50. in Appendix A.). Therefore, those who responded 18-64 years old for exposure age (AGE (02)) had 3.54 times the risk of also responding greater than 6 hours to the outcome length of work in direct sunlight (SOL_T (02)) compared to those who responded 65 + years old for exposure age (AGE (02)).

All other *p-values* found were > .05 indicating that there was no statistically significant association between the exposure variable of age (AGE (02)) and the other outcome variables.

The null hypothesis (H_0) that there is no association between the variables is accepted for these other tests (see Table 8.).

4.1.6.1 Exposure of Age Discussion

After testing the exposure variable age (AGE (02)) against the outcome variable of mental health distress score (K6_TOTAL (1)), there is evidence to suggest that age (AD_1 (02)) is not associated with the mental health distress score (K6_TOTAL (1)) outcome because the *p-value* was > .05 in support of the (H_0). In addition, when testing age (AGE (02)) against the individual outcomes of feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling so depressed that nothing could cheer you up (K6_Q1_D (2)), feeling like everything was an effort (K6_Q1_E (2)), and feeling worthless (K6_Q1_F (2)) the *p-values* were also > .05 in favor of the (H_0). Therefore, this indicates that age is not associated with any of the tested K6 mental health distress outcomes investigated. Therefore, age was not found to have any relation to mental health/ psychological health/ mental health distress outcomes for the ASBC agricultural workers.

After testing the exposure age (AGE (02)) against the outcome sunlight exposure (SOL (3)), the *p-value* was also > .05 indicating that there is no association between exposure variable age and the outcome variable of sunlight exposure in support of the (H_0). Therefore, the age of a worker is not found to be related to sunlight exposure at work.

Interestingly, after testing exposure age (AGE (02)) against the outcome variable breaks at work (BREAK_D (02)), a *p-value* of < .05 was found indicating an association between the exposure age (AGE (02)) and the outcome of breaks at work (BREAKS_D (02)). More importantly, based on the RR, those who responded 65 + years old for exposure age (AGE (02)) had 2.79 times the risk of also responding 0 breaks for the outcome of breaks taken at work (BREAKS_D (02)) compared to those who responded 18-64 years old for exposure age (AGE (02)). This shows a positive association in support of the (H_a). This suggests that agricultural workers that are 65+ years old were more at risk of taking no breaks at work. This may be explained because they also work less hours overall. More investigation is needed into how many hours are worked based on age group.

Moreover, after testing the exposure age (AGE (02)) against the outcome variable of length of work in direct sunlight (SOL_T (02)), there is evidence to suggest that age (AGE (02)) is associated with the length of work in direct sunlight (SOL_T (02)) outcome because the *p-value* was < .05. Interestingly, based on the RR, those who responded 18-64 years old for exposure age (AGE (02)) had 3.54 times the risk of also responding greater than 6 hours for the outcome of length of work in direct sunlight (SOL_T (02)) compared to those who responded 65 + years old for exposure age (AGE (02)). This shows a positive association in support of the (H_a). This result in conjunction with the results of exposure analysis age (AGE (02)) by outcome variable breaks at work (BREAKS_D (02)) may further indicate that agricultural workers 65 + years old are working less hours overall compared to workers aged 18-64 years old and are therefore spending less time in the sun and by extension are not required to take breaks at work.

In summation, the exposure variable of age (AGE (02) does not have any observed associated affect on the mental health distress score (K6_TOTAL (1)), feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling so depressed that nothing could cheer you up (K6_Q1_D (2)), feeling like everything was an effort (K6_Q1_E (2)), and feeling worthless (K6_Q1_F (2)) outcomes. This suggests that age is therefore not a factor in the experience of mental health/ psychological health/ mental health distress outcomes for these agricultural workers. However, the exposure variable of age (AGE (02)) was found to have an observed positive association with the length of work in direct sunlight (SOL_T (02)) and breaks taken at work (BREAKS_D (02)) outcome variables; Which suggests that agricultural workers 65 + years old are working less hours overall compared to workers aged 18-64 years old, and are therefore spending less time in the sun and by extension are not required to take breaks at work.

4.1.7 Exposure of Exposed Skin Percentage at Work

Participants were asked the question “What parts of your body is not covered in clothes while working?”(CORP (2)). Responses were grouped into two categories: “0-9% exposed”, or “> 9% exposed”. This exposure variable of “exposed skin percentage at work” was then analyzed against the following outcome variables (see Table 9.). For the full corresponding results Analysis Figures, Contingency Analysis Mosaic Plot Figures and Contingency Analysis Tables please see Figures 51-57, Figures 108-114, and Tables 51-57 in Appendix A.

Table 9.
Exposure of Exposed Skin percentage at Work (CORP (2)) Association Results with Outcome Variables

Outcome Variables	n Total	Fisher's Exact 2-tailed test (*p-value*)	OR	95% CI
During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	101	.81		
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	101	.10		
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	101	.67		
During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	99	.04 *	3.09	[1.12, 8.52]
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	101	.52		
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	101	1.0		
What is your K6 Test Score Total? (K6_TOTAL (1))	99	.66		

Note. n Total = total number of participants; OR= odds ratio; CI = confidence interval; * = *p-value* < .05, ** = *p-value* < .01.

A Fishers Exact Test (2-tailed) was performed to examine the relationship between the exposure variable of exposed skin percentage (CORP (2)) and the outcome variable of feeling so depressed that noting could cheer you up (K6_Q1_D (2)). The test was statistically significant where p = .04 * (see Figure 54. in Appendix A.). This shows that there is a significant difference between the populations and that there is a significant association between the exposure and outcome variables.

The OR= 3.09 with 95% CI of [1.12, 8.52] (see Figure 54. in Appendix A.). Therefore, because the OR is >1, this indicates that there is a higher probability of the exposure variable exposed skin percentage (CORP (2)) affecting the outcome of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)).

The Relative Risk (RR) for the response 0-9% for exposure exposed skin percentage (CORP (2)) affecting the outcome variable of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) for response Sometimes, Almost Always or Always was found. The RR= 2.20 with 95% CI of [1.02, 4.75] (see Figure 54. in Appendix A.). Therefore, those who responded 0-9% for exposure exposed skin percentage (CORP (2)) had 2.20 times the risk of also responding Sometimes, Almost Always or Always for the outcome of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) compared to those who responded > 9% for exposure exposed skin percentage (CORP (2)).

All other *p-values* found were > .05 indicating that there was no statistically significant association between the exposure variable of age (CORP (2)) and the other outcome variables. The null hypothesis (H_0) that there is no association between the variables is accepted for these other tests (see Table 9.).

4.1.7.1 Exposure of Exposed Skin Percentage at Work Discussion

After testing the exposure variable exposed skin percentage (CORP (2)) against the outcome variable mental health distress score (K6_TOTAL (1)) there is no evidence to suggest that exposed skin percentage (CORP (2)) is associated with the mental health distress score

(K6_TOTAL (1)) outcome because the *p-value was > .05,* in support of the (H_0). In addition, when testing exposed skin percentage (CORP (2)) against the individual outcome variables of feelings of nervousness (K6_Q1_A (2)), feelings of hopelessness (K6_Q1_B (2)), feeling restless or fidgety (K6_Q1_C (2)), feeling like everything was an effort (K6_Q1_E (2)), and feeling worthless (K6_Q1_F (2)), the *p-values* were also > .05 in support of the (H_0). Only the outcome variable of feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) had a *p-value* < .05. Interestingly, the RR for those who responded 0-9% for exposure exposed skin percentage (CORP (2)) had 2.20 times the risk of also responding Sometimes, Almost Always or Always for outcome feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) compared to those who responded > 9% for exposure exposed skin percentage (CORP (2)). This shows a positive association in favor of the (H_a). These results suggest that agricultural workers that have more exposed skin are also exposed to a protective factor that reduce their risk of reporting sometimes, almost always or always feeling so depressed than nothing could cheer you up. Further investigation is needed into what this protective factor might be and how workers with more covered skin compare to workers with less covered skin with regards to type of work, and work environment conditions. This may indicate that an underlying risk factor is present that contributes to the observed results.

In summation, the exposure variable exposed skin percentage (CORP (2)) was found not to have any association with the outcome variable of mental health distress and K6 test outcome variables. Only a positive association was found between the exposure variable exposed skin percentage (CORP (2)) and the feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) outcome variable. Interestingly, based on the RR, those who responded 0-9% for exposure

exposed skin percentage (CORP (2)) had 2.20 times the risk of also responding Sometimes, Almost Always or Always for outcome feeling so depressed that nothing could cheer you up (K6_Q1_D (2)) compared to those who responded > 9% for exposure exposed skin percentage (CORP (2)). The question remains what underlying factor(s) are putting workers who cover 0-9% of their skin at an increased risk of reporting sometimes, almost always or always to the outcome of feeling so depressed that nothing could cheer you up. More investigation into this observed association is needed.

4.2 Limitations

After study completion, some limiting factors may have been present which played a role in the development of the end results. The first limiting factor that may have influenced the end results would be the small populations size of the study. This study may have benefited from having more participants. This may have created a stronger representative sample size and reduce the overall margin of error. The small population size may have influenced the statistical significance of certain exposure outcome tests, creating the impression that no or some association was found which may not be ultimately representative. The second limitation would be the lack of available population data. The lack of available data regarding population and demographics of the corridor make it difficult to determine what an effective representative sample size would be or what the community boundaries are. This may have led to missed participants or the over representation of certain communities. The third limitation may be as a result of the seasonality of the investigation. The data collection occurred during the winter season primarily sugar cane harvesting season as well as the hot/ dry climate season. Costa Rica

also experiences a summer season that is primarily for coffee harvesting and has a more wet and humid climate. This may have influenced the responses of individuals considering their seasonality of employment and or the seasonal environmental conditions. The last limitation of the study may be as a result of any unidentified confounding factors. Although the study tried to cover a wide range of factors, not all factors may have been identified in the original draft of the survey. Therefore, some results may have been more greatly influenced by the appearance of confounding factors in isolation or in conjunction with the investigated variables. These are some of the potential limitations that may be present within the study.

5.0 Implications and Recommendations

After having uncovered the results of this investigation there are some major implications and recommendations that can be made to help improve community health and well-being, and business sustainability. Recall that major findings of this investigation included:

1. Female agricultural workers appear to be at a higher risk of mental health distress (scoring 15 or less on K6 test score) feeling nervousness, hopelessness, worthlessness, and feeling so depressed that nothing can cheer you up. These results indicate that female agricultural workers are more vulnerable to poor mental health/ psychological health/ mental health distress outcomes in comparison to men within the 3 ASBC communities.
2. Sunlight exposure at work was not found to be associated with overall mental distress but was found to be positively associated with feeling like everything was an effort. This may be more indicative of general fatigue caused by working in sunlight and by extension daytime heat rather than sunlight itself.
3. Skin exposure at work does not seem to be associated with the overall outcome of mental distress (scoring 15 or less on the K6 test) but was positively associated with feeling so depressed that nothing could cheer you up.
4. Workers that had 0-6 hours of sleep per night were more likely to report feeling so depressed that nothing could cheer you up compared to workers that slept 6 + hours.
5. Over working with inadequate rests, general fatigue and lack of sleep may be a more likely cause of mental health distress in ASBC agricultural workers.

6. Belonging to a work organization type such as a union, association or cooperative put workers at higher risk of feeling worthless compared to agricultural workers that don't belong to a work organization type.
7. Age is not associated with the occurrence of mental health distress and the K6 test responses.
8. Having at least 1 break at work provides an observed associated protective factor for agricultural workers against the more frequent feelings of nervousness and from scoring 15 or less on the K6 mental health distress score total.

From a community health and well-being, and business and sustainability lens these findings imply that:

1. Employers should promote the uptake of more staff to offset any labour shortages as well as provide more time off for workers (this may also reduce the need for imported labour and improve local employment levels). This could be achieved by reducing the total number of hours worked per week per employee and then offsetting the lost hours with the hiring of more employees (ex: instead of having 10 people working 40 hours per week you can have 11 people working approximately 36 hours per week). This approach may also help to reduce general fatigue and improve the total sleep hours and rest periods available for agricultural workers. Alternatively, more technological supports should be implemented to improve farm output efficiency, improve operational bottom line, reduce mental health distress occurrence potentially caused by over work. Policy makers can help business through activities such as subsidization to improve new technology uptake

and the hiring of more workers by employers. This will help reduce long term costs associated with employee turn over as a result of mental health distress and improve overall productivity.

2. Work organization types such as unions, associations and cooperatives may need to rethink their business model to create better health outcomes for agricultural workers. This must come in the form of activities that promote self-worth among workers by allowing for more autonomy in decision making at work among organization members. These organizations must also look into their members skin covering practices to determine why certain members report feeling increase frequency of feeling so depressed that nothing could cheer them up. Actions in these areas by these groups will help to improve their image, employee satisfaction and societal licence to operate. Without community support for the work organization type; these organizations become more at risk of being regulated by policy makers.

3. More investment by business and policy makers into gender equity programing is required to improve female agricultural worker mental health outcomes. The clear difference in male versus female mental health K6 score association results show that female workers may be exposed to unknown factors that are putting them at a greater risk of experiencing poor mental health. Focusing programing on this population will ultimately improve overall community health outcomes and potentially spur increased economic activity through female capacity building and the elimination of these unknown hindering factors. Addressing these gender issues will create a more long-term

sustainably resilient and productive labour force, theoretically immune to experiencing poor mental health outcomes in the future.

These are some of the recommendations in which policy makers, businesses and organizations can take under advisement to address the findings of this investigation, become more sustainable, and improve community health outcomes in the 3 ASBC communities.

6.0 Conclusion

Overall, the exposure of continuous direct sunlight while working was only found to be positively associated with the experience of feeling like everything was an effort during the last 30 days. This association may indicate that continuous direct sunlight while at work may contribute to increased fatigue, contributing to the experience of feeling like everything was an effort during the last 30 days. No associated link was found between the exposure of sunlight and the outcome of mental health distress scores of 15 or lower (indicative of an individual experiencing a potential mental health issue). Therefore, continuous direct exposure to sunlight while working may not be directly affecting the occurrence of mental health distress/ poor mental health outcomes for agricultural workers in the ASBC. The more likely reasoning for these findings is that general fatigue caused by working in sunlight and by extension daytime heat is increasing the risk of individuals feeling like everything was an effort rather than sunlight itself. In support of this finding the exposure exposed skin percentage also does not appear to have any association with the overall outcome of mental health distress except for the feeling of so depressed that nothing could cheer you up during the last 30 days. If there was an association between sunlight exposure and 15 or lower mental health distress score outcomes, we would also expect to see individuals with more exposed skin percentages having a positive association with 15 or lower mental health distress scores. This was not observed. Interestingly, those who had more covered skin seemed to be at increased risk of feeling so depressed that nothing could cheer you up. Questions as to why still remain. This may suggest that greater than 9% skin exposure while at work offers protective factors or that workers who wear less skin covering work in a

more protective environment/ job overall. However, more research is needed into whether or not this is true.

The exposure variable of how many breaks do you take per day had an observed positive association on the mental health distress (scoring 15 or less) and the increased risk of feeling of nervousness during the last 30 days. More importantly, based on the relative risks, those who responded 0 breaks for exposure variable how many breaks do you take per day had 2.63 times the risk of also responding sometimes, almost always or always to feeling nervous during the last 30 days compared to those who responded at least 1 break for exposure how many breaks do you take per day; and those who responded 0 breaks for exposure how many breaks do you take per day had 6.5 times the risk of also achieving a score of 15 or less for outcome mental health distress compared to those who responded at least 1 break for exposure how many breaks do you take per day. This indicates that over working or lack of adequate resting periods between working times is increasing the risk of agricultural workers scoring 15 or less on the K6 mental health distress test and increasing the risk of workers reporting sometimes, almost always or always feelings of nervousness. In support of these findings the exposure variable of how many hours of continuous sleep do you get per night was found to have any observed positive association with the outcome of feeling so depressed that nothing could cheer you up. Agricultural workers who responded 0-6 hours for exposure variable how many hours of continuous sleep do you get per night, had 1.97 times the risk of also responding sometimes, almost always or always for the outcome of feeling so depressed that nothing could cheer you up during the last 30 days compared to those who responded 6+ hours for exposure how many hours of continuous sleep do you get per night. In addition, the self-perceived mental health status

outcome was also found to be positively associated with the exposure variable of sleep. Agricultural workers that responded 0-6 hours for the exposure how many hours of continuous sleep do you get per night, had 2.21 times the risk of also responding just OK rather than good or very good for the outcome of self-perceived mental health status compared to those who responded 6+ hours for exposure how many hours of continuous sleep do you get per night. This further provides evidence that improving rest for these workers is crucial in reducing their risk of experiencing feelings of depression and the lower self-perceived mental health status response. However, it is important to note that sleep was not found to be associated with the mental health distress score or other K6 test outcomes. This may suggest that lack of sleep may be a byproduct or a variable in conjunction with other confounding factors contributing to the experience of these outcomes. Over working or the variability of work hours may be a factor worth considering. More research into why agricultural workers in the ASBC experience 6 or less hours of sleep per night is needed.

The exposure variable of sex was found to have an observed positive association with the mental health distress score, feelings of nervousness, feelings of hopelessness, feeling so depressed that nothing could cheer you up, and feelings of worthlessness outcomes. Agricultural workers that were female had 9.64 times the risk of also scoring 15 or less on the K6 mental health distress score compared to males. Females also had 2.63 times the risk of responding sometimes, almost always or always to feelings of nervousness, 2.66 times the risk of responding sometimes, almost always or always to feeling of hopelessness, 1.92 times the risk of also responding sometimes, almost always or always to feeling so depressed that nothing could cheer you up, and 2.69 times the risk of also responding sometimes, almost always or always to feeling

worthless compared to males. This shows that shockingly female agricultural workers are at a by far overall higher risk of experiencing mental health distress and by extension potential mental health/ psychological health related issues. This shows that within an already considered vulnerable population of agricultural works there is an even more vulnerable population of females in need of further attention. One possible factor that may answer this finding may be due to the willingness of woman to share more information regarding their emotional well-being/ feelings compared to men due to possible cultural or social norms (machismo/ machisma culture) unidentified at the time of this study. However, this does not discount the findings and only reinforces the need for more investigation into the experience of female agricultural workers in the ASBC. The further research is needed to determine what other factors may be influencing their reported increased risk of scoring 15 or less on the K6 mental health distress test when compared to their male counterparts.

The exposure variable of do you belong to a work organization type was found not to have any observed association with the mental health distress score, feelings of nervousness, feelings of hopelessness, feeling restless or fidgety, feeling so depressed that nothing could cheer you up, and feeling like everything was an effort during the last 30 days outcomes. However, the exposure work organization type was found to have an observed positive association with the feeling of worthlessness during the last 30 days and the self-perceived emotional status outcomes. Agricultural workers that responded private (not belonging to a work organization type) had 1.26 times the risk of also responding good or very good for their self-perceived emotional status compared to those who belonged to a GROUP (Association, Union or Cooperative); In addition those workers that belonged to a GROUP (Association, Union or

Cooperative) had 3.31 times the risk of also responding sometimes, almost always or always to feeling worthless during the last 30 days compared to those workers that were private. These results suggest that belonging to a work organization type increase a worker's risk of feeling worthlessness and that being private increases the workers likelihood of responding good or very good to their self-perceived emotional status. This may be because work organizations are creating barriers to an agricultural workers ability to have autonomy in their own decision making with regards to their business or employment. This in turn may make agricultural workers feel underappreciated by the work organization contributing to the increased risk of feeling worthlessness for individuals belonging to a Union, Association or Cooperative compared to private workers. These results could also be explained by a potential inequity that exists for individuals who belong to a work organization type. For example, agricultural workers who have experienced an economic downturn and earn less income may be more inclined to join a work organization type versus an agricultural worker who is earning more. Therefore, the feelings of worthlessness could be more associated with socioeconomic status of the workers belonging to the work organization rather than the work organization itself. Alternatively, respondents may be measuring their worth based on economic success which could be a by-product of a person's stage of life. For example; individuals who are middle aged or older may be more preoccupied with earning money in order to support a family and therefore earning less overall may be what influences a respondent's feelings of worthlessness. It's important to note that other confounding factors may also be at play such as economics and type of work. However, more research is need into why organization types appear to be influencing an ASBC's agricultural workers feeling of worth.

The exposure variable of age was found not to have any observed association with the mental health distress score, feelings of nervousness, feelings of hopelessness, feeling restless or fidgety, feeling so depressed that nothing could cheer you up, feeling like everything was an effort, feeling worthless during the past 30 days, and sun exposure outcomes. This means that age is not associated with the experience of mental health distress outcome(s). In addition, age was also found not to be associated with the outcome variable of continuous exposure to direct sunlight at work. However, the age of agricultural workers does have an observed positive association with how long you work in continuous direct sunlight and the how many breaks do you take per workday outcome variables. Workers that were 65 + years old had 2.79 times the risk of also reporting taking 0 breaks compared to those who were 18-64 years old, and workers who were 18-64 years old had 3.54 times the risk of also reporting working in direct sunlight for more than 6 hours compared to those who were 65 + years old. This suggests that workers who are 18-64 years old are probably working longer hours than those who are 65+ years old and by extension taking more breaks. This may further support the previously suggestion that over working may ultimately be the underlying factor contributing to the experience of mental health distress in agricultural workers of the Alexander Skutch Biological Corridor.

In conclusion, this investigation is the first known agricultural worker mental health study to be conducted within the Alexander Skutch Biological Corridor (ASBC). The use of the K6 psych test provided a good standardised method for investigating the potential occurrence of mental health distress among workers. The overall study and study design were able to answer many questions proposed in this investigation. Continuous direct sunlight exposure was not found to be directly associated with the occurrence of overall mental health distress and mental

health/ psychological health outcomes. However, other variables such as sex, breaks taken at work, sleep, and work organization type, appear to be more strongly associated with the experience of mental health distress or mental health related feelings within the 3 ASBC communities of Santa Elena, Quizarra and Montecarlo, and thus warrants further investigation. More importantly, female workers appear to be at an increased risk of experiencing mental health related issues compared to men and should be the primary target population for any future policy or business sustainability intervention. These interventions might include: Supporting the uptake of more staff to offset any labour shortages as well as provide more time off for workers to reduce general fatigue and improve the total sleep hours and rest periods available for agricultural workers, Supporting activities that promote self-worth among workers by allowing for more autonomy in decision making at work among work organization members, Investing more resources into gender equity programing to improve female agricultural worker mental health outcomes, Increasing technological uptake supports available (ex: government subsidies) for business to improve farm output efficiency, improve operational bottom line, reduce mental health distress occurrence potentially caused by over work.

Implementing these strategies would be crucial for ensuring that this particular population does not become further negatively impacted by climate change in the future. This study must be expanded and adapted for other corridor communities to elimination limitations and to see if comparatively other ASBC communities are experiencing similar results. Future work must also include community reporting on the findings to inform communities members on what they can do with investigative results. The future plan would be to provide a community town hall style forum to outline the findings of this investigation and to receive community

feedback with regards to improving future studies. In addition, community workshops would be used to gather any creative input from the community on ways to address these findings on a more locally organized level. This will help in providing policy makers and community leaders more information for informing future intervention strategies aimed at improving business. sustainability, and the environment and health outcomes of business and agricultural workers in the ASBC.

7.0 References

AccuWeather. (2020). San Isidro, San José, Costa Rica Monthly Weather. Retrieved July 11, 2020, from https://www.accuweather.com/en/cr/san-isidro/115122/march-weather/115122?year=2020

Alexander Skutch Biological Corridor (CoBAS). (2015, February 22). Retrieved May 4, 2020, from http://cobas.odd.ucr.ac.cr/en/about

Alston, Julian & Pardey, Philip. (2014). Agriculture in the Global Economy. The Journal of Economic Perspectives. 28. 10.1257/jep.28.1.121.

Andrade, C. (2015). Understanding Relative Risk, Odds Ratio, and Related Terms: As Simple as It Can Get, Journal of Clinical Psychiatry, 76(7): 857-861. Retrieved July 15, 2020, from http://www.pitt.edu/~bertsch/risk.pdf

Atun, R., de Jongh, T., Secci, F., Ohiri, K., & Adeyi, O. (2010). Integration of targeted health interventions into health systems: a conceptual framework for analysis. Health Policy and Planning, 25(2), 104–111. https://doi.org/10.1093/heapol/czp055

Barraza, D., Jansen, K., de Joode, B. V. W., & Wesseling, C. (2011). Pesticide use in banana and plantain production and risk perception among local actors in Talamanca, Costa Rica. Environmental research, 111(5), 708-717.

Berry HL, Bowen K, Kjellstrom T. (2010). Climate change and mental health: a causal pathways framework. Int J Public Health. 2010;55:123–32

Brown, S. L., & Eisenhardt, K. M. (1997). The Art of Continuous Change: Linking Complexity Theory and Time-Paced Evolution in Relentlessly Shifting Organizations. Administrative Science Quarterly, 42(1), 1–34. https://doi.org/10.2307/2393807

Benavides, F. G., & Salazar, P.-M. (2016). Cuestionario básico y criterios metodológicos para las Encuestas sobre Condiciones de Trabajo, Empleo y Salud en América Latina y el Caribe. Retrieved December 18, 2019, from https://repositori.upf.edu/bitstream/handle/10230/33177/Benavides_CadSP_cues.pdf?sequence=1&isAllowed=y) (Benavides et al., (2016) CTESLAC).

Benavides, F. G., Wesseling, C., Delclos, G. L., Felknor, S., Pinilla, J., & Rodrigo, F. (2014). Working conditions and health in Central America: a survey of 12 024 workers in six countries. Occup Environ Med, 71(7), 459-465.

Bevan, S. (2010). *The business case for employee health and well-being*. A report prepared for Investors in People. London: The Work Foundation.

Bunch, M. J., & Montoya-Greenheck, F. (2015). Building ecological connectivity and human well-being in the Alexander Skutch Biological Corridor, Costa Rica: Scenarios and tools for social-ecological systems (Final Technical Report, IDRC). Retrieved July 10, 2020, from https://lasnubes.fes.yorku.ca/publication/building-ecological-connectivity-and-human-well-being-in-the-alexander-skutch-biological-corridor-costa-rica-scenarios-and-tools-for-social-ecological-systems-final-technical-report-idrc

Charron D.F. (2012). Ecohealth Research in Practice: Innovative Applications of an Ecosystem Approach to Health. Published by International Development Research Centre, 1-68

Costanza, R., de Groot, R., Braat, L., Kubiszewski, I., Fioramonti, L., Sutton, P., … Grasso, M. (2017). Twenty years of ecosystem services: How far have we come and how far do we still need to go? Ecosystem Services, 28, 1–16. https://doi.org/10.1016/j.ecoser.2017.09.008

Crowe, J., Wesseling, C., Solano, B. R., Umaña, M. P., Ramírez, A. R., Kjellstrom, T., … Nilsson, M. (2013). Heat exposure in sugarcane harvesters in Costa Rica. American Journal of Industrial Medicine, 56(10), 1157–1164. https://doi.org/10.1002/ajim.22204

Daugherty, H. E. (2005). Biodiversity conservation and rural sustainability: a case study of the Alexander Skutch Biological Corridor in Southern Costa Rica . Retrieved April 29, 2020, from https://www.witpress.com/Secure/elibrary/papers/ECO05/ECO05017FU.pdf

Enache-Pommer, E., & Horman, M. (2009). Key Processes in the Building Delivery of Green Hospitals. In Construction Research Congress 2009 (pp. 636–645). Seattle, Washington, United States: American Society of Civil Engineers. https://doi.org/10.1061/41020(339)65

Global surface temperature | NASA Global Climate Change. (2019, February 19). Retrieved April 25, 2019, from https://climate.nasa.gov/vital-signs/global-temperature/

Gómez Ortiz, V. (2011). Assessment of psychosocial stressors at work: psychometric properties of the JCQ in Colombian workers. Revista Latinoamericana de psicologia, 43(2), 329-342.

Howe, A., & Anderson, J. (2003). Involving patients in medical education. BMJ, 327(7410), 326–328. https://doi.org/10.1136/bmj.327.7410.326

Jeebhay, M. F., & Quirce, S. (2007). Occupational asthma in the developing and industrialised world: a review [State of the Art Series. Occupational lung disease in high- and low-income countries, Edited by M. Chan-Yeung. Number 1 in the series]. Retrieved January 24, 2019, from https://www.researchgate.net/publication/233600934_Occupational_asthma_in_the_developing_and_industrialised_world_a_review_State_of_the_Art_Series_Occupational_lung

_disease_in_high-_and_low-income_countries_Edited_by_M_Chan-Yeung_Number_1_in_the_serie

Jeyaratnam, J. (1990). ACUTE PESTICIDE POISONING: A MAJOR GLOBAL HEALTH PROBLEM. World Health Statistics Quarterly, (43), 6.

Kessler, R.C., Green, J.G., Gruber, M.J., Sampson, N.A., Bromet, E., Cuitan, M., Furukawa, T.A., Gureje, O., Hinkov, H., Hu, C.Y., Lara, C., Lee, S., Mneimneh, Z., Myer, L., Oakley-Browne, M., Posada-Villa, J., Sagar, R., Viana, M.C., Zaslavsky, A.M. (2010). Screening for serious mental illness in the general population with the K6 screening scale: results from the WHO World Mental Health (WMH) survey initiative. *International Journal of Methods in Psychiatric Research* 19(S1), 4-22

Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., Howes, M. J., et al. (2003). Screening for serious mental illness in the general population. Archives of General Psychiatry, 60(2), 184- 189. doi:10.1001/archpsyc.60.2.184

Kortum, E., Leka, S., & Cox, T. (2010). Psychosocial risks and work-related stress in developing countries: health impact, priorities, barriers and solutions. International Journal of Occupational Medicine and Environmental Health, 23(3). https://doi.org/10.2478/v10001-010-0024-5

Kortum, E., Leka, S., Kortum, E., Leka, S., Kortum, E., & Leka, S. (2014). Tackling psychosocial risks and work-related stress in developing countries: The need for a multilevel intervention framework. International Journal of Stress Management, 21(1), 7-26.

Las Nubes Project. Retrieved May 4, 2020, from https://lasnubes.info.yorku.ca/community/asbc/

Loewenson, R. (2001). Globalization and occupational health: a perspective from southern Africa. Bulletin of the World Health Organization, 79, 863–868. https://doi.org/10.1590/S0042-96862001000900012

Lucchini, R. G., & London, L. (2014). Global Occupational Health: Current Challenges and the Need for Urgent Action. Annals of Global Health, 80(4), 251–256. https://doi.org/10.1016/j.aogh.2014.09.006

Lundgren, K., Kuklane, K., Holmer, I., & Chuansi GAO. (2012, February 15). Effects of Heat Stress on Working Populations when Facing Climate Change. Retrieved April 18, 2019, from https://www.jstage.jst.go.jp/article/indhealth/51/1/51_2012-0089/_article/-char/ja/

National Comorbidity Survey. Retrieved July 10, 2020, from https://www.hcp.med.harvard.edu/ncs/k6_scales.php

Nuwayhid, I. A. (2004). Occupational Health Research in Developing Countries: A Partner for Social Justice. American Journal of Public Health, 94(11), 1916–1921. https://doi.org/10.2105/AJPH.94.11.1916

Olewiler, N. (2016). Helping Markets Get Prices Right: Natural Capital, Ecosystem Services, and Sustainability. Canadian Public Policy, 42(S1), S32–S38.

Patterson, R. E. (2001). Chapter 4-Overview of Nutritional Epidemiology. In *Nutrition in the Prevention and Treatment of Disease* (pp. 59-68). Seattle, Washington: Academic Press. https://doi.org/10.1016/B978-012193155-1/50006-4

Pesticide residues in the aquatic environment of banana plantation areas in the North Atlantic Zone of Costa Rica - Castillo - 2000 - Environmental Toxicology and Chemistry - Wiley Online Library. (2018). Retrieved September 11, 2018, from https://setac.onlinelibrary.wiley.com/doi/pdf/10.1002/etc.5620190802

Rainbird, G., & O'Neill, D. (1995). Occupational disorders affecting agricultural workers in tropical developing countries: Results of a literature review. Applied Ergonomics, 26(3), 187–193. https://doi.org/10.1016/0003-6870(95)00016-6

Rapson, A., Bunch, M., Daugherty, H. (2012). A Decade of Change: Assessing Forest Cover and Land Use Trends in the Alexander Skutch Biological Corridor, Costa Rica. Latin American Journal of Conservation, 2(2) – 3(1): 37-46.

Robertson, R., & Lechner, F. (1985). Modernization, Globalization and the Problem of Culture in World-Systems Theory. Theory, Culture & Society, 2(3), 103–117. https://doi.org/10.1177/0263276485002003009

Tawatsupa, B., Lim, L., Kjellstrom, T., & Seubsman, S. (2010, May 13). The association between overall health, psychological distress, and occupational heat stress among a large national cohort of 40,913 Thai workers. Retrieved April 23, 2019, from https://www.tandfonline.com/doi/full/10.3402/gha.v3i0.5034?scroll=top&needAccess=true

TBSA Burn Estimate Chart. (2011, October). Retrieved June 11, 2020, from http://www.phsa.ca/Documents/Trauma-Services/tbsaburnestimationchart1.pdf

The World Bank. (2020). Agriculture and Food. Retrieved July 13, 2020, from https://www.worldbank.org/en/topic/agriculture/overview

Tiwary, G., & Gangopadhyay, P. K. (2011). A review on the occupational health and social security of unorganized workers in the construction industry. Indian Journal of Occupational and Environmental Medicine, 15(1), 18-24. doi:10.4103/0019-5278.83003

Wallerstein, I. M. (2004). World-systems Analysis: An Introduction. Duke University Press. Retrieved October 26, 2018, from https://books.google.ca/books?hl=en&lr=&id=5vGr7kRsXBkC&oi=fnd&pg=PP9&dq=w

orld+systems+&ots=TdJ9PDjSks&sig=RtEZGFywFS3_15QWuoGQ7mp_a7Q&redir_esc=y#v=onepage&q&f=false

Whitmee, S., Haines, A., Beyrer, C., Boltz, F., Capon, A. G., de Souza Dias, B. F., … Yach, D. (2015). Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health. The Lancet, 386(10007), 1973–2028. https://doi.org/10.1016/S0140-6736(15)60901-1

Wenzel, R., & Edmond, M. (2010). Infection control: the case for horizontal rather than vertical interventional programs. https://doi.org/10.1016/j.ijid.2010.05.002

Wesseling, C., Antich, D., Hogstedt, C., Rodríguez, A. C., & Ahlbom, A. (1999). Geographical differences of cancer incidence in Costa Rica in relation to environmental and occupational pesticide exposure. International Journal of Epidemiology, 28(3), 365–374. https://doi.org/10.1093/ije/28.3.365

Wesseling, C., Aragón, A., Morgado, H., Elgstrand, K., Hogstedt, C., & Partanen, T. (2002). Occupational Health in Central America. International Journal of Occupational and Environmental Health, 8(2), 125–136. https://doi.org/10.1179/107735202800339028

Wesseling, C., Castillo, L., & Elinder, C. G. (1993). Pesticide poisonings in Costa Rica. Scandinavian journal of work, environment & health, 227-235.

WHO. Mental disorders affect one in four people. (2013, July 29). Retrieved April 25, 2019, from https://www.who.int/whr/2001/media_centre/press_release/en/

WHO. Mental health in the workplace. (2017, October 06). Retrieved April 25, 2019, from https://www.who.int/mental_health/in_the_workplace/en/

Appendix A.

This Appendix includes figures and tables pertaining to the analysis of the Mental Health and Sun/ Heat Exposure of Agricultural Workers in the Alexander Skutch Biological Corridor (MHASBC 2020) investigation.

Analysis Figures contain the full analysis conducted between the exposure and outcome variable selected through the JMP 8 software. Recall, this analysis was used to test the associative relationship between the determined exposure and outcome variables. These figures show the results of the Fisher's exact tests, odds ratio, and relative risk under their corresponding heading.

Contingency Analysis Mosaic Plot Figures show a visual representation of how the grouped responses of exposure and outcome variables matched up in a 2x2 format.

Contingency Analysis Tables show the breakdown of the n (number) of responses reported per exposure and outcome variable grouping in a 2x2 format and aligns with the Contingency Analysis Mosaic Plots Figures and Analysis Figures.

Recall, these abbreviations were used in the titles of the Figures and Tables. Each abbreviation corresponds to the particular exposure outcome variable relationship being analysed.

- How often do you work in direct sunlight? (SOL (3)),
- How many breaks do you take per day (including lunch if applicable)? (BREAKS_D (02)),
- On average, for how long per day do you work in continuous direct sunlight? (SOL_T (02)),
- What parts of your body is not covered in clothes while working? (CORP (2)),
- What is your sex? (SEX),
- On average, for the past 30 days, how many hours of continuous sleep do you get per night? (SLEEP (01)),
- How do you consider your mental health status? (MENTAL_S (04)),
- Do you belong to a Work organization type group (ex: Association, Union, Cooperative) or are you Private/ Independent? (AD_1 (02)),
- In general, how do you feel? (This refers to an emotional state) (EMOT (1)),
- What is your age in years? (AGE (02)),
- During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2)),
- During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2)),
- During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2)),
- During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2)),
- During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2)),
- During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2)),
- What is your K6 Test Score Total? (K6_TOTAL (1)),

Note. Abbreviations to the questions are included within the brackets ( ).

Recall, the question variable response groups are as so:

Question Variable Response Groupings

Question Variables	Response Grouping A	Response Grouping B
How often do you work in direct sunlight? (SOL (3))	Never or Almost Never	Sometimes, Often or Very Often
How many breaks do you take per day (including lunch if applicable)? (BREAKS_D (02))	0 breaks	At least 1 break
On average, for how long per day do you work in continuous direct sunlight? (SOL_T (02))	1-6 hours	Greater than 6 hours
What parts of your body is not covered in clothes while working? (CORP (2))	0-9% exposed	> 9% exposed
What is your sex? (SEX),	Man (Male)	Woman (Female)
On average, for the past 30 days, how many hours of continuous sleep do you get per night? (SLEEP (01))	0-6 hours	6 + hours
How do you consider your mental health status? (MENTAL_S (04))	OK	Good or Very Good
Do you belong to a Work organization type group (ex: Association, Union, Cooperative) or are you Private/ Independent? (AD_1 (02))	Private	Group (Association, Union or Cooperative)
In general, how do you feel? (This refers to an emotional state) (EMOT (1))	OK	Good or Very Good
What is your age in years? (AGE (02))	18-64 years old	65 + years old

During the past 30 days, about how often did you feel nervous? (K6_Q1_A (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel hopeless? (K6_Q1_B (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel restless or fidgety? (K6_Q1_C (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel so depressed that nothing could cheer you up? (K6_Q1_D (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel that everything was an effort? (K6_Q1_E (2))	Never or Almost Never	Sometimes, Almost Always or Always
During the past 30 days, about how often did you feel worthless? (K6_Q1_F (2))	Never or Almost Never	Sometimes, Almost Always or Always
What is your K6 Test Score Total? (K6_TOTAL (1))	15 or lower	Greater than 15

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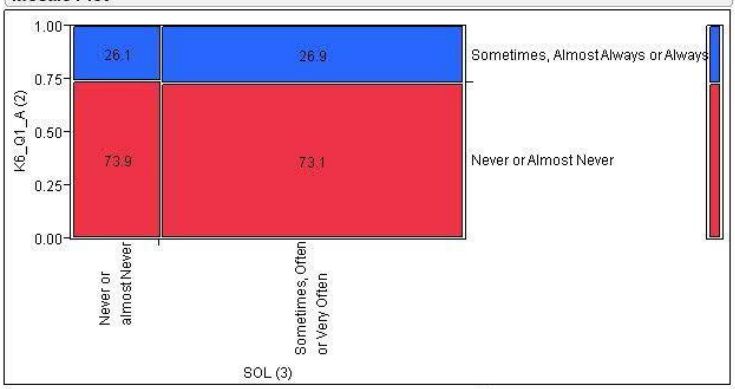
Analysis of Feelings of Nervousness by Sunlight Exposure (K6_Q1_A (2) by SOL (3))

Contingency Analysis of K6_Q1_A (2) By SOL (3)

Mosaic Plot



Contingency Table

SOL (3)	K6_Q1_A (2)		
Count Total % Col % Row %	Never or Almost Never	Sometimes, Almost Always or Always	
Never or almost Never	17 16.83 22.97 73.91	6 5.94 22.22 26.09	23 22.77
Sometimes, Often or Very Often	57 56.44 77.03 73.08	21 20.79 77.78 26.92	78 77.23
	74 73.27	27 26.73	101

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.00318160	0.0001

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.006	0.9364
Pearson	0.006	0.9365

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.6277	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Never or almost Never than Sometimes, Often or Very Often
Right	0.5833	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Sometimes, Often or Very Often than Never or almost Never
2-Tail	1.0000	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is different across SOL (3)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)/P(Never or Almost Never|Sometimes, Often or Very Often)	1.011442	0.766225	1.335135
P(Never or Almost Never|Sometimes, Often or Very Often)/P(Never or Almost Never|Never or almost Never)	0.988688	0.748988	1.305099
P(Sometimes, Almost Always or Always|Never or almost Never)/P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	0.968944	0.444597	2.111692
P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)/P(Sometimes, Almost Always or Always|Never or almost Never)	1.032051	0.473554	2.249227

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)-P(Never or Almost Never|Sometimes, Often or Very Often)	0.008361	-0.19632	0.213041
P(Sometimes, Almost Always or Always|Never or almost Never)-P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	-0.00836	-0.21304	0.196319

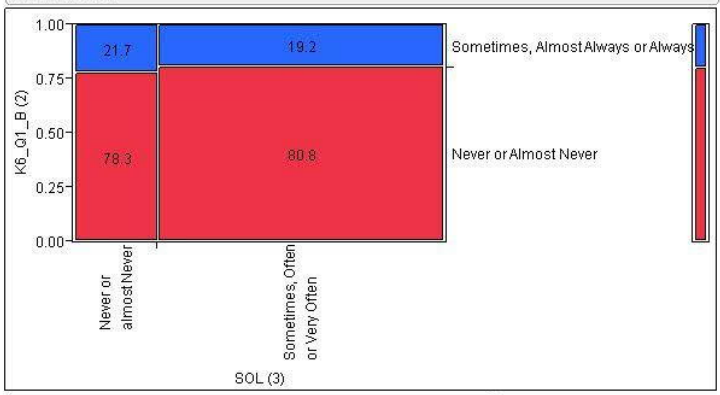
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.04386	0.362861	3.002922

Figure 2.
Analysis of Feelings of Hopelessness by Sunlight Exposure (K6_Q1_B (2) by SOL (3))

Contingency Analysis of K6_Q1_B (2) By SOL (3)

Mosaic Plot



Contingency Table

SOL (3)	K6_Q1_B (2)	Never or Almost Never	Sometimes, Almost Always or Always	
	Count			
	Total %			
	Col %			
	Row %			
Never or almost Never		18	5	23
		17.82	4.95	22.77
		22.22	25.00	
		78.26	21.74	
Sometimes, Often or Very Often		63	15	78
		62.38	14.85	77.23
		77.78	75.00	
		80.77	19.23	
		81	20	101
		80.20	19.80	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.03461174	0.0007

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.069	0.7925
Pearson	0.070	0.7908

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.4994	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Never or almost Never than Sometimes, Often or Very Often
Right	0.7205	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Sometimes, Often or Very Often than Never or almost Never
2-Tail	0.7721	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is different across SOL (3)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)/P(Never or Almost Never|Sometimes, Often or Very Often)	0.968944	0.761374	1.233103
P(Never or Almost Never|Sometimes, Often or Very Often)/P(Never or Almost Never|Never or almost Never)	1.032051	0.810962	1.313415
P(Sometimes, Almost Always or Always|Never or almost Never)/P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	1.130435	0.460081	2.777516
P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)/P(Sometimes, Almost Always or Always|Never or almost Never)	0.884615	0.360034	2.17353

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)-P(Never or Almost Never|Sometimes, Often or Very Often)	-0.02508	-0.21499	0.164825
P(Sometimes, Almost Always or Always|Never or almost Never)-P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	0.025084	-0.16482	0.214992

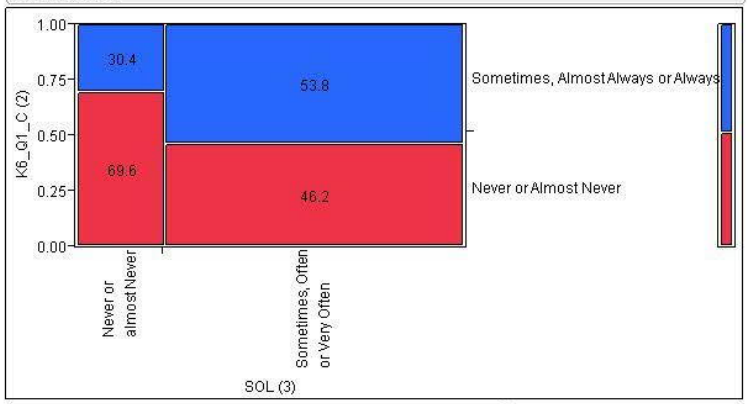
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.857143	0.274229	2.679122

Figure 3.
Analysis of Feeling Restless or Fidgety by Sunlight Exposure (K6_Q1_C (2) by SOL (3))

Contingency Analysis of K6_Q1_C (2) By SOL (3)

Mosaic Plot



Contingency Table

	K6_Q1_C (2)		
SOL (3)	Never or Almost Never	Sometimes, Almost Always or Always	
Never or almost Never	16	7	23
	15.84	6.93	22.77
	30.77	14.29	
	69.57	30.43	
Sometimes, Often or Very Often	36	42	78
	35.64	41.58	77.23
	69.23	85.71	
	46.15	53.85	
	52	49	101
	51.49	48.51	

Tests

N	DF	-LogLike	RSquare (U)
101	1	1.9952451	0.0285

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.990	0.0458*
Pearson	3.898	0.0484*

Fisher's

Exact Test	Prob	Alternative Hypothesis
Left	0.9874	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Never or almost Never than Sometimes, Often or Very Often
Right	0.0403*	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Sometimes, Often or Very Often than Never or almost Never
2-Tail	0.0594	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is different across SOL (3)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)/P(Never or Almost Never|Sometimes, Often or Very Often)	1.507246	1.050217	2.163165
P(Never or Almost Never|Sometimes, Often or Very Often)/P(Never or Almost Never|Never or almost Never)	0.663462	0.462286	0.952184
P(Sometimes, Almost Always or Always|Never or almost Never)/P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	0.565217	0.294735	1.083924
P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)/P(Sometimes, Almost Always or Always|Never or almost Never)	1.769231	0.922574	3.392875

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)-P(Never or Almost Never|Sometimes, Often or Very Often)	0.234114	0.015937	0.45229
P(Sometimes, Almost Always or Always|Never or almost Never)-P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	-0.23411	-0.45229	-0.01594

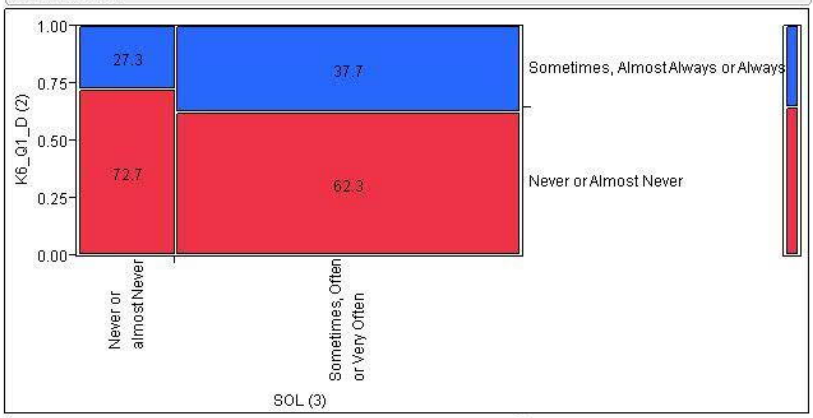
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
2.666667	0.98741	7.201785

Figure 4.
Analysis of Feeling So Depressed That Nothing Could Cheer You Up by Sunlight Exposure (K6_Q1_D (2) by SOL (3))

Contingency Analysis of K6_Q1_D (2) By SOL (3)

Mosaic Plot



Contingency Table

SOL (3)	K6_Q1_D (2)		
Count Total % Col % Row %	Never or Almost Never	Sometimes, Almost Always or Always	
Never or almost Never	16 16.16 25.00 72.73	6 6.06 17.14 27.27	22 22.22
Sometimes, Often or Very Often	48 48.48 75.00 62.34	29 29.29 82.86 37.66	77 77.78
	64 64.65	35 35.35	99

Tests

N	DF	-LogLike	RSquare (U)
99	1	0.41641818	0.0065

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.833	0.3615
Pearson	0.808	0.3687

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.8764	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Never or almost Never than Sometimes, Often or Very Often
Right	0.2622	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Sometimes, Often or Very Often than Never or almost Never
2-Tail	0.4533	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is different across SOL (3)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)/P(Never or Almost Never|Sometimes, Often or Very Often)	1.166667	0.856351	1.589432
P(Never or Almost Never|Sometimes, Often or Very Often)/P(Never or Almost Never|Never or almost Never)	0.857143	0.629156	1.167746
P(Sometimes, Almost Always or Always|Never or almost Never)/P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	0.724138	0.345355	1.518368
P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)/P(Sometimes, Almost Always or Always|Never or almost Never)	1.380952	0.658602	2.895573

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)-P(Never or Almost Never|Sometimes, Often or Very Often)	0.103896	-0.11139	0.319179
P(Sometimes, Almost Always or Always|Never or almost Never)-P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	-0.1039	-0.31918	0.111387

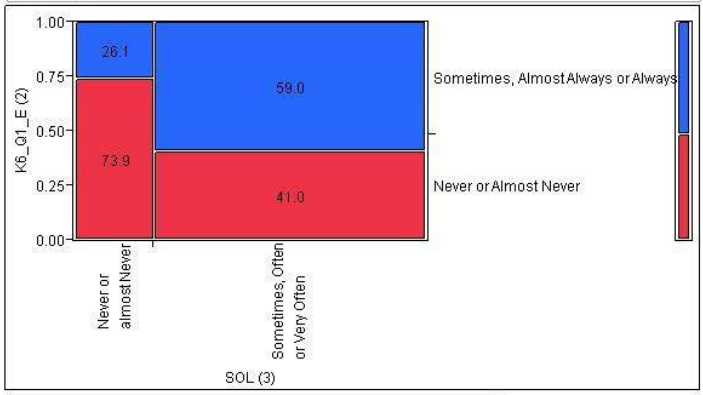
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.611111	0.566397	4.582793

Figure 5.
Analysis of Feeling Like Everything Was an Effort by Sunlight Exposure (K6_Q1_E (2) by SOL (3))

Contingency Analysis of K6_Q1_E (2) By SOL (3)

Mosaic Plot



Contingency Table

K6_Q1_E (2)

SOL (3)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
Never or almost Never		17	6	23
		16.83	5.94	22.77
		34.69	11.54	
		73.91	26.09	
Sometimes, Often or Very Often		32	46	78
		31.68	45.54	77.23
		65.31	88.46	
		41.03	58.97	
		49	52	101
		48.51	51.49	

Tests

N	DF	-LogLike	RSquare (U)
101	1	3.9598856	0.0566

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	7.920	0.0049*
Pearson	7.691	0.0055*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.9989	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Never or almost Never than Sometimes, Often or Very Often
Right	0.0052*	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Sometimes, Often or Very Often than Never or almost Never
2-Tail	0.0083*	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is different across SOL (3)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)/P(Never or Almost Never|Sometimes, Often or Very Often)	1.80163	1.256703	2.582847
P(Never or Almost Never|Sometimes, Often or Very Often)/P(Never or Almost Never|Never or almost Never)	0.555053	0.38717	0.795733
P(Sometimes, Almost Always or Always|Never or almost Never)/P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	0.442344	0.216959	0.901867
P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)/P(Sometimes, Almost Always or Always|Never or almost Never)	2.260684	1.108811	4.609163

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)-P(Never or Almost Never|Sometimes, Often or Very Often)	0.328874	0.118827	0.538921
P(Sometimes, Almost Always or Always|Never or almost Never)-P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	-0.32887	-0.53892	-0.11883

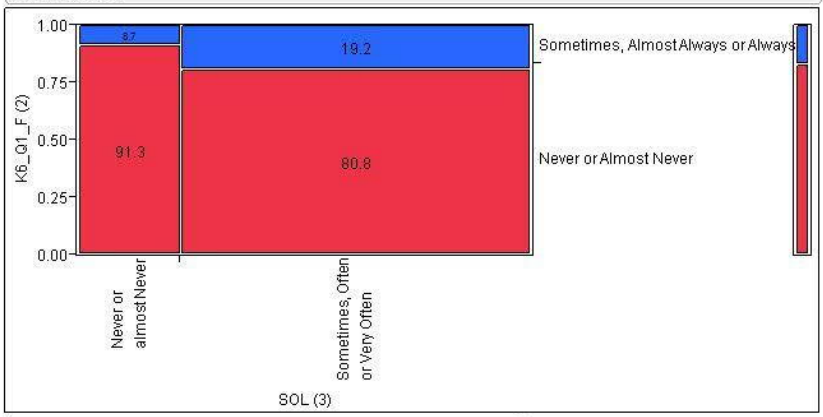
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
4.072917	1.447827	11.45762

Figure 6.
Analysis of Feeling Worthless by Sunlight Exposure (K6_Q1_F (2) by SOL (3))

Contingency Analysis of K6_Q1_F (2) By SOL (3)

Mosaic Plot



Contingency Table

SOL (3)	K6_Q1_F (2)	Never or Almost Never	Sometimes, Almost Always or Always	
	Count			
	Total %			
	Col %			
	Row %			
Never or almost Never		21	2	23
		20.79	1.98	22.77
		25.00	11.76	
		91.30	8.70	
Sometimes, Often or Very Often		63	15	78
		62.38	14.85	77.23
		75.00	88.24	
		80.77	19.23	
		84	17	101
		83.17	16.83	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.79378513	0.0173

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	1.588	0.2077
Pearson	1.408	0.2353

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.9427	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Never or almost Never than Sometimes, Often or Very Often
Right	0.1955	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for SOL (3)=Sometimes, Often or Very Often than Never or almost Never
2-Tail	0.3463	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is different across SOL (3)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)/P(Never or Almost Never|Sometimes, Often or Very Often)	1.130435	0.957309	1.334869
P(Never or Almost Never|Sometimes, Often or Very Often)/P(Never or Almost Never|Never or almost Never)	0.884615	0.749137	1.044594
P(Sometimes, Almost Always or Always|Never or almost Never)/P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	0.452174	0.111483	1.834021
P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)/P(Sometimes, Almost Always or Always|Never or almost Never)	2.211538	0.54525	8.970016

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Never or almost Never)-P(Never or Almost Never|Sometimes, Often or Very Often)	0.105351	-0.03925	0.249955
P(Sometimes, Almost Always or Always|Never or almost Never)-P(Sometimes, Almost Always or Always|Sometimes, Often or Very Often)	-0.10535	-0.24995	0.039253

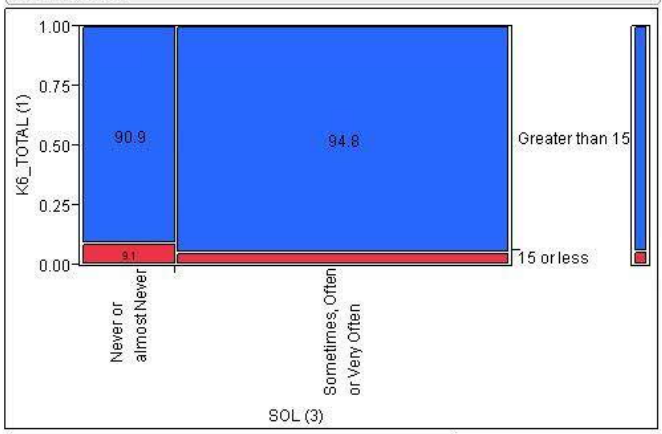
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
2.5	0.527515	11.84801

Figure 7.
Analysis of Mental Distress Score by Sunlight Exposure (K6_TOTAL (1) by SOL (3))

Contingency Analysis of K6_TOTAL (1) By SOL (3)

Mosaic Plot



Contingency Table

SOL (3)	K6_TOTAL (1)	15 or less	Greater than 15	
	Count			
	Total %			
	Col %			
	Row %			
	Never or almost Never	2	20	22
		2.02	20.20	22.22
		33.33	21.51	
		9.09	90.91	
	Sometimes, Often or Very Often	4	73	77
		4.04	73.74	77.78
		66.67	78.49	
		5.19	94.81	
		6	93	99
		6.06	93.94	

Tests

N	DF	-LogLike	RSquare (U)
99	1	0.20826051	0.0092

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.417	0.5187
Pearson	0.456	0.4994

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.8785	Prob(K6_TOTAL (1)=Greater than 15) is greater for SOL (3)=Never or almost Never than Sometimes, Often or Very Often
Right	0.4005	Prob(K6_TOTAL (1)=Greater than 15) is greater for SOL (3)=Sometimes, Often or Very Often than Never or almost Never
2-Tail	0.6121	Prob(K6_TOTAL (1)=Greater than 15) is different across SOL (3)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(15 or less|Never or almost Never)/P(15 or less|Sometimes, Often or Very Often)	1.75	0.342909	8.93094
P(15 or less|Sometimes, Often or Very Often)/P(15 or less|Never or almost Never)	0.571429	0.11197	2.916225
P(Greater than 15|Never or almost Never)/P(Greater than 15|Sometimes, Often or Very Often)	0.958904	0.831875	1.10533
P(Greater than 15|Sometimes, Often or Very Often)/P(Greater than 15|Never or almost Never)	1.042857	0.904707	1.202103

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(15 or less|Never or almost Never)-P(15 or less|Sometimes, Often or Very Often)	0.038961	-0.09099	0.168914
P(Greater than 15|Never or almost Never)-P(Greater than 15|Sometimes, Often or Very Often)	-0.03896	-0.16891	0.090992

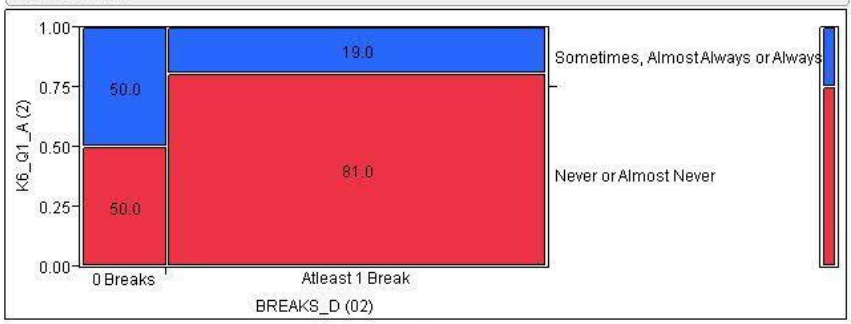
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.825	0.311483	10.6928

Figure 8.
Analysis of Feeling Nervousness by Number of Break(s) Taken at Work (K6_Q1_A (2) by BREAKS_D (02))

Contingency Analysis of K6_Q1_A (2) By BREAKS_D (02)

Mosaic Plot



Contingency Table

K6_Q1_A (2)

BREAKS_D (02)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
0 Breaks		9	9	18
		9.28	9.28	18.56
		12.33	37.50	
		50.00	50.00	
Atleast 1 Break		64	15	79
		65.98	15.46	81.44
		87.67	62.50	
		81.01	18.99	
		73	24	97
		75.26	24.74	

Tests

N	DF	-LogLike	RSquare (U)
97	1	3.3963745	0.0626

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	6.793	0.0092*
Pearson	7.572	0.0059*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0094*	Prob(K6_Q1_A(2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.9982	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.0127*	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)/P(Never or Almost Never|Atleast 1 Break)	0.617188	0.384149	0.991596
P(Never or Almost Never|Atleast 1 Break)/P(Never or Almost Never|0 Breaks)	1.620253	1.008476	2.603157
P(Sometimes, Almost Always or Always|0 Breaks)/P(Sometimes, Almost Always or Always|Atleast 1 Break)	2.633333	1.37643	5.037991
P(Sometimes, Almost Always or Always|Atleast 1 Break)/P(Sometimes, Almost Always or Always|0 Breaks)	0.379747	0.198492	0.726517

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)-P(Never or Almost Never|Atleast 1 Break)	-0.31013	-0.55677	-0.06348
P(Sometimes, Almost Always or Always|0 Breaks)-P(Sometimes, Almost Always or Always|Atleast 1 Break)	0.310127	0.063482	0.556771

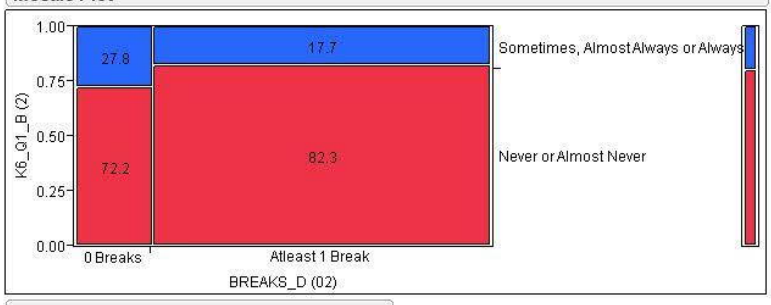
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.234375	0.079468	0.691239

Figure 9.
Analysis of Feelings of Hopelessness by Number of Break(s) Taken at Work (K6_Q1_B (2) by BREAKS_D (02))

Contingency Analysis of K6_Q1_B (2) By BREAKS_D (02)

Mosaic Plot



Contingency Table

BREAKS_D (02)	K6_Q1_B (2)		
Count Total % Col % Row %	Never or Almost Never	Sometimes, Almost Always or Always	
0 Breaks	13 13.40 16.67 72.22	5 5.15 26.32 27.78	18 18.56
Atleast 1 Break	65 67.01 83.33 82.28	14 14.43 73.68 17.72	79 81.44
	78 80.41	19 19.59	97

Tests

N	DF	-LogLike	RSquare (U)
97	1	0.43977021	0.0092

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.880	0.3483
Pearson	0.941	0.3320

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.2530	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.8997	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.3366	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)/P(Never or Almost Never|Atleast 1 Break)	0.877778	0.647529	1.189898
P(Never or Almost Never|Atleast 1 Break)/P(Never or Almost Never|0 Breaks)	1.139241	0.840408	1.544332
P(Sometimes, Almost Always or Always|0 Breaks)/P(Sometimes, Almost Always or Always|Atleast 1 Break)	1.56746	0.647859	3.792387
P(Sometimes, Almost Always or Always|Atleast 1 Break)/P(Sometimes, Almost Always or Always|0 Breaks)	0.637975	0.263686	1.543546

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)-P(Never or Almost Never|Atleast 1 Break)	-0.10056	-0.32396	0.122831
P(Sometimes, Almost Always or Always|0 Breaks)-P(Sometimes, Almost Always or Always|Atleast 1 Break)	0.100563	-0.12283	0.323956

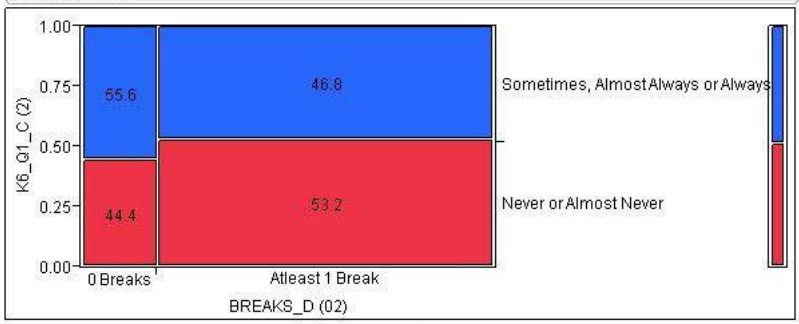
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.56	0.171721	1.826217

Figure 10.
Analysis of Feeling Restless or Fidgety by Number of Break(s) Taken at Work (K6_Q1_C (2) by BREAKS_D (02))

Contingency Analysis of K6_Q1_C (2) By BREAKS_D (02)

Mosaic Plot



Contingency Table

K6_Q1_C (2)

Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
BREAKS_D (02)			
0 Breaks	8	10	18
	8.25	10.31	18.56
	16.00	21.28	
	44.44	55.56	
Atleast 1 Break	42	37	79
	43.30	38.14	81.44
	84.00	78.72	
	53.16	46.84	
	50	47	97
	51.55	48.45	

Tests

N	DF	-LogLike	RSquare (U)
97	1	0.22327538	0.0033

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.447	0.5040
Pearson	0.446	0.5041

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.3420	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.8235	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.6044	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)/P(Never or Almost Never|Atleast 1 Break)	0.835979	0.47923	1.458298
P(Never or Almost Never|Atleast 1 Break)/P(Never or Almost Never|0 Breaks)	1.196203	0.685731	2.086679
P(Sometimes, Almost Always or Always|0 Breaks)/P(Sometimes, Almost Always or Always|Atleast 1 Break)	1.186186	0.737436	1.908014
P(Sometimes, Almost Always or Always|Atleast 1 Break)/P(Sometimes, Almost Always or Always|0 Breaks)	0.843038	0.524105	1.35605

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)-P(Never or Almost Never|Atleast 1 Break)	-0.0872	-0.34176	0.167363
P(Sometimes, Almost Always or Always|0 Breaks)-P(Sometimes, Almost Always or Always|Atleast 1 Break)	0.087201	-0.16736	0.341765

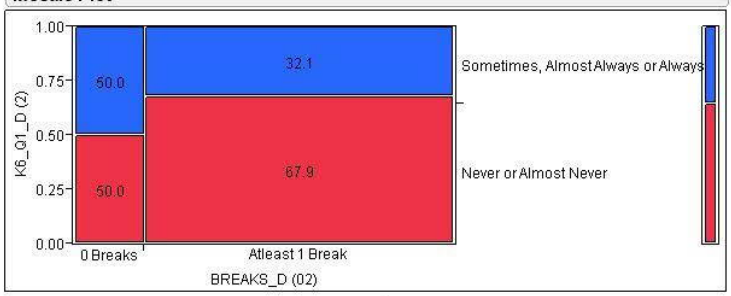
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.704762	0.251762	1.972853

Figure 11.
Analysis of Feeling so Depressed That Nothing Could Cheer You Up by Number of Break(s) Taken at Work (K6_Q1_D (2) by BREAKS_D (02))

Contingency Analysis of K6_Q1_D (2) By BREAKS_D (02)

Mosaic Plot



Contingency Table

K6_Q1_D (2)

BREAKS_D (02)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
0 Breaks		9	9	18
		9.38	9.38	18.75
		14.52	26.47	
		50.00	50.00	
Atleast 1 Break		53	25	78
		55.21	26.04	81.25
		85.48	73.53	
		67.95	32.05	
		62	34	96
		64.58	35.42	

Tests

N	DF	-LogLike	RSquare (U)
96	1	0.99626598	0.0160

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	1.993	0.1581
Pearson	2.060	0.1512

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.1235	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.9543	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.1774	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)/P(Never or Almost Never|Atleast 1 Break)	0.735849	0.452398	1.196896
P(Never or Almost Never|Atleast 1 Break)/P(Never or Almost Never|0 Breaks)	1.358974	0.835494	2.210441
P(Sometimes, Almost Always or Always|0 Breaks)/P(Sometimes, Almost Always or Always|Atleast 1 Break)	1.56	0.887744	2.741332
P(Sometimes, Almost Always or Always|Atleast 1 Break)/P(Sometimes, Almost Always or Always|0 Breaks)	0.641026	0.364786	1.126451

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)-P(Never or Almost Never|Atleast 1 Break)	-0.17949	-0.43263	0.073652
P(Sometimes, Almost Always or Always|0 Breaks)-P(Sometimes, Almost Always or Always|Atleast 1 Break)	0.179487	-0.07365	0.432626

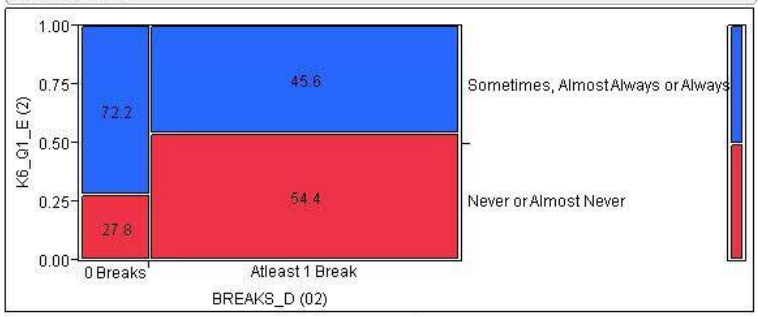
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.471698	0.166869	1.333379

Figure 12.
Analysis of Feeling Like Everything Was an Effort by Number of Break(s) Taken at Work (K6_Q1_E (2) by BREAKS_D (02))

Contingency Analysis of K6_Q1_E (2) By BREAKS_D (02)

Mosaic Plot



Contingency Table

BREAKS_D (02)	K6_Q1_E (2): Never or Almost Never	Sometimes, Almost Always or Always	
Count / Total % / Col % / Row %			
0 Breaks	5	13	18
	5.15	13.40	18.56
	10.42	26.53	
	27.78	72.22	
Atleast 1 Break	43	36	79
	44.33	37.11	81.44
	89.58	73.47	
	54.43	45.57	
	48	49	97
	49.48	50.52	

Tests

N	DF	-LogLike	RSquare (U)
97	1	2.1468678	0.0319

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	4.294	0.0383*
Pearson	4.166	0.0412*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0365*	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.9903	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.0658	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)/P(Never or Almost Never|Atleast 1 Break)	0.510336	0.235881	1.104129
P(Never or Almost Never|Atleast 1 Break)/P(Never or Almost Never|0 Breaks)	1.959494	0.905691	4.239432
P(Sometimes, Almost Always or Always|0 Breaks)/P(Sometimes, Almost Always or Always|Atleast 1 Break)	1.584877	1.08994	2.304562
P(Sometimes, Almost Always or Always|Atleast 1 Break)/P(Sometimes, Almost Always or Always|0 Breaks)	0.630964	0.433922	0.917482

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)-P(Never or Almost Never|Atleast 1 Break)	-0.26653	-0.50078	-0.03227
P(Sometimes, Almost Always or Always|0 Breaks)-P(Sometimes, Almost Always or Always|Atleast 1 Break)	0.266526	0.03227	0.500782

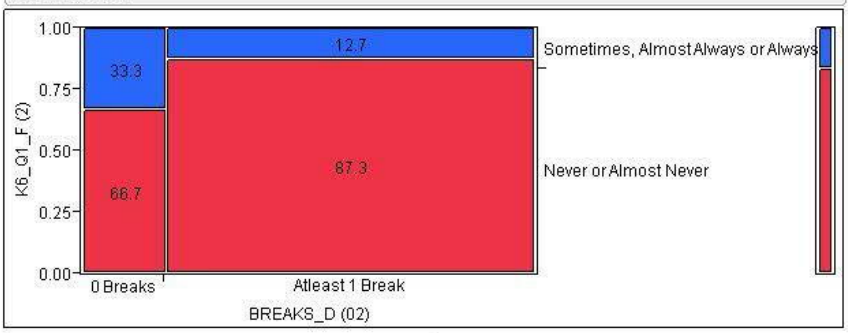
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.322004	0.104809	0.989288

Figure 13.
Analysis of Feeling Worthless by Number of Break(s) Taken at Work (K6_Q1_F (2) by BREAKS_D (02))

Contingency Analysis of K6_Q1_F (2) By BREAKS_D (02)

Mosaic Plot



Contingency Table

BREAKS_D (02)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
		K6_Q1_F (2)		
0 Breaks		12	6	18
		12.37	6.19	18.56
		14.81	37.50	
		66.67	33.33	
Atleast 1 Break		69	10	79
		71.13	10.31	81.44
		85.19	62.50	
		87.34	12.66	
		81	16	97
		83.51	16.49	

Tests

N	DF	-LogLike	RSquare (U)
97	1	1.9707282	0.0454

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.941	0.0471*
Pearson	4.549	0.0329*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0436*	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.9901	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.0708	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)/P(Never or Almost Never|Atleast 1 Break)	0.763285	0.544766	1.069457
P(Never or Almost Never|Atleast 1 Break)/P(Never or Almost Never|0 Breaks)	1.310127	0.935054	1.83565
P(Sometimes, Almost Always or Always|0 Breaks)/P(Sometimes, Almost Always or Always|Atleast 1 Break)	2.633333	1.099796	6.30521
P(Sometimes, Almost Always or Always|Atleast 1 Break)/P(Sometimes, Almost Always or Always|0 Breaks)	0.379747	0.158599	0.90926

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0 Breaks)-P(Never or Almost Never|Atleast 1 Break)	-0.20675	-0.43654	0.023035
P(Sometimes, Almost Always or Always|0 Breaks)-P(Sometimes, Almost Always or Always|Atleast 1 Break)	0.206751	-0.02303	0.436537

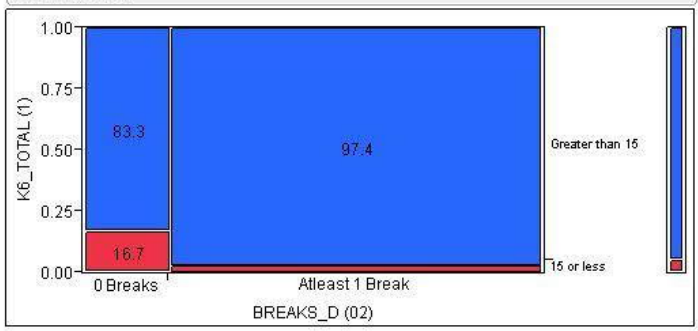
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.289855	0.088773	0.946409

Figure 14.
Analysis of Mental Distress Score by Number of Break(s) Taken at Work (K6_TOTAL (1) by BREAKS_D (02))

Contingency Analysis of K6_TOTAL (1) By BREAKS_D (02)

Mosaic Plot



Contingency Table

BREAKS_D (02)	Count / Total % / Col % / Row %	15 or less	Greater than 15	
		K6_TOTAL (1)		
0 Breaks		3	15	18
		3.13	15.63	18.75
		60.00	16.48	
		16.67	83.33	
Atleast 1 Break		2	76	78
		2.08	79.17	81.25
		40.00	83.52	
		2.56	97.44	
		5	91	96
		5.21	94.79	

Tests

N	DF	-LogLike	RSquare (U)
96	1	2.2306597	0.1136

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	4.461	0.0347*
Pearson	5.891	0.0152*

Fisher's

Exact Test	Prob	Alternative Hypothesis
Left	0.9960	Prob(K6_TOTAL (1)=Greater than 15) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.0441*	Prob(K6_TOTAL (1)=Greater than 15) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.0441*	Prob(K6_TOTAL (1)=Greater than 15) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(15 or less|0 Breaks)/P(15 or less|Atleast 1 Break)	6.5	1.170676	36.09025
P(15 or less|Atleast 1 Break)/P(15 or less|0 Breaks)	0.153846	0.027708	0.854207
P(Greater than 15|0 Breaks)/P(Greater than 15|Atleast 1 Break)	0.855263	0.693463	1.054815
P(Greater than 15|Atleast 1 Break)/P(Greater than 15|0 Breaks)	1.169231	0.948034	1.442038

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(15 or less|0 Breaks)-P(15 or less|Atleast 1 Break)	0.141026	-0.03468	0.316728
P(Greater than 15|0 Breaks)-P(Greater than 15|Atleast 1 Break)	-0.14103	-0.31673	0.034677

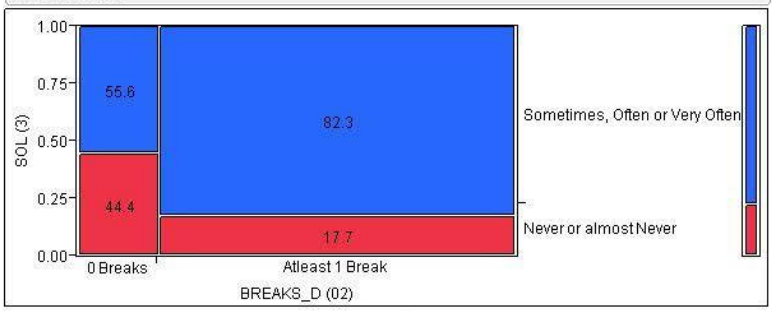
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
7.6	1.167915	49.45564

Figure 15.
Analysis of Sunlight Exposure by Number of Break(s) Taken at Work (SOL (3) by BREAKS_D (02))

Contingency Analysis of SOL (3) By BREAKS_D (02)

Mosaic Plot



Contingency Table

BREAKS_D (02)	Count / Total % / Col % / Row %	SOL (3): Never or almost Never	SOL (3): Sometimes, Often or Very Often	
0 Breaks		8	10	18
		8.25	10.31	18.56
		36.36	13.33	
		44.44	55.56	
Atleast 1 Break		14	65	79
		14.43	67.01	81.44
		63.64	86.67	
		17.72	82.28	
		22	75	97
		22.68	77.32	

Tests

N	DF	-LogLike	RSquare (U)
97	1	2.6627089	0.0513

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.325	0.0210*
Pearson	5.970	0.0146*

Fisher's

Exact Test	Prob	Alternative Hypothesis
Left	0.9955	Prob(SOL (3)=Sometimes, Often or Very Often) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.0202*	Prob(SOL (3)=Sometimes, Often or Very Often) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.0259*	Prob(SOL (3)=Sometimes, Often or Very Often) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or almost Never|0 Breaks)/P(Never or almost Never|Atleast 1 Break)	2.507937	1.243157	5.059494
P(Never or almost Never|Atleast 1 Break)/P(Never or almost Never|0 Breaks)	0.398734	0.197648	0.804404
P(Sometimes, Often or Very Often|0 Breaks)/P(Sometimes, Often or Very Often|Atleast 1 Break)	0.675214	0.441134	1.033505
P(Sometimes, Often or Very Often|Atleast 1 Break)/P(Sometimes, Often or Very Often|0 Breaks)	1.481013	0.967582	2.266887

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or almost Never|0 Breaks)-P(Never or almost Never|Atleast 1 Break)	0.267229	0.022719	0.511739
P(Sometimes, Often or Very Often|0 Breaks)-P(Sometimes, Often or Very Often|Atleast 1 Break)	-0.26723	-0.51174	-0.02272

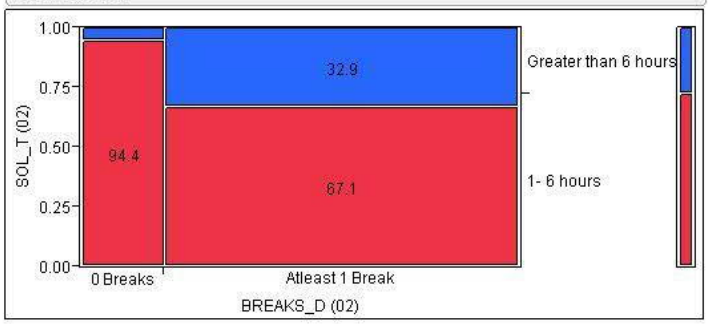
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
3.714286	1.243261	11.09656

Figure 16.
Analysis of Length of Work in Direct Sunlight by Number of Break(s) Taken at Work (SOL_T (02) by BREAKS_D (02))

Contingency Analysis of SOL_T (02) By BREAKS_D (02)

Mosaic Plot



Contingency Table

BREAKS_D (02)	SOL_T (02)		
Count Total % Col % Row %	1- 6 hours	Greater than 6 hours	
0 Breaks	17 18.09 25.00 94.44	1 1.06 3.85 5.56	18 19.15
Atleast 1 Break	51 54.26 75.00 67.11	25 26.60 96.15 32.89	76 80.85
	68 72.34	26 27.66	94

Tests

N	DF	-LogLike	RSquare (U)
94	1	3.4298798	0.0619

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	6.860	0.0088*
Pearson	5.436	0.0197*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.9986	Prob(SOL_T (02)=Greater than 6 hours) is greater for BREAKS_D (02)=0 Breaks than Atleast 1 Break
Right	0.0144*	Prob(SOL_T (02)=Greater than 6 hours) is greater for BREAKS_D (02)=Atleast 1 Break than 0 Breaks
2-Tail	0.0197*	Prob(SOL_T (02)=Greater than 6 hours) is different across BREAKS_D (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(1- 6 hours|0 Breaks)/P(1- 6 hours|Atleast 1 Break)	1.407407	1.160136	1.707383
P(1- 6 hours|Atleast 1 Break)/P(1- 6 hours|0 Breaks)	0.710526	0.585692	0.861968
P(Greater than 6 hours|0 Breaks)/P(Greater than 6 hours|Atleast 1 Break)	0.168889	0.024474	1.165449
P(Greater than 6 hours|Atleast 1 Break)/P(Greater than 6 hours|0 Breaks)	5.921053	0.858039	40.85931

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(1- 6 hours|0 Breaks)-P(1- 6 hours|Atleast 1 Break)	0.273392	0.123875	0.422908
P(Greater than 6 hours|0 Breaks)-P(Greater than 6 hours|Atleast 1 Break)	-0.27339	-0.42291	-0.12388

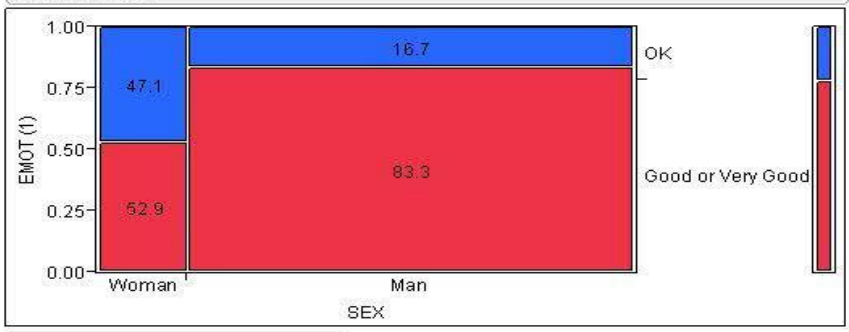
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
8.333333	1.048631	66.2239

Figure 17.
Analysis of Self-Perceived Emotional Status by Sex (EMOT (1) by SEX)

Contingency Analysis of EMOT (1) By SEX

Mosaic Plot



Contingency Table

EMOT (1)

Count / Total % / Col % / Row %	Good or Very Good	OK	
Woman	9	8	17
	8.91	7.92	16.83
	11.39	36.36	
	52.94	47.06	
Man	70	14	84
	69.31	13.86	83.17
	88.61	63.64	
	83.33	16.67	
	79	22	101
	78.22	21.78	

SEX

Tests

N	DF	-LogLike	RSquare (U)
101	1	3.3366430	0.0630

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	6.673	0.0098*
Pearson	7.665	0.0056*

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.0101*	Prob(EMOT (1)=OK) is greater for SEX=Woman than Man
Right	0.9981	Prob(EMOT (1)=OK) is greater for SEX=Man than Woman
2-Tail	0.0101*	Prob(EMOT (1)=OK) is different across SEX

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Good or Very Good|Woman)/P(Good or Very Good|Man)	0.635294	0.401747	1.004608
P(Good or Very Good|Man)/P(Good or Very Good|Woman)	1.574074	0.995413	2.489128
P(OK|Woman)/P(OK|Man)	2.823529	1.409306	5.656911
P(OK|Man)/P(OK|Woman)	0.354167	0.176775	0.709569

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Good or Very Good|Woman)-P(Good or Very Good|Man)	-0.30392	-0.55422	-0.05363
P(OK|Woman)-P(OK|Man)	0.303922	0.053625	0.554218

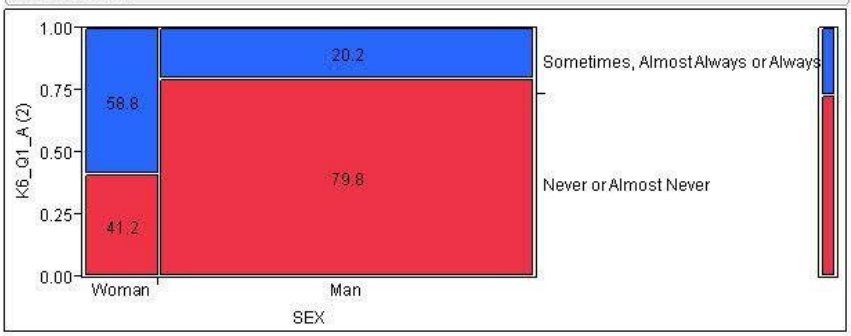
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.225	0.074011	0.684016

Figure 18.
Analysis of Feelings of Nervousness by Sex (K6_Q1_A (2) by SEX)

Contingency Analysis of K6_Q1_A (2) By SEX

Mosaic Plot



Contingency Table

K6_Q1_A (2)

SEX	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
Woman		7	10	17
		6.93	9.90	16.83
		9.46	37.04	
		41.18	58.82	
Man		67	17	84
		66.34	16.83	83.17
		90.54	62.96	
		79.76	20.24	
		74	27	101
		73.27	26.73	

Tests

N	DF	-LogLike	RSquare (U)
101	1	4.8117763	0.0821

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	9.624	0.0019*
Pearson	10.747	0.0010*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0022*	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for SEX=Woman than Man
Right	0.9997	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for SEX=Man than Woman
2-Tail	0.0022*	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is different across SEX

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)/P(Never or Almost Never|Man)	0.516242	0.289539	0.92045
P(Never or Almost Never|Man)/P(Never or Almost Never|Woman)	1.937075	1.086425	3.453767
P(Sometimes, Almost Always or Always|Woman)/P(Sometimes, Almost Always or Always|Man)	2.906574	1.624567	5.200262
P(Sometimes, Almost Always or Always|Man)/P(Sometimes, Almost Always or Always|Woman)	0.344048	0.192298	0.615549

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)-P(Never or Almost Never|Man)	-0.38585	-0.63508	-0.13663
P(Sometimes, Almost Always or Always|Woman)-P(Sometimes, Almost Always or Always|Man)	0.385854	0.136626	0.635083

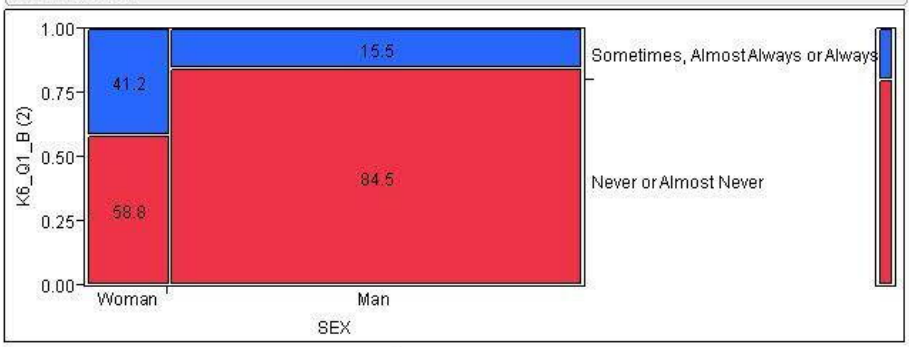
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.177612	0.058955	0.535087

Figure 19.
Analysis of Feelings of Hopelessness by Sex (K6_Q1_B (2) by SEX)

Contingency Analysis of K6_Q1_B (2) By SEX

Mosaic Plot



Contingency Table

K6_Q1_B (2)

SEX	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
Woman		10	7	17
		9.90	6.93	16.83
		12.35	35.00	
		58.82	41.18	
Man		71	13	84
		70.30	12.87	83.17
		87.65	65.00	
		84.52	15.48	
		81	20	101
		80.20	19.80	

Tests

N	DF	-LogLike	RSquare (U)
101	1	2.5507421	0.0507

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.101	0.0239*
Pearson	5.880	0.0153*

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.0231*	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for SEX=Woman than Man
Right	0.9951	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for SEX=Man than Woman
2-Tail	0.0391*	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is different across SEX

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)/P(Never or Almost Never|Man)	0.69594	0.462736	1.046672
P(Never or Almost Never|Man)/P(Never or Almost Never|Woman)	1.436905	0.955409	2.161058
P(Sometimes, Almost Always or Always|Woman)/P(Sometimes, Almost Always or Always|Man)	2.660633	1.248417	5.670358
P(Sometimes, Almost Always or Always|Man)/P(Sometimes, Almost Always or Always|Woman)	0.37585	0.176356	0.801015

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)-P(Never or Almost Never|Man)	-0.257	-0.50341	-0.0106
P(Sometimes, Almost Always or Always|Woman)-P(Sometimes, Almost Always or Always|Man)	0.257003	0.010599	0.503407

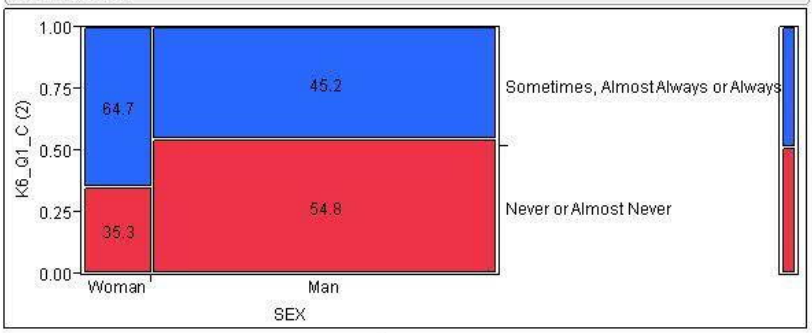
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.261569	0.084286	0.811746

Figure 20.
Analysis of Feeling Restless or Fidgety by Sex (K6_Q1_C (2) by SEX)

Contingency Analysis of K6_Q1_C (2) By SEX

Mosaic Plot



Contingency Table

	K6_Q1_C (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
SEX: Woman	6	11	17
	5.94	10.89	16.83
	11.54	22.45	
	35.29	64.71	
SEX: Man	46	38	84
	45.54	37.62	83.17
	88.46	77.55	
	54.76	45.24	
	52	49	101
	51.49	48.51	

Tests

N	DF	-LogLike	RSquare (U)
101	1	1.0832494	0.0155

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	2.166	0.1410
Pearson	2.145	0.1430

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.1152	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for SEX=Woman than Man
Right	0.9590	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for SEX=Man than Woman
2-Tail	0.1861	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is different across SEX

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)/P(Never or Almost Never|Man)	0.644501	0.329023	1.262471
P(Never or Almost Never|Man)/P(Never or Almost Never|Woman)	1.551587	0.792098	3.039301
P(Sometimes, Almost Always or Always|Woman)/P(Sometimes, Almost Always or Always|Man)	1.430341	0.937334	2.182653
P(Sometimes, Almost Always or Always|Man)/P(Sometimes, Almost Always or Always|Woman)	0.699134	0.458158	1.066856

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)-P(Never or Almost Never|Man)	-0.19468	-0.44555	0.056189
P(Sometimes, Almost Always or Always|Woman)-P(Sometimes, Almost Always or Always|Man)	0.194678	-0.05619	0.445545

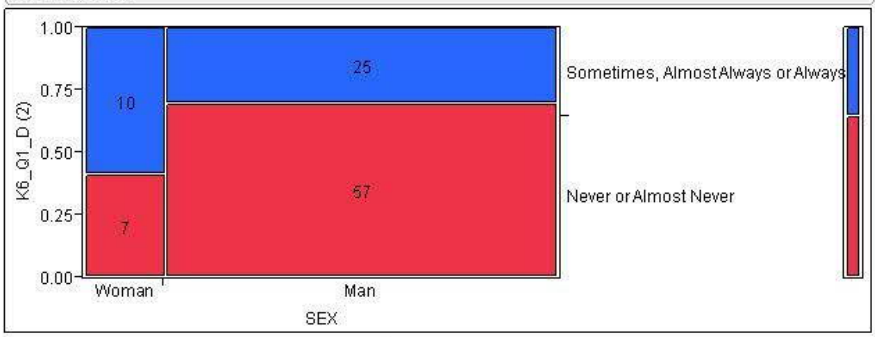
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.450593	0.152478	1.331562

Figure 21.
Analysis of Feeling So Depressed That Nothing Could Cheer You Up by Sex (K6_Q1_D (2) by SEX)

Contingency Analysis of K6_Q1_D (2) By SEX

Mosaic Plot



Contingency Table

	K6_Q1_D (2)		
SEX	Count Total % Col % Row %	Never or Almost Never	Sometimes, Almost Always or Always	
Woman		7	10	17
		7.07	10.10	17.17
		10.94	28.57	
		41.18	58.82	
Man		57	25	82
		57.58	25.25	82.83
		89.06	71.43	
		69.51	30.49	
		64	35	99
		64.65	35.35	

Tests

N	DF	-LogLike	RSquare (U)
99	1	2.3686004	0.0368

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	4.737	0.0295*
Pearson	4.947	0.0261*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0277*	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for SEX=Woman than Man
Right	0.9930	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for SEX=Man than Woman
2-Tail	0.0482*	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is different across SEX

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)/P(Never or Almost Never|Man)	0.592363	0.32969	1.064317
P(Never or Almost Never|Man)/P(Never or Almost Never|Woman)	1.688153	0.93957	3.033155
P(Sometimes, Almost Always or Always|Woman)/P(Sometimes, Almost Always or Always|Man)	1.929412	1.153089	3.228398
P(Sometimes, Almost Always or Always|Man)/P(Sometimes, Almost Always or Always|Woman)	0.518293	0.309751	0.867236

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)-P(Never or Almost Never|Man)	-0.28336	-0.53764	-0.02907
P(Sometimes, Almost Always or Always|Woman)-P(Sometimes, Almost Always or Always|Man)	0.283357	0.029072	0.537642

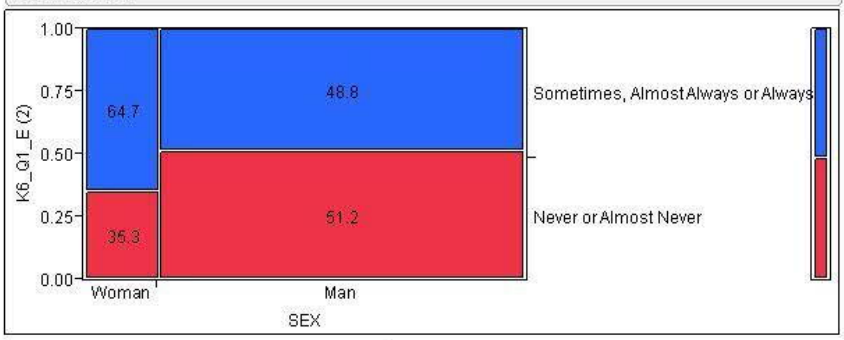
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.307018	0.104865	0.89887

Figure 22.
Analysis of Feeling Like Everything Was an Effort by Sex (K6_Q1_E (2) by SEX)

Contingency Analysis of K6_Q1_E (2) By SEX

Mosaic Plot



Contingency Table

SEX	K6_Q1_E (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
Woman	6	11	17
	5.94	10.89	16.83
	12.24	21.15	
	35.29	64.71	
Man	43	41	84
	42.57	40.59	83.17
	87.76	78.85	
	51.19	48.81	
	49	52	101
	48.51	51.49	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.72553080	0.0104

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	1.451	0.2284
Pearson	1.430	0.2317

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.1765	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for SEX=Woman than Man
Right	0.9292	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for SEX=Man than Woman
2-Tail	0.2917	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is different across SEX

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)/P(Never or Almost Never|Man)	0.689466	0.350461	1.356395
P(Never or Almost Never|Man)/P(Never or Almost Never|Woman)	1.450397	0.737248	2.853383
P(Sometimes, Almost Always or Always|Woman)/P(Sometimes, Almost Always or Always|Man)	1.325681	0.876465	2.005135
P(Sometimes, Almost Always or Always|Man)/P(Sometimes, Almost Always or Always|Woman)	0.754329	0.49872	1.140946

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)-P(Never or Almost Never|Man)	-0.15896	-0.41002	0.092097
P(Sometimes, Almost Always or Always|Woman)-P(Sometimes, Almost Always or Always|Man)	0.158964	-0.0921	0.410025

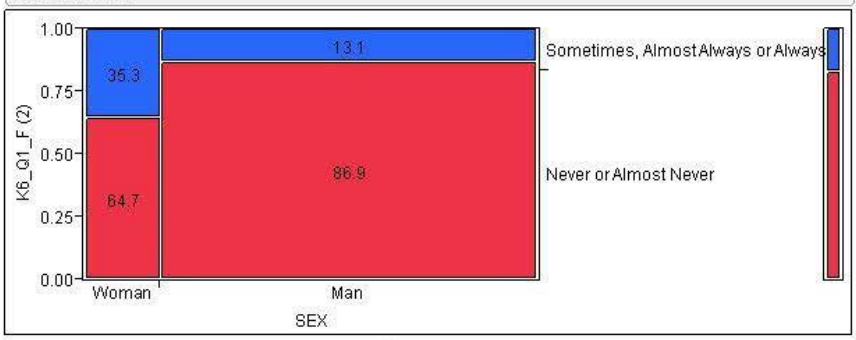
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.520085	0.176121	1.535806

Figure 23.
Analysis of Feeling Worthless by Sex (K6_Q1_F (2) by SEX)

Contingency Analysis of K6_Q1_F (2) By SEX

Mosaic Plot



Contingency Table

K6_Q1_F (2)

SEX	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
Woman		11	6	17
		10.89	5.94	16.83
		13.10	35.29	
		64.71	35.29	
Man		73	11	84
		72.28	10.89	83.17
		86.90	64.71	
		86.90	13.10	
		84	17	101
		83.17	16.83	

Tests

N	DF	-LogLike	RSquare (U)
101	1	2.1284883	0.0465

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	4.257	0.0391*
Pearson	4.977	0.0257*

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.0367*	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for SEX=Woman than Man
Right	0.9920	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for SEX=Man than Woman
2-Tail	0.0367*	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is different across SEX

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)/P(Never or Almost Never|Man)	0.744561	0.519069	1.06801
P(Never or Almost Never|Man)/P(Never or Almost Never|Woman)	1.343074	0.936321	1.926527
P(Sometimes, Almost Always or Always|Woman)/P(Sometimes, Almost Always or Always|Man)	2.695187	1.15518	6.288225
P(Sometimes, Almost Always or Always|Man)/P(Sometimes, Almost Always or Always|Woman)	0.371032	0.159027	0.865666

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|Woman)-P(Never or Almost Never|Man)	-0.22199	-0.46034	0.016359
P(Sometimes, Almost Always or Always|Woman)-P(Sometimes, Almost Always or Always|Man)	0.221989	-0.01636	0.460336

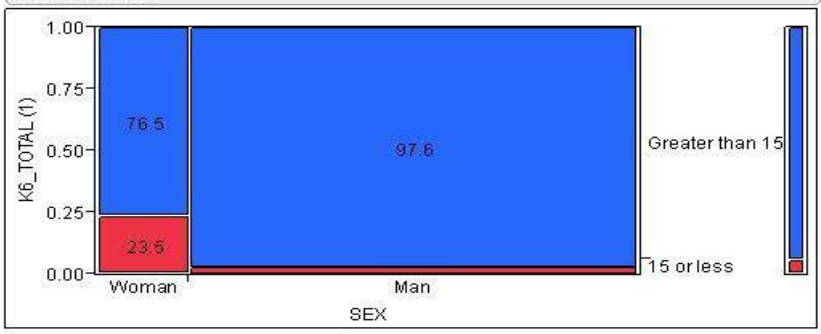
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.276256	0.084927	0.898625

Figure 24.
Analysis of Mental Health Distress Score by Sex (K6_TOTAL (1) by SEX)

Contingency Analysis of K6_TOTAL (1) By SEX

Mosaic Plot



Contingency Table

	K6_TOTAL (1)		
SEX	15 or less	Greater than 15	
Woman	4	13	17
	4.04	13.13	17.17
	66.67	13.98	
	23.53	76.47	
Man	2	80	82
	2.02	80.81	82.83
	33.33	86.02	
	2.44	97.56	
	6	93	99
	6.06	93.94	

Tests

N	DF	-LogLike	RSquare (U)
99	1	3.9568946	0.1748

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	7.914	0.0049*
Pearson	11.001	0.0009*

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.9995	Prob(K6_TOTAL (1)=Greater than 15) is greater for SEX=Woman than Man
Right	0.0075*	Prob(K6_TOTAL (1)=Greater than 15) is greater for SEX=Man than Woman
2-Tail	0.0075*	Prob(K6_TOTAL (1)=Greater than 15) is different across SEX

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(15 or less|Woman)/P(15 or less|Man)	9.647059	1.918678	48.50514
P(15 or less|Man)/P(15 or less|Woman)	0.103659	0.020616	0.521192
P(Greater than 15|Woman)/P(Greater than 15|Man)	0.783824	0.600816	1.022574
P(Greater than 15|Man)/P(Greater than 15|Woman)	1.275797	0.977924	1.664402

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(15 or less|Woman)-P(15 or less|Man)	0.210904	0.006519	0.415289
P(Greater than 15|Woman)-P(Greater than 15|Man)	-0.2109	-0.41529	-0.00652

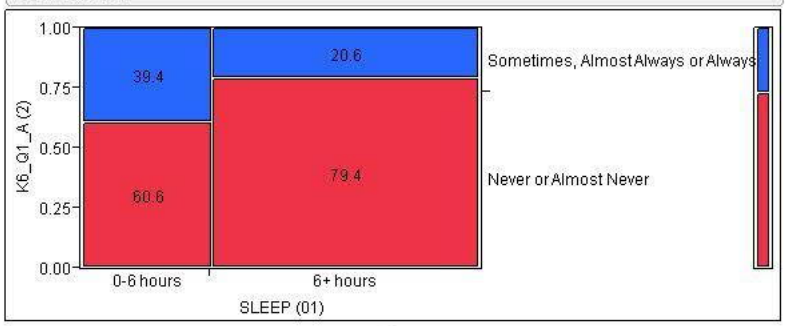
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
12.30769	2.043175	74.13918

Figure 25.
Analysis of Feelings of Nervousness by Sleep (hours) (K6_Q1_A (2) by SLEEP (01))

Contingency Analysis of K6_Q1_A (2) By SLEEP (01)

Mosaic Plot



Contingency Table

	K6_Q1_A (2)		
SLEEP (01)	Never or Almost Never	Sometimes, Almost Always or Always	
0-6 hours	20	13	33
	19.80	12.87	32.67
	27.03	48.15	
	60.61	39.39	
6+ hours	54	14	68
	53.47	13.86	67.33
	72.97	51.85	
	79.41	20.59	
	74	27	101
	73.27	26.73	

Count
Total %
Col %
Row %

Tests

N	DF	-LogLike	RSquare (U)
101	1	1.9384147	0.0331

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.877	0.0490*
Pearson	4.012	0.0452*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0405*	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=0-6 hours than 6+ hours
Right	0.9865	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=6+ hours than 0-6 hours
2-Tail	0.0568	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is different across SLEEP (01)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)/P(Never or Almost Never|6+ hours)	0.763187	0.56509	1.030729
P(Never or Almost Never|6+ hours)/P(Never or Almost Never|0-6 hours)	1.310294	0.970187	1.769629
P(Sometimes, Almost Always or Always|0-6 hours)/P(Sometimes, Almost Always or Always|6+ hours)	1.91342	1.019002	3.592905
P(Sometimes, Almost Always or Always|6+ hours)/P(Sometimes, Almost Always or Always|0-6 hours)	0.522624	0.278326	0.981353

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)-P(Never or Almost Never|6+ hours)	-0.18806	-0.38049	0.004371
P(Sometimes, Almost Always or Always|0-6 hours)-P(Sometimes, Almost Always or Always|6+ hours)	0.188057	-0.00437	0.380485

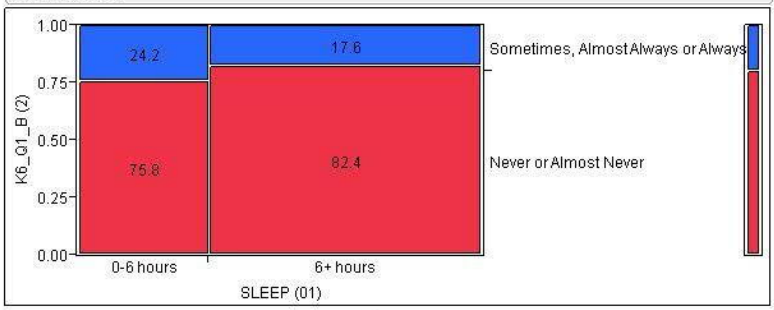
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.39886	0.160111	0.993619

Figure 26.
Analysis of Feelings of Hopelessness by Sleep (hours) (K6_Q1_B (2) by SLEEP (01))

Contingency Analysis of K6_Q1_B (2) By SLEEP (01)

Mosaic Plot



Contingency Table

K6_Q1_B (2)

SLEEP (01)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
0-6 hours		25	8	33
		24.75	7.92	32.67
		30.86	40.00	
		75.76	24.24	
6+ hours		56	12	68
		55.45	11.88	67.33
		69.14	60.00	
		82.35	17.65	
		81	20	101
		80.20	19.80	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.29687415	0.0059

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.594	0.4410
Pearson	0.609	0.4353

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.2992	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=0-6 hours than 6+ hours
Right	0.8521	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=6+ hours than 0-6 hours
2-Tail	0.4377	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is different across SLEEP (01)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)/P(Never or Almost Never|6+ hours)	0.919913	0.736653	1.148764
P(Never or Almost Never|6+ hours)/P(Never or Almost Never|0-6 hours)	1.087059	0.870501	1.35749
P(Sometimes, Almost Always or Always|0-6 hours)/P(Sometimes, Almost Always or Always|6+ hours)	1.373737	0.622163	3.033216
P(Sometimes, Almost Always or Always|6+ hours)/P(Sometimes, Almost Always or Always|0-6 hours)	0.727941	0.329683	1.607296

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)-P(Never or Almost Never|6+ hours)	-0.06595	-0.23797	0.10606
P(Sometimes, Almost Always or Always|0-6 hours)-P(Sometimes, Almost Always or Always|6+ hours)	0.065954	-0.10606	0.237968

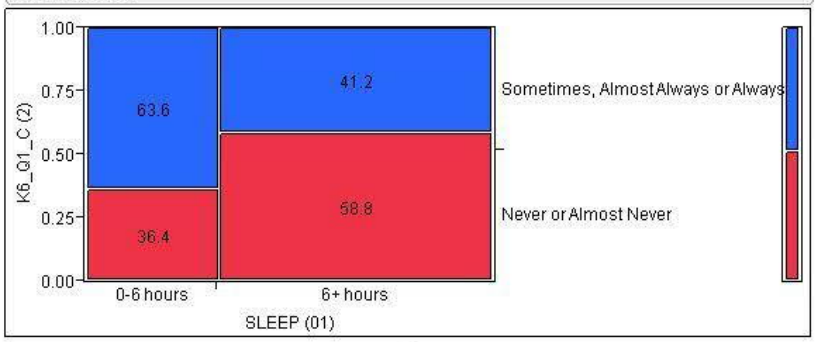
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.669643	0.2436	1.840811

Figure 27.
Analysis of Feeling Restless or Fidgety by Sleep (hours) (K6_Q1_C (2) by SLEEP (01))

Contingency Analysis of K6_Q1_C (2) By SLEEP (01)

Mosaic Plot



Contingency Table

	K6_Q1_C (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
0-6 hours	12	21	33
	11.88	20.79	32.67
	23.08	42.86	
	36.36	63.64	
6+ hours	40	28	68
	39.60	27.72	67.33
	76.92	57.14	
	58.82	41.18	
	52	49	101
	51.49	48.51	

SLEEP (01)

Tests

N	DF	-LogLike	RSquare (U)
101	1	2.2627862	0.0323

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	4.526	0.0334*
Pearson	4.487	0.0342*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0280*	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=0-6 hours than 6+ hours
Right	0.9904	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=6+ hours than 0-6 hours
2-Tail	0.0553	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is different across SLEEP (01)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)/P(Never or Almost Never|6+ hours)	0.618182	0.3775	1.012315
P(Never or Almost Never|6+ hours)/P(Never or Almost Never|0-6 hours)	1.617647	0.987835	2.649007
P(Sometimes, Almost Always or Always|0-6 hours)/P(Sometimes, Almost Always or Always|6+ hours)	1.545455	1.052979	2.26826
P(Sometimes, Almost Always or Always|6+ hours)/P(Sometimes, Almost Always or Always|0-6 hours)	0.647059	0.440867	0.949687

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)-P(Never or Almost Never|6+ hours)	-0.2246	-0.42614	-0.02305
P(Sometimes, Almost Always or Always|0-6 hours)-P(Sometimes, Almost Always or Always|6+ hours)	0.224599	0.023054	0.426144

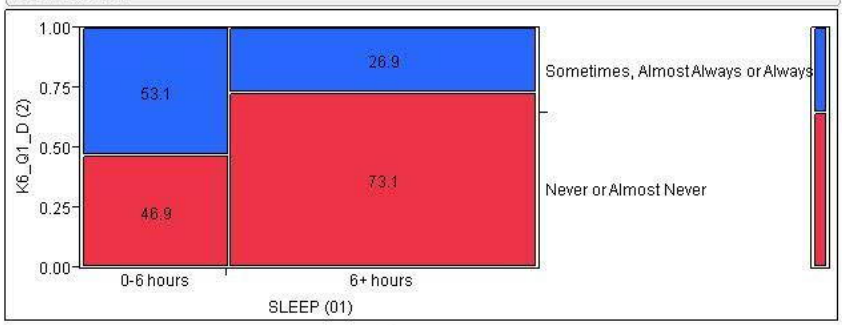
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.4	0.169592	0.943439

Figure 28.
Analysis of Feeling So Depressed That Nothing Could Cheer You Up by Sleep (hours) (K6_Q1_D (2) by SLEEP (01))

Contingency Analysis of K6_Q1_D (2) By SLEEP (01)

Mosaic Plot



Contingency Table

K6_Q1_D (2)

SLEEP (01)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
0-6 hours		15	17	32
		15.15	17.17	32.32
		23.44	48.57	
		46.88	53.13	
6+ hours		49	18	67
		49.49	18.18	67.68
		76.56	51.43	
		73.13	26.87	
		64	35	99
		64.65	35.35	

Tests

N	DF	-LogLike	RSquare (U)
99	1	3.2044774	0.0498

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	6.409	0.0114*
Pearson	6.534	0.0106*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0104*	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=0-6 hours than 6+ hours
Right	0.9971	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=6+ hours than 0-6 hours
2-Tail	0.0139*	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is different across SLEEP (01)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)/P(Never or Almost Never|6+ hours)	0.640944	0.431198	0.952717
P(Never or Almost Never|6+ hours)/P(Never or Almost Never|0-6 hours)	1.560199	1.04963	2.319123
P(Sometimes, Almost Always or Always|0-6 hours)/P(Sometimes, Almost Always or Always|6+ hours)	1.977431	1.18523	3.299132
P(Sometimes, Almost Always or Always|6+ hours)/P(Sometimes, Almost Always or Always|0-6 hours)	0.505707	0.30311	0.843718

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)-P(Never or Almost Never|6+ hours)	-0.26259	-0.46547	-0.05972
P(Sometimes, Almost Always or Always|0-6 hours)-P(Sometimes, Almost Always or Always|6+ hours)	0.262593	0.059715	0.465471

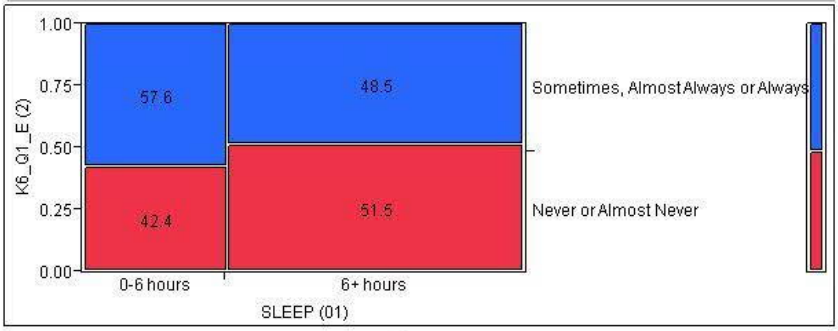
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.32413	0.134483	0.781212

Figure 29.
Analysis of Feeling Like Everything Was an Effort by Sleep (hours) (K6_Q1_E (2) by SLEEP (01))

Contingency Analysis of K6_Q1_E (2) By SLEEP (01)

Mosaic Plot



Contingency Table

K6_Q1_E (2)

SLEEP (01)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
0-6 hours		14	19	33
		13.86	18.81	32.67
		28.57	36.54	
		42.42	57.58	
6+ hours		35	33	68
		34.65	32.67	67.33
		71.43	63.46	
		51.47	48.53	
		49	52	101
		48.51	51.49	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.36510565	0.0052

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.730	0.3928
Pearson	0.728	0.3936

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.2611	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=0-6 hours than 6+ hours
Right	0.8567	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=6+ hours than 0-6 hours
2-Tail	0.4064	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is different across SLEEP (01)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)/P(Never or Almost Never|6+ hours)	0.824242	0.520531	1.305158
P(Never or Almost Never|6+ hours)/P(Never or Almost Never|0-6 hours)	1.213235	0.76619	1.921115
P(Sometimes, Almost Always or Always|0-6 hours)/P(Sometimes, Almost Always or Always|6+ hours)	1.18641	0.809967	1.737809
P(Sometimes, Almost Always or Always|6+ hours)/P(Sometimes, Almost Always or Always|0-6 hours)	0.842879	0.575437	1.234619

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)-P(Never or Almost Never|6+ hours)	-0.09046	-0.29673	0.1158
P(Sometimes, Almost Always or Always|0-6 hours)-P(Sometimes, Almost Always or Always|6+ hours)	0.090463	-0.1158	0.296727

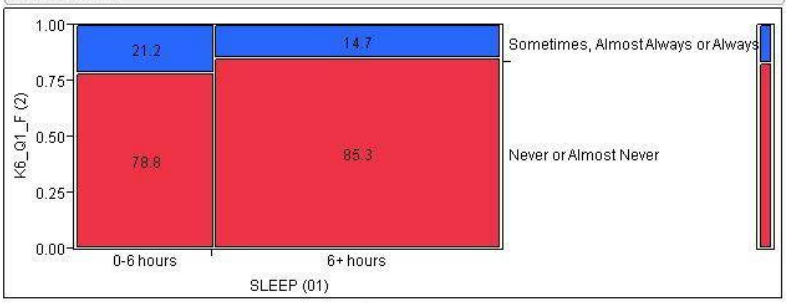
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.694737	0.300438	1.606521

Figure 30.
Analysis of Feeling Worthless by Sleep (hours) (K6_Q1_F (2) by SLEEP (01))

Contingency Analysis of K6_Q1_F (2) By SLEEP (01)

Mosaic Plot



Contingency Table

SLEEP (01)	Count / Total % / Col % / Row %	K6_Q1_F (2): Never or Almost Never	K6_Q1_F (2): Sometimes, Almost Always or Always	
0-6 hours		26	7	33
		25.74	6.93	32.67
		30.95	41.18	
		78.79	21.21	
6+ hours		58	10	68
		57.43	9.90	67.33
		69.05	58.82	
		85.29	14.71	
		84	17	101
		83.17	16.83	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.32608734	0.0071

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.652	0.4193
Pearson	0.672	0.4124

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.2910	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=0-6 hours than 6+ hours
Right	0.8644	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for SLEEP (01)=6+ hours than 0-6 hours
2-Tail	0.4110	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is different across SLEEP (01)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)/P(Never or Almost Never|6+ hours)	0.92372	0.754251	1.131266
P(Never or Almost Never|6+ hours)/P(Never or Almost Never|0-6 hours)	1.082579	0.883966	1.325818
P(Sometimes, Almost Always or Always|0-6 hours)/P(Sometimes, Almost Always or Always|6+ hours)	1.442424	0.603222	3.449122
P(Sometimes, Almost Always or Always|6+ hours)/P(Sometimes, Almost Always or Always|0-6 hours)	0.693277	0.289929	1.657763

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|0-6 hours)-P(Never or Almost Never|6+ hours)	-0.06506	-0.22798	0.097851
P(Sometimes, Almost Always or Always|0-6 hours)-P(Sometimes, Almost Always or Always|6+ hours)	0.065062	-0.09785	0.227976

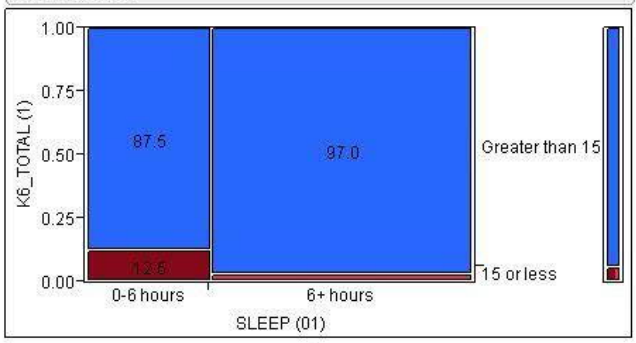
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.640394	0.219455	1.868742

Figure 31.
Analysis of Mental Distress Score by Sleep (hours) (K6_TOTAL (1) by SLEEP (01))

Contingency Analysis of K6_TOTAL (1) By SLEEP (01)

Mosaic Plot



Contingency Table

K6_TOTAL (1)			
Count / Total % / Col % / Row %	15 or less	Greater than 15	
SLEEP (01) 0-6 hours	4	28	32
	4.04	28.28	32.32
	66.67	30.11	
	12.50	87.50	
SLEEP (01) 6+ hours	2	65	67
	2.02	65.66	67.68
	33.33	69.89	
	2.99	97.01	
	6	93	99
	6.06	93.94	

Tests

N	DF	-LogLike	RSquare (U)
99	1	1.5849717	0.0700

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.170	0.0750
Pearson	3.444	0.0635

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.9872	Prob(K6_TOTAL (1)=Greater than 15) is greater for SLEEP (01)=0-6 hours than 6+ hours
Right	0.0838	Prob(K6_TOTAL (1)=Greater than 15) is greater for SLEEP (01)=6+ hours than 0-6 hours
2-Tail	0.0838	Prob(K6_TOTAL (1)=Greater than 15) is different across SLEEP (01)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(15 or less|0-6 hours)/P(15 or less|6+ hours)	4.1875	0.808808	21.68024
P(15 or less|6+ hours)/P(15 or less|0-6 hours)	0.238806	0.046125	1.236387
P(Greater than 15|0-6 hours)/P(Greater than 15|6+ hours)	0.901923	0.786036	1.034895
P(Greater than 15|6+ hours)/P(Greater than 15|0-6 hours)	1.108742	0.966281	1.272206

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(15 or less|0-6 hours)-P(15 or less|6+ hours)	0.095149	-0.02647	0.216765
P(Greater than 15|0-6 hours)-P(Greater than 15|6+ hours)	-0.09515	-0.21677	0.026467

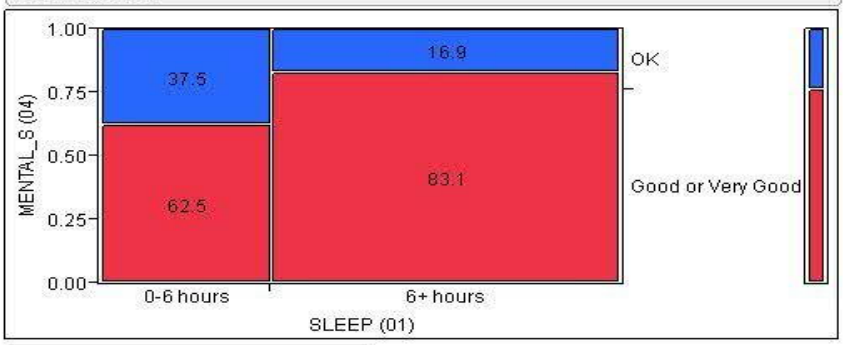
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
4.642857	0.803387	26.83156

Figure 32.
Analysis of Self-Perceived Mental Health Status by Sleep (hours) (MENTAL_S (04) by SLEEP (01))

Contingency Analysis of MENTAL_S (04) By SLEEP (01)

Mosaic Plot



Contingency Table

	MENTAL_S (04)		
Count / Total % / Col % / Row %	Good or Very Good	OK	
SLEEP (01) 0-6 hours	20	12	32
	20.62	12.37	32.99
	27.03	52.17	
	62.50	37.50	
SLEEP (01) 6+ hours	54	11	65
	55.67	11.34	67.01
	72.97	47.83	
	83.08	16.92	
	74	23	97
	76.29	23.71	

Tests

N	DF	-LogLike	RSquare (U)
97	1	2.4065714	0.0453

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	4.813	0.0282*
Pearson	5.019	0.0251*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0251*	Prob(MENTAL_S (04)=OK) is greater for SLEEP (01)=0-6 hours than 6+ hours
Right	0.9928	Prob(MENTAL_S (04)=OK) is greater for SLEEP (01)=6+ hours than 0-6 hours
2-Tail	0.0407*	Prob(MENTAL_S (04)=OK) is different across SLEEP (01)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Good or Very Good|0-6 hours)/P(Good or Very Good|6+ hours)	0.752315	0.562963	1.005355
P(Good or Very Good|6+ hours)/P(Good or Very Good|0-6 hours)	1.329231	0.994673	1.776317
P(OK|0-6 hours)/P(OK|6+ hours)	2.215909	1.100231	4.462931
P(OK|6+ hours)/P(OK|0-6 hours)	0.451282	0.224068	0.9089

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Good or Very Good|0-6 hours)-P(Good or Very Good|6+ hours)	-0.20577	-0.39667	-0.01486
P(OK|0-6 hours)-P(OK|6+ hours)	0.205769	0.014865	0.396674

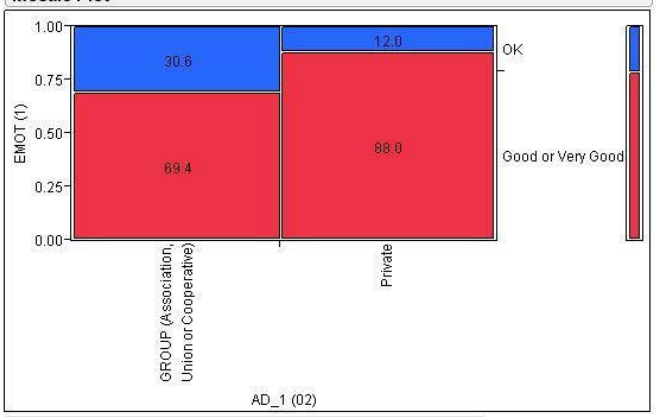
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.339506	0.129257	0.891746

Figure 33.
Analysis of Self-Perceived Emotional Status by Work Organization Type (EMOT (1) by AD_1 (02))

Contingency Analysis of EMOT (1) By AD_1 (02)

Mosaic Plot



Contingency Table

		EMOT (1)		
	Count Total % Col % Row %	Good or Very Good	OK	
AD_1 (02)	GROUP (Association, Union or Cooperative)	34 34.34 43.59 69.39	15 15.15 71.43 30.61	49 49.49
	Private	44 44.44 56.41 88.00	6 6.06 28.57 12.00	50 50.51
		78 78.79	21 21.21	99

Tests

N	DF	-LogLike	RSquare (U)
99	1	2.6301722	0.0514

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.260	0.0218*
Pearson	5.130	0.0235*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0210*	Prob(EMOT (1)=OK) is greater for AD_1 (02)=GROUP (Association, Union or Cooperative) than Private
Right	0.9945	Prob(EMOT (1)=OK) is greater for AD_1 (02)=Private than GROUP (Association, Union or Cooperative)
2-Tail	0.0283*	Prob(EMOT (1)=OK) is different across AD_1 (02)

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Good or Very Good|GROUP (Association, Union or Cooperative))-P(Good or Very Good|Private)	-0.18612	-0.34349	-0.02875
P(OK|GROUP (Association, Union or Cooperative))-P(OK|Private)	0.186122	0.028752	0.343493

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Good or Very Good|GROUP (Association, Union or Cooperative))/P(Good or Very Good|Private)	0.788497	0.637687	0.974974
P(Good or Very Good|Private)/P(Good or Very Good|GROUP (Association, Union or Cooperative))	1.268235	1.025668	1.568169
P(OK|GROUP (Association, Union or Cooperative))/P(OK|Private)	2.55102	1.078546	6.033778
P(OK|Private)/P(OK|GROUP (Association, Union or Cooperative))	0.392	0.165734	0.927174

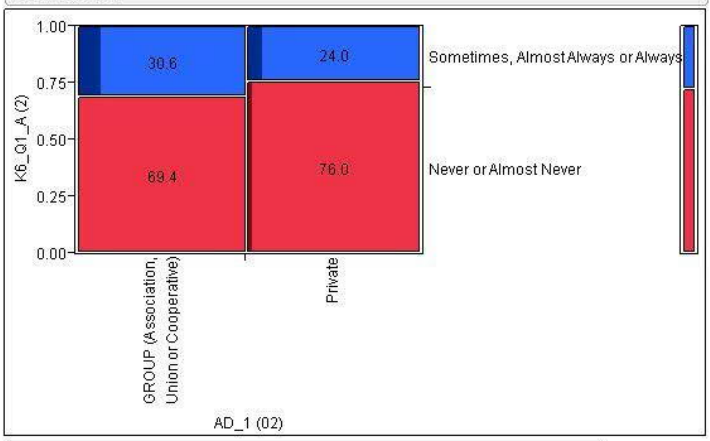
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.309091	0.108466	0.880805

Figure 34.
Analysis of Feeling Nervousness by Work Organization Type (K6_Q1_A (2) by AD_1 (02))

Contingency Analysis of K6_Q1_A (2) By AD_1 (02)

Mosaic Plot



Contingency Table

AD_1 (02)	K6_Q1_A (2)	Never or Almost Never	Sometimes, Almost Always or Always	
	Count			
	Total %			
	Col %			
	Row %			
GROUP (Association, Union or Cooperative)		34	15	49
		34.34	15.15	49.49
		47.22	55.56	
		69.39	30.61	
Private		38	12	50
		38.38	12.12	50.51
		52.78	44.44	
		76.00	24.00	
		72	27	99
		72.73	27.27	

Tests

N	DF	-LogLike	RSquare (U)
99	1	0.27312905	0.0047

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.546	0.4599
Pearson	0.546	0.4602

Fisher's

Exact Test	Prob	Alternative Hypothesis
Left	0.3042	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=GROUP (Association, Union or Cooperative) than Private
Right	0.8325	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=Private than GROUP (Association, Union or Cooperative)
2-Tail	0.5045	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is different across AD_1 (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))/P(Never or Almost Never|Private)	0.912997	0.716333	1.163654
P(Never or Almost Never|Private)/P(Never or Almost Never|GROUP (Association, Union or Cooperative))	1.095294	0.859362	1.396
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))/P(Sometimes, Almost Always or Always|Private)	1.27551	0.666648	2.440458
P(Sometimes, Almost Always or Always|Private)/P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))	0.784	0.409759	1.500042

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))-P(Never or Almost Never|Private)	-0.06612	-0.24124	0.108995
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))-P(Sometimes, Almost Always or Always|Private)	0.066122	-0.10899	0.24124

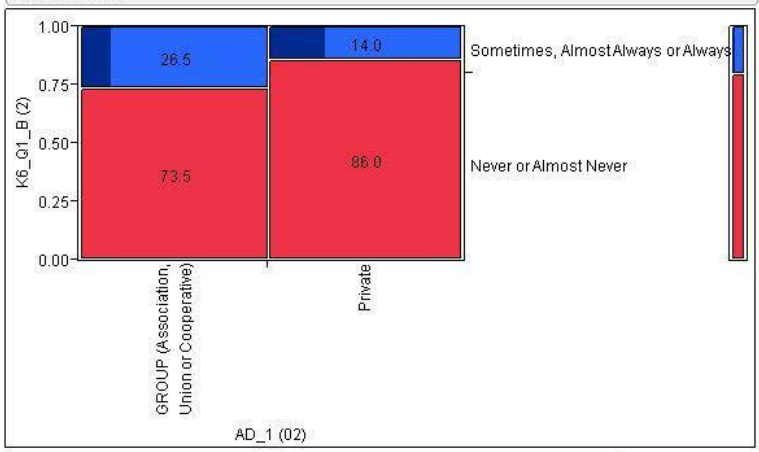
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.715789	0.294242	1.741271

Figure 35.
Analysis of Feelings of Hopelessness by Work Organization Type (K6_Q1_B (2) by AD_1 (02))

Contingency Analysis of K6_Q1_B (2) By AD_1 (02)

Mosaic Plot



Contingency Table

AD_1 (02)	K6_Q1_B (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
GROUP (Association, Union or Cooperative)	36	13	49
	36.36	13.13	49.49
	45.57	65.00	
	73.47	26.53	
Private	43	7	50
	43.43	7.07	50.51
	54.43	35.00	
	86.00	14.00	
	79	20	99
	79.80	20.20	

Tests

N	DF	-LogLike	RSquare (U)
99	1	1.2194939	0.0245

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	2.439	0.1184
Pearson	2.410	0.1205

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.0961	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=GROUP (Association, Union or Cooperative) than Private
Right	0.9651	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=Private than GROUP (Association, Union or Cooperative)
2-Tail	0.1396	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is different across AD_1 (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))/P(Never or Almost Never|Private)	0.854295	0.698018	1.045562
P(Never or Almost Never|Private)/P(Never or Almost Never|GROUP (Association, Union or Cooperative))	1.170556	0.956424	1.432629
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))/P(Sometimes, Almost Always or Always|Private)	1.895044	0.826258	4.346333
P(Sometimes, Almost Always or Always|Private)/P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))	0.527692	0.230079	1.210276

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))-P(Never or Almost Never|Private)	-0.12531	-0.28193	0.031319
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))-P(Sometimes, Almost Always or Always|Private)	0.125306	-0.03132	0.281931

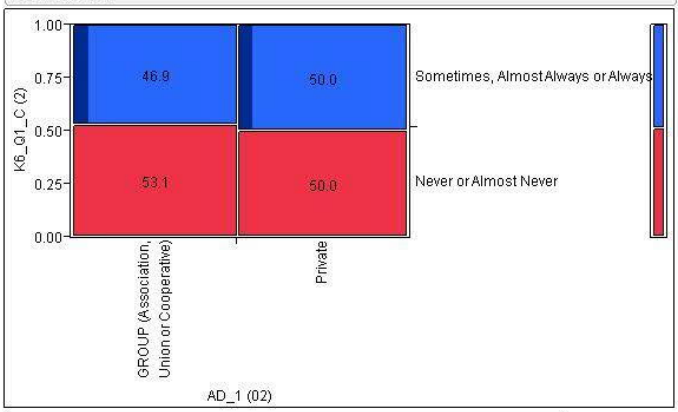
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.450805	0.162564	1.250121

Figure 36.
Analysis of Feeling Restless or Fidgety by Work Organization Type (K6_Q1_C (2) by AD_1 (02))

Contingency Analysis of K6_Q1_C (2) By AD_1 (02)

Mosaic Plot



Contingency Table

AD_1 (02)	K6_Q1_C (2)		
Count Total % Col % Row %	Never or Almost Never	Sometimes, Almost Always or Always	
GROUP (Association, Union or Cooperative)	26 26.26 50.98 53.06	23 23.23 47.92 46.94	49 49.49
Private	25 25.25 49.02 50.00	25 25.25 52.08 50.00	50 50.51
	51 51.52	48 48.48	99

Tests

N	DF	-LogLike	RSquare (U)
99	1	0.04643269	0.0007

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.093	0.7606
Pearson	0.093	0.7606

Fisher's

Exact Test	Prob	Alternative Hypothesis
Left	0.6934	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=GROUP (Association, Union or Cooperative) than Private
Right	0.4588	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=Private than GROUP (Association, Union or Cooperative)
2-Tail	0.8415	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is different across AD_1 (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))/P(Never or Almost Never|Private)	1.061224	0.724037	1.555441
P(Never or Almost Never|Private)/P(Never or Almost Never|GROUP (Association, Union or Cooperative))	0.942308	0.642905	1.381144
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))/P(Sometimes, Almost Always or Always|Private)	0.938776	0.625042	1.409985
P(Sometimes, Almost Always or Always|Private)/P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))	1.065217	0.709227	1.599893

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))-P(Never or Almost Never|Private)	0.030612	-0.1662	0.22742
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))-P(Sometimes, Almost Always or Always|Private)	-0.03061	-0.22742	0.166195

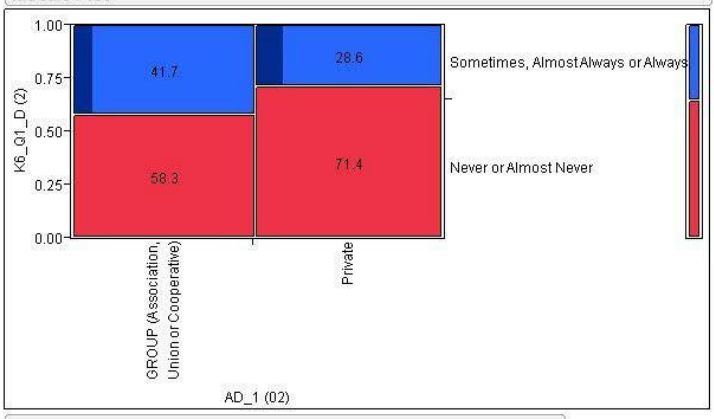
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.130435	0.513697	2.487619

Figure 37.
Analysis of Feeling So Depressed That Nothing Could Cheer You Up by Work Organization Type (K6_Q1_D (2) by AD_1 (02))

Contingency Analysis of K6_Q1_D (2) By AD_1 (02)

Mosaic Plot



Contingency Table

AD_1 (02)	Count / Total % / Col % / Row %	K6_Q1_D (2): Never or Almost Never	K6_Q1_D (2): Sometimes, Almost Always or Always	
GROUP (Association, Union or Cooperative)		28	20	48
		28.87	20.62	49.48
		44.44	58.82	
		58.33	41.67	
Private		35	14	49
		36.08	14.43	50.52
		55.56	41.18	
		71.43	28.57	
		63	34	97
		64.95	35.05	

Tests

N	DF	-LogLike	RSquare (U)
97	1	0.91673271	0.0146

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	1.833	0.1757
Pearson	1.826	0.1765

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.1274	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=GROUP (Association, Union or Cooperative) than Private
Right	0.9414	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=Private than GROUP (Association, Union or Cooperative)
2-Tail	0.2056	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is different across AD_1 (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))/P(Never or Almost Never|Private)	0.816667	0.606498	1.099664
P(Never or Almost Never|Private)/P(Never or Almost Never|GROUP (Association, Union or Cooperative))	1.22449	0.909369	1.648809
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))/P(Sometimes, Almost Always or Always|Private)	1.458333	0.837181	2.540354
P(Sometimes, Almost Always or Always|Private)/P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))	0.685714	0.393646	1.194485

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))-P(Never or Almost Never|Private)	-0.13095	-0.31924	0.057333
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))-P(Sometimes, Almost Always or Always|Private)	0.130952	-0.05733	0.319237

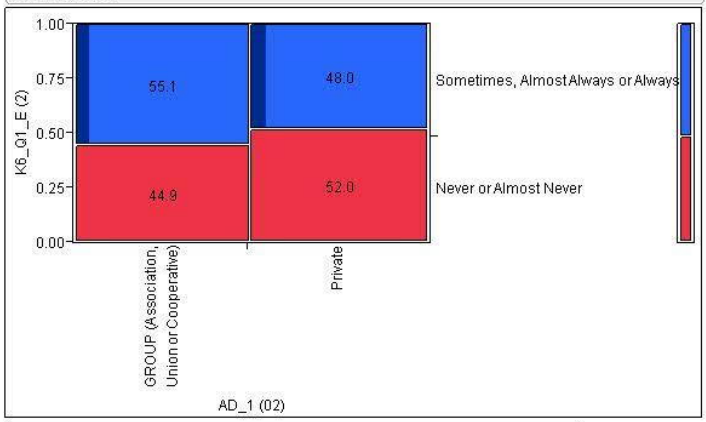
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.56	0.240639	1.303196

Figure 38.
Analysis of Feeling Like Everything Was an Effort by Work Organization Type (K6_Q1_E (2) by AD_1 (02))

Contingency Analysis of K6_Q1_E (2) By AD_1 (02)

Mosaic Plot



Contingency Table

AD_1 (02)	K6_Q1_E (2)		
Count Total % Col % Row %	Never or Almost Never	Sometimes, Almost Always or Always	
GROUP (Association, Union or Cooperative)	22 22.22 45.83 44.90	27 27.27 52.94 55.10	49 49.49
Private	26 26.26 54.17 52.00	24 24.24 47.06 48.00	50 50.51
	48 48.48	51 51.52	99

Tests

N	DF	-LogLike	RSquare (U)
99	1	0.25009576	0.0036

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.500	0.4794
Pearson	0.500	0.4796

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.3066	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=GROUP (Association, Union or Cooperative) than Private
Right	0.8180	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=Private than GROUP (Association, Union or Cooperative)
2-Tail	0.5484	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is different across AD_1 (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))/P(Never or Almost Never|Private)	0.863422	0.573687	1.299486
P(Never or Almost Never|Private)/P(Never or Almost Never|GROUP (Association, Union or Cooperative))	1.158182	0.769535	1.743111
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))/P(Sometimes, Almost Always or Always|Private)	1.147959	0.782263	1.684613
P(Sometimes, Almost Always or Always|Private)/P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))	0.871111	0.593608	1.278343

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))-P(Never or Almost Never|Private)	-0.07102	-0.26742	0.125377
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))-P(Sometimes, Almost Always or Always|Private)	0.07102	-0.12538	0.267417

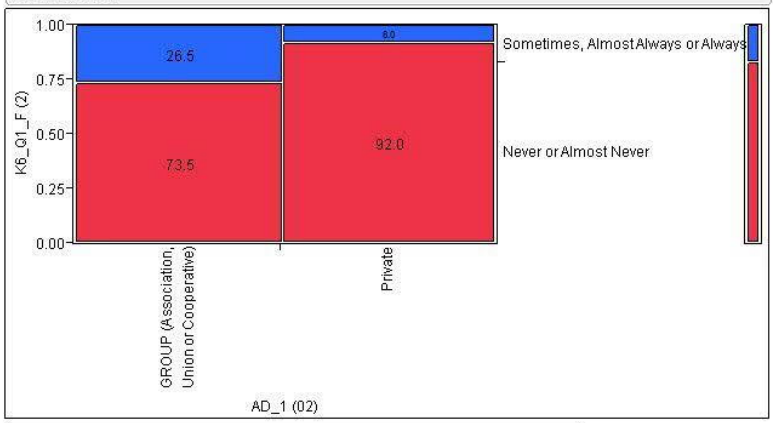
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.752137	0.341224	1.657882

Figure 39.
Analysis of Feeling Worthless by Work Organization Type (K6_Q1_F (2) by AD_1 (02))

Contingency Analysis of K6_Q1_F (2) By AD_1 (02)

Mosaic Plot



Contingency Table

AD_1 (02)	K6_Q1_F (2)		
Count Total % Col % Row %	Never or Almost Never	Sometimes, Almost Always or Always	
GROUP (Association, Union or Cooperative)	36	13	49
	36.36	13.13	49.49
	43.90	76.47	
	73.47	26.53	
Private	46	4	50
	46.46	4.04	50.51
	56.10	23.53	
	92.00	8.00	
	82	17	99
	82.83	17.17	

Tests

N	DF	-LogLike	RSquare (U)
99	1	3.1146203	0.0686

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	6.229	0.0126*
Pearson	5.975	0.0145*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0137*	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=GROUP (Association, Union or Cooperative) than Private
Right	0.9972	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for AD_1 (02)=Private than GROUP (Association, Union or Cooperative)
2-Tail	0.0174*	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is different across AD_1 (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))/P(Never or Almost Never|Private)	0.79858	0.662339	0.962846
P(Never or Almost Never|Private)/P(Never or Almost Never|GROUP (Association, Union or Cooperative))	1.252222	1.038587	1.509802
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))/P(Sometimes, Almost Always or Always|Private)	3.316327	1.161539	9.468489
P(Sometimes, Almost Always or Always|Private)/P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))	0.301538	0.105613	0.860927

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|GROUP (Association, Union or Cooperative))-P(Never or Almost Never|Private)	-0.18531	-0.33	-0.04061
P(Sometimes, Almost Always or Always|GROUP (Association, Union or Cooperative))-P(Sometimes, Almost Always or Always|Private)	0.185306	0.040614	0.329998

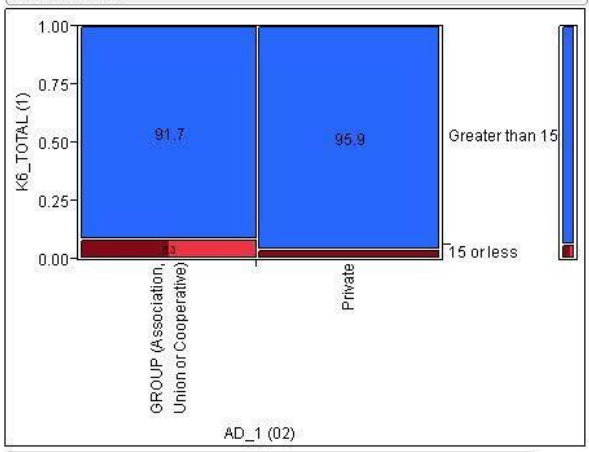
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.240803	0.072345	0.801518

Figure 40.
Analysis of Mental Distress Score by Work Organization Type (K6_TOTAL (1) by AD_1 (02))

Contingency Analysis of K6_TOTAL (1) By AD_1 (02)

Mosaic Plot



Contingency Table

AD_1 (02)	K6_TOTAL (1)		
Count / Total % / Col % / Row %	15 or less	Greater than 15	
GROUP (Association, Union or Cooperative)	4	44	48
	4.12	45.36	49.48
	66.67	48.35	
	8.33	91.67	
Private	2	47	49
	2.06	48.45	50.52
	33.33	51.65	
	4.08	95.92	
	6	91	97
	6.19	93.81	

Tests

N	DF	-LogLike	RSquare (U)
97	1	0.38410285	0.0171

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.768	0.3808
Pearson	0.755	0.3848

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.9027	Prob(K6_TOTAL (1)=Greater than 15) is greater for AD_1 (02)=GROUP (Association, Union or Cooperative) than Private
Right	0.3289	Prob(K6_TOTAL (1)=Greater than 15) is greater for AD_1 (02)=Private than GROUP (Association, Union or Cooperative)
2-Tail	0.4357	Prob(K6_TOTAL (1)=Greater than 15) is different across AD_1 (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(15 or less|GROUP (Association, Union or Cooperative))/P(15 or less|Private)	2.041667	0.392082	10.63145
P(15 or less|Private)/P(15 or less|GROUP (Association, Union or Cooperative))	0.489796	0.094061	2.550486
P(Greater than 15|GROUP (Association, Union or Cooperative))/P(Greater than 15|Private)	0.955674	0.862128	1.059369
P(Greater than 15|Private)/P(Greater than 15|GROUP (Association, Union or Cooperative))	1.046382	0.943958	1.15992

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(15 or less|GROUP (Association, Union or Cooperative))-P(15 or less|Private)	0.042517	-0.05331	0.138343
P(Greater than 15|GROUP (Association, Union or Cooperative))-P(Greater than 15|Private)	-0.04252	-0.13834	0.053309

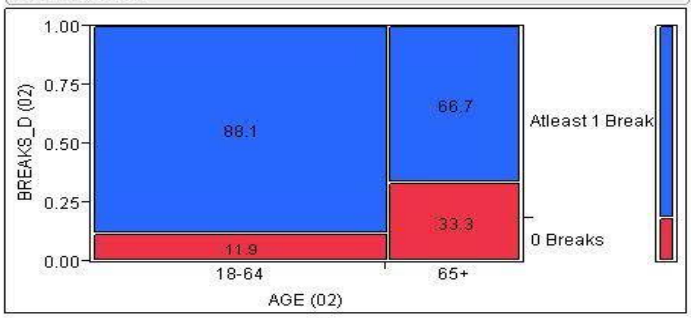
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
2.136364	0.37256	12.25052

Figure 41.
Analysis of Number of Break(s) Taken at Work by Age (Years) (BREAKS_D (02) by AGE (02))

Contingency Analysis of BREAKS_D (02) By AGE (02)

Mosaic Plot



Contingency Table

BREAKS_D (02)

AGE (02)	Count / Total % / Col % / Row %	0 Breaks	Atleast 1 Break	
18-64		8	59	67
		8.25	60.82	69.07
		44.44	74.68	
		11.94	88.06	
65+		10	20	30
		10.31	20.62	30.93
		55.56	25.32	
		33.33	66.67	
		18	79	97
		18.56	81.44	

Tests

N	DF	-LogLike	RSquare (U)
97	1	2.9343039	0.0631

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.869	0.0154*
Pearson	6.275	0.0122*

Fisher's

Exact Test	Prob	Alternative Hypothesis
Left	0.0151*	Prob(BREAKS_D (02)=Atleast 1 Break) is greater for AGE (02)=18-64 than 65+
Right	0.9966	Prob(BREAKS_D (02)=Atleast 1 Break) is greater for AGE (02)=65+ than 18-64
2-Tail	0.0217*	Prob(BREAKS_D (02)=Atleast 1 Break) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(0 Breaks|18-64)/P(0 Breaks|65+)	0.358209	0.15714	0.816557
P(0 Breaks|65+)/P(0 Breaks|18-64)	2.791667	1.224654	6.363761
P(Atleast 1 Break|18-64)/P(Atleast 1 Break|65+)	1.320896	1.010411	1.726787
P(Atleast 1 Break|65+)/P(Atleast 1 Break|18-64)	0.757062	0.57911	0.989696

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(0 Breaks|18-64)-P(0 Breaks|65+)	-0.21393	-0.39963	-0.02823
P(Atleast 1 Break|18-64)-P(Atleast 1 Break|65+)	0.21393	0.028232	0.399629

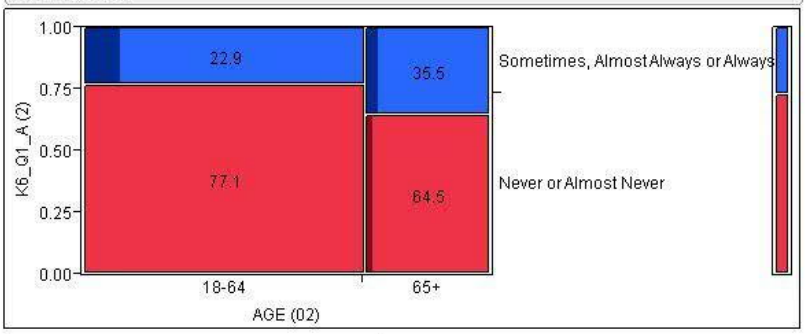
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.271186	0.094047	0.781973

Figure 42.
Analysis of Feelings of Nervousness by Age (Years) (K6_Q1_A (2) by AGE (02))

Contingency Analysis of K6_Q1_A (2) By AGE (02)

Mosaic Plot



Contingency Table

AGE (02)	K6_Q1_A (2) Never or Almost Never	Sometimes, Almost Always or Always	
18-64	54	16	70
	53.47	15.84	69.31
	72.97	59.26	
	77.14	22.86	
65+	20	11	31
	19.80	10.89	30.69
	27.03	40.74	
	64.52	35.48	
	74	27	101
	73.27	26.73	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.84854118	0.0145

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	1.697	0.1927
Pearson	1.749	0.1860

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.9395	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=18-64 than 65+
Right	0.1407	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=65+ than 18-64
2-Tail	0.2253	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)/P(Never or Almost Never|65+)	1.195714	0.894224	1.598853
P(Never or Almost Never|65+)/P(Never or Almost Never|18-64)	0.83632	0.625448	1.118288
P(Sometimes, Almost Always or Always|18-64)/P(Sometimes, Almost Always or Always|65+)	0.644156	0.339415	1.222506
P(Sometimes, Almost Always or Always|65+)/P(Sometimes, Almost Always or Always|18-64)	1.552419	0.817992	2.946246

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)-P(Never or Almost Never|65+)	0.126267	-0.06878	0.321318
P(Sometimes, Almost Always or Always|18-64)-P(Sometimes, Almost Always or Always|65+)	-0.12627	-0.32132	0.068783

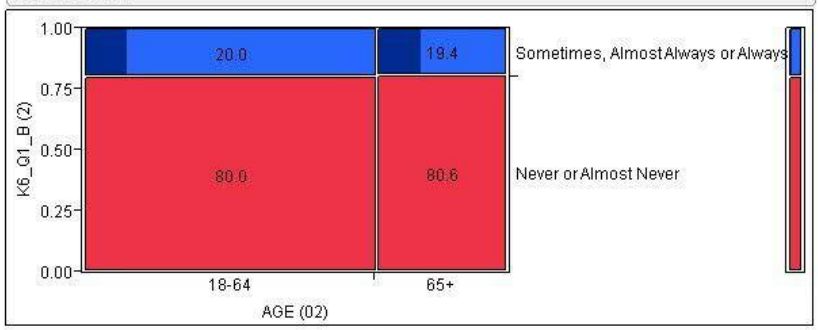
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.85625	0.737297	4.673375

Figure 43.
Analysis of Feelings of Hopelessness by Age (Years) (K6_Q1_B (2) by AGE (02))

Contingency Analysis of K6_Q1_B (2) By AGE (02)

Mosaic Plot



Contingency Table

K6_Q1_B (2)

AGE (02)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
18-64		56	14	70
		55.45	13.86	69.31
		69.14	70.00	
		80.00	20.00	
65+		25	6	31
		24.75	5.94	30.69
		30.86	30.00	
		80.65	19.35	
		81	20	101
		80.20	19.80	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.00282465	0.0001

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.006	0.9401
Pearson	0.006	0.9402

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.5854	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=18-64 than 65+
Right	0.6275	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=65+ than 18-64
2-Tail	1.0000	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)/P(Never or Almost Never|65+)	0.992	0.805331	1.221938
P(Never or Almost Never|65+)/P(Never or Almost Never|18-64)	1.008065	0.818372	1.241726
P(Sometimes, Almost Always or Always|18-64)/P(Sometimes, Almost Always or Always|65+)	1.033333	0.438226	2.436589
P(Sometimes, Almost Always or Always|65+)/P(Sometimes, Almost Always or Always|18-64)	0.967742	0.41041	2.281926

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)-P(Never or Almost Never|65+)	-0.00645	-0.17415	0.161246
P(Sometimes, Almost Always or Always|18-64)-P(Sometimes, Almost Always or Always|65+)	0.006452	-0.16125	0.174149

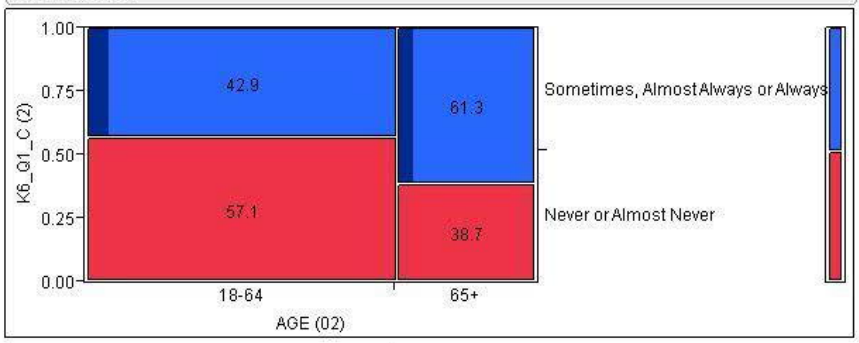
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.96	0.330525	2.788288

Figure 44.
Analysis of Feeling Restless or Fidgety by Age (Years) (K6_Q1_C (2) by AGE (02))

Contingency Analysis of K6_Q1_C (2) By AGE (02)

Mosaic Plot



Contingency Table

K6_Q1_C (2)

AGE (02)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
18-64		40	30	70
		39.60	29.70	69.31
		76.92	61.22	
		57.14	42.86	
65+		12	19	31
		11.88	18.81	30.69
		23.08	38.78	
		38.71	61.29	
		52	49	101
		51.49	48.51	

Tests

N	DF	-LogLike	RSquare (U)
101	1	1.4693540	0.0210

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	2.939	0.0865
Pearson	2.923	0.0873

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.9732	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=18-64 than 65+
Right	0.0674	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=65+ than 18-64
2-Tail	0.1302	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)/P(Never or Almost Never|65+)	1.47619	0.906891	2.402868
P(Never or Almost Never|65+)/P(Never or Almost Never|18-64)	0.677419	0.416169	1.102669
P(Sometimes, Almost Always or Always|18-64)/P(Sometimes, Almost Always or Always|65+)	0.699248	0.473835	1.031894
P(Sometimes, Almost Always or Always|65+)/P(Sometimes, Almost Always or Always|18-64)	1.430108	0.969091	2.110438

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)-P(Never or Almost Never|65+)	0.184332	-0.02265	0.391309
P(Sometimes, Almost Always or Always|18-64)-P(Sometimes, Almost Always or Always|65+)	-0.18433	-0.39131	0.022645

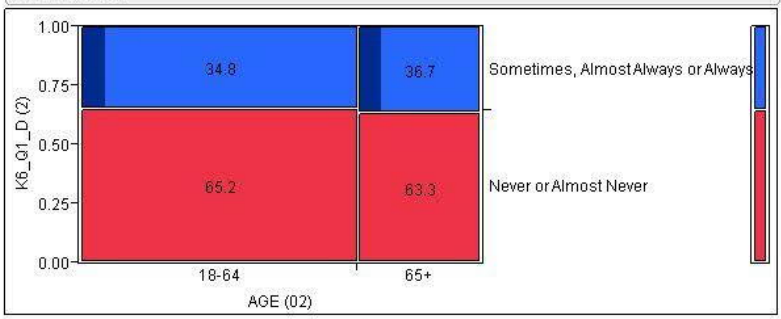
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
2.111111	0.889831	5.008579

Figure 45.
Analysis of Feeling So Depressed That Nothing Could Cheer You Up by Age (Years) (K6_Q1_D (2) by AGE (02))

Contingency Analysis of K6_Q1_D (2) By AGE (02)

Mosaic Plot



Contingency Table

AGE (02)	K6_Q1_D (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
18-64	45	24	69
	45.45	24.24	69.70
	70.31	68.57	
	65.22	34.78	
65+	19	11	30
	19.19	11.11	30.30
	29.69	31.43	
	63.33	36.67	
	64	35	99
	64.65	35.35	

Tests

N	DF	-LogLike	RSquare (U)
99	1	0.01618798	0.0003

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.032	0.8572
Pearson	0.032	0.8570

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.6612	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=18-64 than 65+
Right	0.5157	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=65+ than 18-64
2-Tail	1.0000	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)/P(Never or Almost Never|65+)	1.029748	0.746092	1.421247
P(Never or Almost Never|65+)/P(Never or Almost Never|18-64)	0.971111	0.703608	1.340317
P(Sometimes, Almost Always or Always|18-64)/P(Sometimes, Almost Always or Always|65+)	0.948617	0.536155	1.678382
P(Sometimes, Almost Always or Always|65+)/P(Sometimes, Almost Always or Always|18-64)	1.054167	0.595812	1.865131

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)-P(Never or Almost Never|65+)	0.018841	-0.18699	0.224668
P(Sometimes, Almost Always or Always|18-64)-P(Sometimes, Almost Always or Always|65+)	-0.01884	-0.22467	0.186987

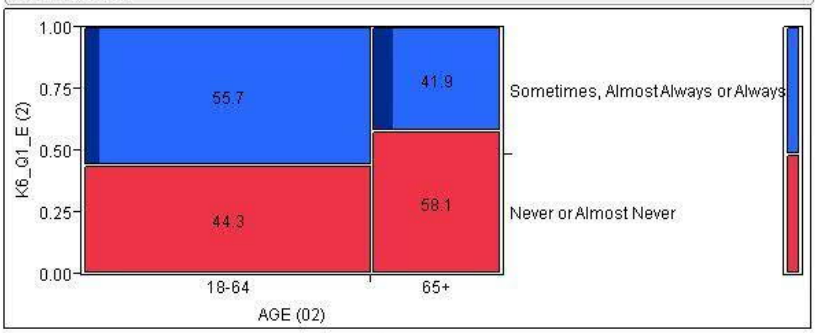
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.085526	0.444596	2.650424

Figure 46.
Analysis of Feeling Like Everything Was an Effort by Age (Years) (K6_Q1_E (2) by AGE (02))

Contingency Analysis of K6_Q1_E (2) By AGE (02)

Mosaic Plot



Contingency Table

K6_Q1_E (2)

AGE (02)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
18-64		31	39	70
		30.69	38.61	69.31
		63.27	75.00	
		44.29	55.71	
65+		18	13	31
		17.82	12.87	30.69
		36.73	25.00	
		58.06	41.94	
		49	52	101
		48.51	51.49	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.81857477	0.0117

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	1.637	0.2007
Pearson	1.633	0.2013

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.1441	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=18-64 than 65+
Right	0.9326	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=65+ than 18-64
2-Tail	0.2805	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)/P(Never or Almost Never|65+)	0.762698	0.51219	1.135728
P(Never or Almost Never|65+)/P(Never or Almost Never|18-64)	1.311134	0.880493	1.952399
P(Sometimes, Almost Always or Always|18-64)/P(Sometimes, Almost Always or Always|65+)	1.328571	0.835444	2.112771
P(Sometimes, Almost Always or Always|65+)/P(Sometimes, Almost Always or Always|18-64)	0.752688	0.473312	1.196968

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)-P(Never or Almost Never|65+)	-0.13779	-0.34687	0.071291
P(Sometimes, Almost Always or Always|18-64)-P(Sometimes, Almost Always or Always|65+)	0.137788	-0.07129	0.346867

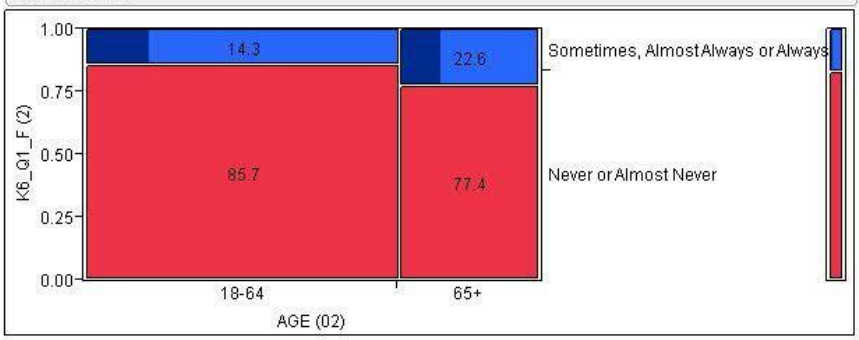
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.574074	0.244101	1.350102

Figure 47.
Analysis of Feeling Worthless by Age (Years) (K6_Q1_F (2) by AGE (02))

Contingency Analysis of K6_Q1_F (2) By AGE (02)

Mosaic Plot



Contingency Table

AGE (02)	Count / Total % / Col % / Row %	K6_Q1_F (2): Never or Almost Never	K6_Q1_F (2): Sometimes, Almost Always or Always	
18-64		60	10	70
		59.41	9.90	69.31
		71.43	58.82	
		85.71	14.29	
65+		24	7	31
		23.76	6.93	30.69
		28.57	41.18	
		77.42	22.58	
		84	17	101
		83.17	16.83	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.50685160	0.0111

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	1.014	0.3140
Pearson	1.056	0.3041

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.9038	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=18-64 than 65+
Right	0.2267	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for AGE (02)=65+ than 18-64
2-Tail	0.3879	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)/P(Never or Almost Never|65+)	1.107143	0.894912	1.369705
P(Never or Almost Never|65+)/P(Never or Almost Never|18-64)	0.903226	0.730084	1.117428
P(Sometimes, Almost Always or Always|18-64)/P(Sometimes, Almost Always or Always|65+)	0.632653	0.265474	1.507682
P(Sometimes, Almost Always or Always|65+)/P(Sometimes, Almost Always or Always|18-64)	1.580645	0.66327	3.766852

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|18-64)-P(Never or Almost Never|65+)	0.082949	-0.08552	0.251421
P(Sometimes, Almost Always or Always|18-64)-P(Sometimes, Almost Always or Always|65+)	-0.08295	-0.25142	0.085523

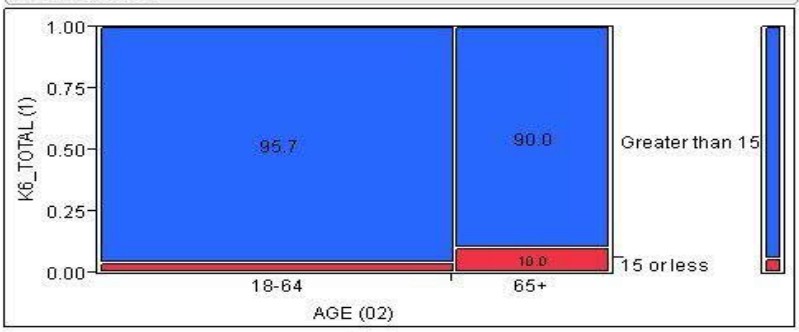
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.75	0.596886	5.130793

Figure 48.
Analysis of Mental Distress Score by Age (Years) (K6_TOTAL (1) by AGE (02))

Contingency Analysis of K6_TOTAL (1) By AGE (02)

Mosaic Plot



Contingency Table

K6_TOTAL (1)

AGE (02)	Count / Total % / Col % / Row %	15 or less	Greater than 15	
18-64		3	66	69
		3.03	66.67	69.70
		50.00	70.97	
		4.35	95.65	
65+		3	27	30
		3.03	27.27	30.30
		50.00	29.03	
		10.00	90.00	
		6	93	99
		6.06	93.94	

Tests

N	DF	-LogLike	RSquare (U)
99	1	0.54176731	0.0239

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	1.084	0.2979
Pearson	1.173	0.2787

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.2565	Prob(K6_TOTAL (1)=Greater than 15) is greater for AGE (02)=18-64 than 65+
Right	0.9333	Prob(K6_TOTAL (1)=Greater than 15) is greater for AGE (02)=65+ than 18-64
2-Tail	0.3635	Prob(K6_TOTAL (1)=Greater than 15) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(15 or less|18-64)/P(15 or less|65+)	0.434783	0.093038	2.031805
P(15 or less|65+)/P(15 or less|18-64)	2.3	0.492173	10.74825
P(Greater than 15|18-64)/P(Greater than 15|65+)	1.062802	0.933752	1.209688
P(Greater than 15|65+)/P(Greater than 15|18-64)	0.940909	0.82666	1.070949

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(15 or less|18-64)-P(15 or less|65+)	-0.05652	-0.17416	0.061121
P(Greater than 15|18-64)-P(Greater than 15|65+)	0.056522	-0.06112	0.174164

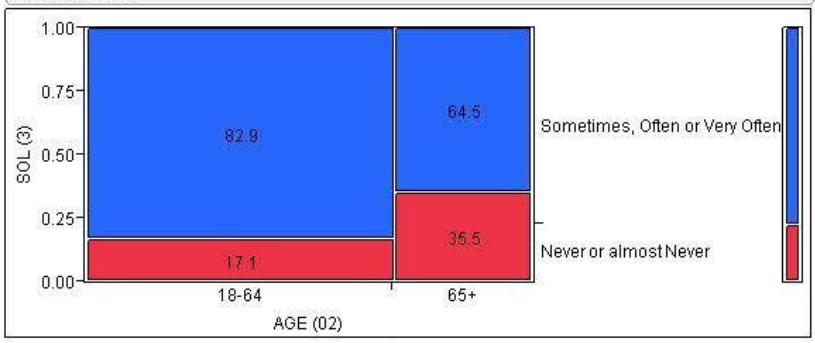
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.409091	0.077647	2.15533

Figure 49.
Analysis of Sunlight Exposure by Age (Years) (SOL (3) by AGE (02))

Contingency Analysis of SOL (3) By AGE (02)

Mosaic Plot



Contingency Table

AGE (02)	Count / Total % / Col % / Row %	Never or almost Never	Sometimes, Often or Very Often	
		SOL (3)		
18-64		12	58	70
		11.88	57.43	69.31
		52.17	74.36	
		17.14	82.86	
65+		11	20	31
		10.89	19.80	30.69
		47.83	25.64	
		35.48	64.52	
		23	78	101
		22.77	77.23	

Tests

N	DF	-LogLike	RSquare (U)
101	1	1.9553144	0.0361

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.911	0.0480*
Pearson	4.110	0.0426*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.0406*	Prob(SOL (3)=Sometimes, Often or Very Often) is greater for AGE (02)=18-64 than 65+
Right	0.9873	Prob(SOL (3)=Sometimes, Often or Very Often) is greater for AGE (02)=65+ than 18-64
2-Tail	0.0697	Prob(SOL (3)=Sometimes, Often or Very Often) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or almost Never|18-64)/P(Never or almost Never|65+)	0.483117	0.239815	0.973259
P(Never or almost Never|65+)/P(Never or almost Never|18-64)	2.069892	1.027475	4.169886
P(Sometimes, Often or Very Often|18-64)/P(Sometimes, Often or Very Often|65+)	1.284286	0.968729	1.702633
P(Sometimes, Often or Very Often|65+)/P(Sometimes, Often or Very Often|18-64)	0.778643	0.587326	1.032281

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or almost Never|18-64)-P(Never or almost Never|65+)	-0.18341	-0.37358	0.006756
P(Sometimes, Often or Very Often|18-64)-P(Sometimes, Often or Very Often|65+)	0.18341	-0.00676	0.373576

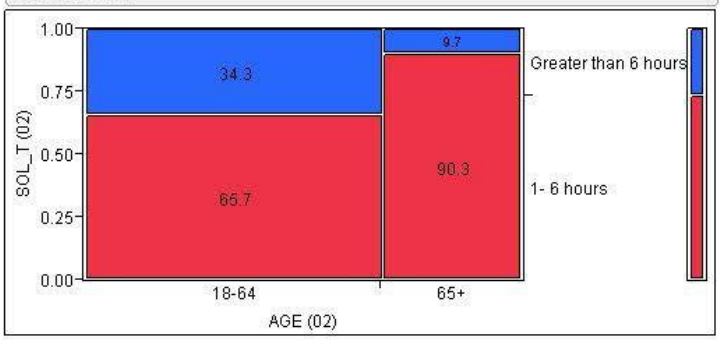
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.376176	0.143583	0.985552

Figure 50.
Analysis of Length of Work in Direct Sunlight by Age (Years) (SOL_T (02) by AGE (02))

Contingency Analysis of SOL_T (02) By AGE (02)

Mosaic Plot



Contingency Table

AGE (02)	SOL_T (02)		
Count / Total % / Col % / Row %	1- 6 hours	Greater than 6 hours	
18-64	44	23	67
	44.90	23.47	68.37
	61.11	88.46	
	65.67	34.33	
65+	28	3	31
	28.57	3.06	31.63
	38.89	11.54	
	90.32	9.68	
	72	26	98
	73.47	26.53	

Tests

N	DF	-LogLike	RSquare (U)
98	1	3.7466075	0.0661

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	7.493	0.0062*
Pearson	6.607	0.0102*

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.0076*	Prob(SOL_T (02)=Greater than 6 hours) is greater for AGE (02)=18-64 than 65+
Right	0.9987	Prob(SOL_T (02)=Greater than 6 hours) is greater for AGE (02)=65+ than 18-64
2-Tail	0.0130*	Prob(SOL_T (02)=Greater than 6 hours) is different across AGE (02)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(1- 6 hours|18-64)/P(1- 6 hours|65+)	0.727079	0.590562	0.895154
P(1- 6 hours|65+)/P(1- 6 hours|18-64)	1.375367	1.117126	1.693303
P(Greater than 6 hours|18-64)/P(Greater than 6 hours|65+)	3.547264	1.151307	10.92939
P(Greater than 6 hours|65+)/P(Greater than 6 hours|18-64)	0.281907	0.091496	0.868578

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(1- 6 hours|18-64)-P(1- 6 hours|65+)	-0.24651	-0.40064	-0.09238
P(Greater than 6 hours|18-64)-P(Greater than 6 hours|65+)	0.246509	0.092376	0.400643

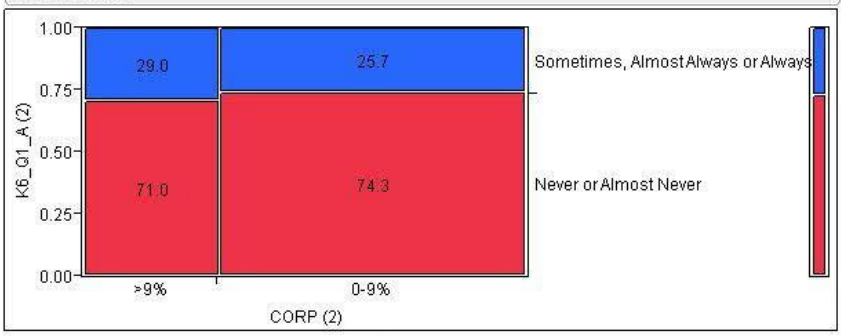
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.204969	0.05625	0.746891

Figure 51.
Analysis of Feelings of Nervousness by Exposed Skin Percentage (K6_Q1_A (2) by CORP (2))

Contingency Analysis of K6_Q1_A (2) By CORP (2)

Mosaic Plot



Contingency Table

K6_Q1_A (2)

CORP (2)	Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
>9%		22	9	31
		21.78	8.91	30.69
		29.73	33.33	
		70.97	29.03	
0-9%		52	18	70
		51.49	17.82	69.31
		70.27	66.67	
		74.29	25.71	
		74	27	101
		73.27	26.73	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.05980982	0.0010

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.120	0.7294
Pearson	0.121	0.7282

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.4529	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=>9% than 0-9%
Right	0.7258	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=0-9% than >9%
2-Tail	0.8086	Prob(K6_Q1_A (2)=Sometimes, Almost Always or Always) is different across CORP (2)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)/P(Never or Almost Never|0-9%)	0.955335	0.73368	1.243954
P(Never or Almost Never|0-9%)/P(Never or Almost Never|>9%)	1.046753	0.803888	1.362991
P(Sometimes, Almost Always or Always|>9%)/P(Sometimes, Almost Always or Always|0-9%)	1.129032	0.572388	2.22701
P(Sometimes, Almost Always or Always|0-9%)/P(Sometimes, Almost Always or Always|>9%)	0.885714	0.449033	1.747067

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)-P(Never or Almost Never|0-9%)	-0.03318	-0.22295	0.156595
P(Sometimes, Almost Always or Always|>9%)-P(Sometimes, Almost Always or Always|0-9%)	0.03318	-0.15659	0.222954

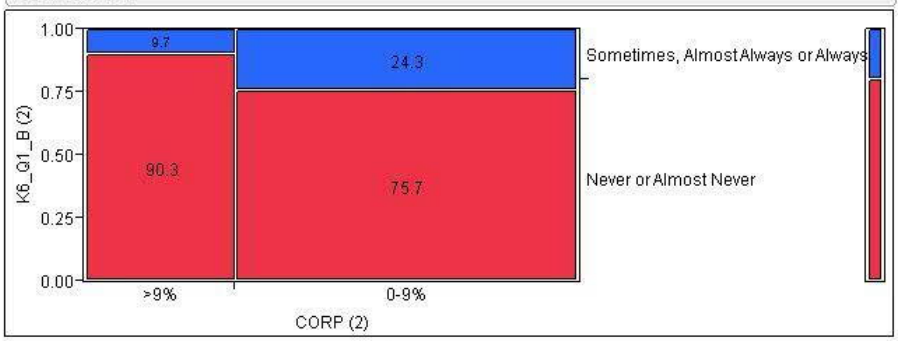
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.846154	0.329632	2.172047

Figure 52.
Analysis of Feelings of Hopelessness by Exposed Skin Percentage (K6_Q1_B (2) by CORP (2))

Contingency Analysis of K6_Q1_B (2) By CORP (2)

Mosaic Plot



Contingency Table

	K6_Q1_B (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
CORP (2) >9%	28	3	31
	27.72	2.97	30.69
	34.57	15.00	
	90.32	9.68	
0-9%	53	17	70
	52.48	16.83	69.31
	65.43	85.00	
	75.71	24.29	
	81	20	101
	80.20	19.80	

Tests

N	DF	-LogLike	RSquare (U)
101	1	1.6015363	0.0319

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	3.203	0.0735
Pearson	2.887	0.0893

Fisher's Exact Test

	Prob	Alternative Hypothesis
Left	0.9807	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=>9% than 0-9%
Right	0.0723	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=0-9% than >9%
2-Tail	0.1093	Prob(K6_Q1_B (2)=Sometimes, Almost Always or Always) is different across CORP (2)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)/P(Never or Almost Never|0-9%)	1.19294	1.000696	1.422116
P(Never or Almost Never|0-9%)/P(Never or Almost Never|>9%)	0.838265	0.703178	0.999305
P(Sometimes, Almost Always or Always|>9%)/P(Sometimes, Almost Always or Always|0-9%)	0.398482	0.125892	1.261306
P(Sometimes, Almost Always or Always|0-9%)/P(Sometimes, Almost Always or Always|>9%)	2.509524	0.792829	7.943338

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)-P(Never or Almost Never|0-9%)	0.146083	0.001437	0.290729
P(Sometimes, Almost Always or Always|>9%)-P(Sometimes, Almost Always or Always|0-9%)	-0.14608	-0.29073	-0.00144

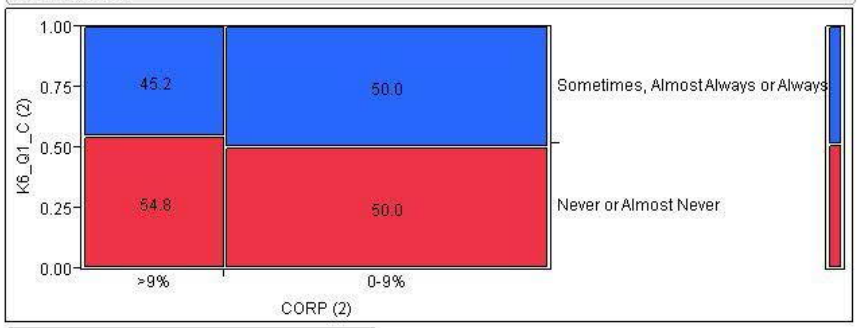
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
2.993711	0.807754	11.09534

Figure 53.
Analysis of Feeling Restless or Fidgety by Exposed Skin Percentage (K6_Q1_C (2) by CORP (2))

Contingency Analysis of K6_Q1_C (2) By CORP (2)

Mosaic Plot



Contingency Table

Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
>9%	17	14	31
	16.83	13.86	30.69
	32.69	28.57	
	54.84	45.16	
0-9%	35	35	70
	34.65	34.65	69.31
	67.31	71.43	
	50.00	50.00	
	52	49	101
	51.49	48.51	

CORP (2) / K6_Q1_C (2)

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.10082771	0.0014

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.202	0.6534
Pearson	0.201	0.6536

Fisher's

Exact Test	Prob	Alternative Hypothesis
Left	0.7465	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=>9% than 0-9%
Right	0.4083	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=0-9% than >9%
2-Tail	0.6726	Prob(K6_Q1_C (2)=Sometimes, Almost Always or Always) is different across CORP (2)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)/P(Never or Almost Never|0-9%)	1.096774	0.738032	1.629894
P(Never or Almost Never|0-9%)/P(Never or Almost Never|>9%)	0.911765	0.613537	1.354955
P(Sometimes, Almost Always or Always|>9%)/P(Sometimes, Almost Always or Always|0-9%)	0.903226	0.574108	1.421017
P(Sometimes, Almost Always or Always|0-9%)/P(Sometimes, Almost Always or Always|>9%)	1.107143	0.703721	1.741833

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)-P(Never or Almost Never|0-9%)	0.048387	-0.16235	0.259121
P(Sometimes, Almost Always or Always|>9%)-P(Sometimes, Almost Always or Always|0-9%)	-0.04839	-0.25912	0.162347

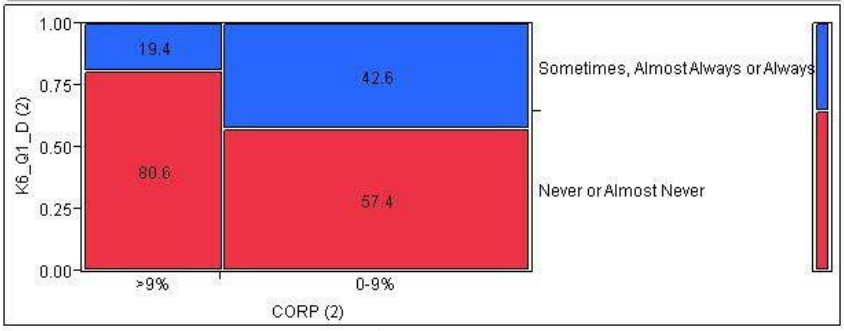
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.214286	0.519808	2.836604

Figure 54.
Analysis of Feeling So Depressed That Nothing Could Cheer You Up by Exposed Skin Percentage (K6_Q1_D (2) by CORP (2))

Contingency Analysis of K6_Q1_D (2) By CORP (2)

Mosaic Plot



Contingency Table

	K6_Q1_D (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
CORP (2) >9%	25	6	31
	25.25	6.06	31.31
	39.06	17.14	
	80.65	19.35	
CORP (2) 0-9%	39	29	68
	39.39	29.29	68.69
	60.94	82.86	
	57.35	42.65	
	64	35	99
	64.65	35.35	

Tests

N	DF	-LogLike	RSquare (U)
99	1	2.6839741	0.0417

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	5.368	0.0205*
Pearson	5.055	0.0246*

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.9946	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=>9% than 0-9%
Right	0.0196*	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=0-9% than >9%
2-Tail	0.0402*	Prob(K6_Q1_D (2)=Sometimes, Almost Always or Always) is different across CORP (2)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)/P(Never or Almost Never|0-9%)	1.406121	1.075707	1.838025
P(Never or Almost Never|0-9%)/P(Never or Almost Never|>9%)	0.711176	0.544062	0.929621
P(Sometimes, Almost Always or Always|>9%)/P(Sometimes, Almost Always or Always|0-9%)	0.453838	0.210215	0.979799
P(Sometimes, Almost Always or Always|0-9%)/P(Sometimes, Almost Always or Always|>9%)	2.203431	1.020617	4.757034

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)-P(Never or Almost Never|0-9%)	0.232922	0.050824	0.41502
P(Sometimes, Almost Always or Always|>9%)-P(Sometimes, Almost Always or Always|0-9%)	-0.23292	-0.41502	-0.05082

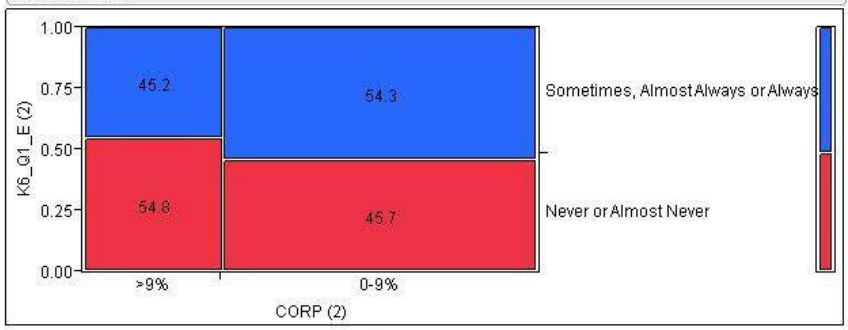
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
3.098291	1.125801	8.526735

Figure 55.
Analysis of Feeling Like Everything Was an Effort by Exposed Skin Percentage (K6_Q1_E (2) by CORP (2))

Contingency Analysis of K6_Q1_E (2) By CORP (2)

Mosaic Plot



Contingency Table

	K6_Q1_E (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
CORP (2) >9%	17	14	31
	16.83	13.86	30.69
	34.69	26.92	
	54.84	45.16	
CORP (2) 0-9%	32	38	70
	31.68	37.62	69.31
	65.31	73.08	
	45.71	54.29	
	49	52	101
	48.51	51.49	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.35828637	0.0051

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.717	0.3973
Pearson	0.716	0.3974

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.8559	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=>9% than 0-9%
Right	0.2642	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=0-9% than >9%
2-Tail	0.5177	Prob(K6_Q1_E (2)=Sometimes, Almost Always or Always) is different across CORP (2)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)/P(Never or Almost Never|0-9%)	1.199597	0.796971	1.805627
P(Never or Almost Never|0-9%)/P(Never or Almost Never|>9%)	0.833613	0.553824	1.254751
P(Sometimes, Almost Always or Always|>9%)/P(Sometimes, Almost Always or Always|0-9%)	0.831919	0.533918	1.296244
P(Sometimes, Almost Always or Always|0-9%)/P(Sometimes, Almost Always or Always|>9%)	1.202041	0.77146	1.872946

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)-P(Never or Almost Never|0-9%)	0.091244	-0.11925	0.301739
P(Sometimes, Almost Always or Always|>9%)-P(Sometimes, Almost Always or Always|0-9%)	-0.09124	-0.30174	0.119251

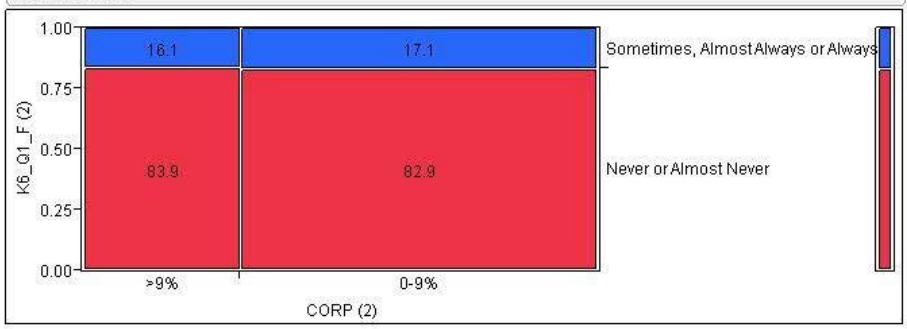
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.441964	0.616682	3.371692

Figure 56.
Analysis of Feeling Worthless by Exposed Skin Percentage (K6_Q1_F (2) by CORP (2))

Contingency Analysis of K6_Q1_F (2) By CORP (2)

Mosaic Plot



Contingency Table

CORP (2)	K6_Q1_F (2)		
Count / Total % / Col % / Row %	Never or Almost Never	Sometimes, Almost Always or Always	
>9%	26	5	31
	25.74	4.95	30.69
	30.95	29.41	
	83.87	16.13	
0-9%	58	12	70
	57.43	11.88	69.31
	69.05	70.59	
	82.86	17.14	
	84	17	101
	83.17	16.83	

Tests

N	DF	-LogLike	RSquare (U)
101	1	0.00793793	0.0002

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.016	0.8997
Pearson	0.016	0.9000

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.6520	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=>9% than 0-9%
Right	0.5741	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is greater for CORP (2)=0-9% than >9%
2-Tail	1.0000	Prob(K6_Q1_F (2)=Sometimes, Almost Always or Always) is different across CORP (2)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)/P(Never or Almost Never|0-9%)	1.012236	0.83911	1.221081
P(Never or Almost Never|0-9%)/P(Never or Almost Never|>9%)	0.987912	0.818946	1.191739
P(Sometimes, Almost Always or Always|>9%)/P(Sometimes, Almost Always or Always|0-9%)	0.94086	0.362511	2.441904
P(Sometimes, Almost Always or Always|0-9%)/P(Sometimes, Almost Always or Always|>9%)	1.062857	0.409517	2.758534

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(Never or Almost Never|>9%)-P(Never or Almost Never|0-9%)	0.010138	-0.14657	0.166848
P(Sometimes, Almost Always or Always|>9%)-P(Sometimes, Almost Always or Always|0-9%)	-0.01014	-0.16685	0.146572

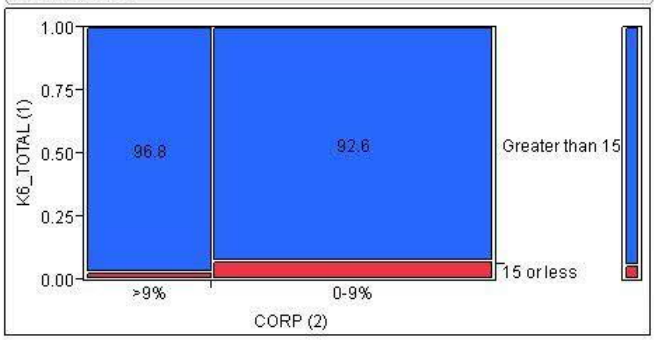
Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
1.075862	0.34366	3.368094

Figure 57.
Analysis of Mental Distress Score by Exposed Skin Percentage (K6_TOTAL (1) by CORP (2))

Contingency Analysis of K6_TOTAL (1) By CORP (2)

Mosaic Plot



Contingency Table

	K6_TOTAL (1)		
Count / Total % / Col % / Row %	15 or less	Greater than 15	
CORP (2) >9%	1	30	31
	1.01	30.30	31.31
	16.67	32.26	
	3.23	96.77	
CORP (2) 0-9%	5	63	68
	5.05	63.64	68.69
	83.33	67.74	
	7.35	92.65	
	6	93	99
	6.06	93.94	

Tests

N	DF	-LogLike	RSquare (U)
99	1	0.35502697	0.0157

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	0.710	0.3994
Pearson	0.637	0.4248

Fisher's Exact Test	Prob	Alternative Hypothesis
Left	0.3861	Prob(K6_TOTAL (1)=Greater than 15) is greater for CORP (2)=>9% than 0-9%
Right	0.9023	Prob(K6_TOTAL (1)=Greater than 15) is greater for CORP (2)=0-9% than >9%
2-Tail	0.6620	Prob(K6_TOTAL (1)=Greater than 15) is different across CORP (2)

Relative Risk

Description	Relative Risk	Lower 95%	Upper 95%
P(15 or less|>9%)/P(15 or less|0-9%)	0.43871	0.053476	3.599095
P(15 or less|0-9%)/P(15 or less|>9%)	2.279412	0.277848	18.69988
P(Greater than 15|>9%)/P(Greater than 15|0-9%)	1.044547	0.951963	1.146135
P(Greater than 15|0-9%)/P(Greater than 15|>9%)	0.957353	0.872498	1.050461

Risk Difference

Description	Risk Difference	Lower 95%	Upper 95%
P(15 or less|>9%)-P(15 or less|0-9%)	-0.04127	-0.12912	0.046574
P(Greater than 15|>9%)-P(Greater than 15|0-9%)	0.041271	-0.04657	0.129117

Odds Ratio

Odds Ratio	Lower 95%	Upper 95%
0.42	0.046976	3.755082

Figure 58.
Contingency Analysis Mosaic Plot of Feelings of Nervousness by Sunlight Explosure (K6_Q1_A (2) by SOL (3))

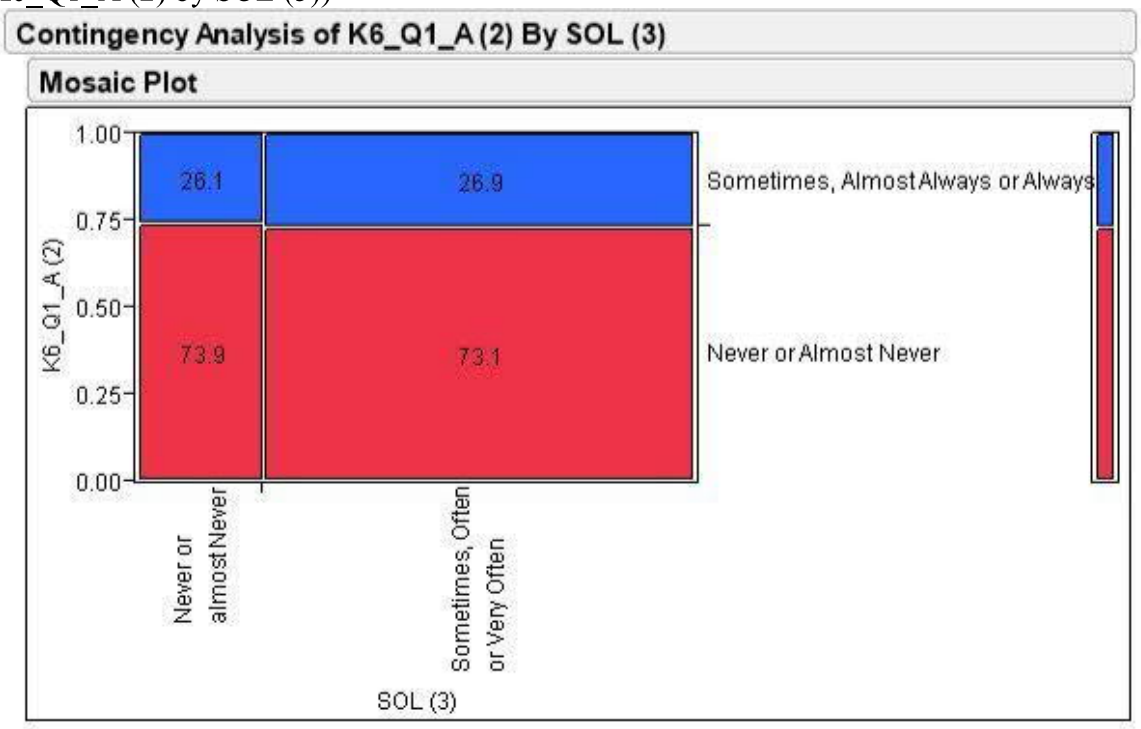


Figure 59.
Contingency Analysis Mosaic Plot of Feeling Hopelessness by Sunlight Exposure (K6_Q1_B (2) by SOL (3))

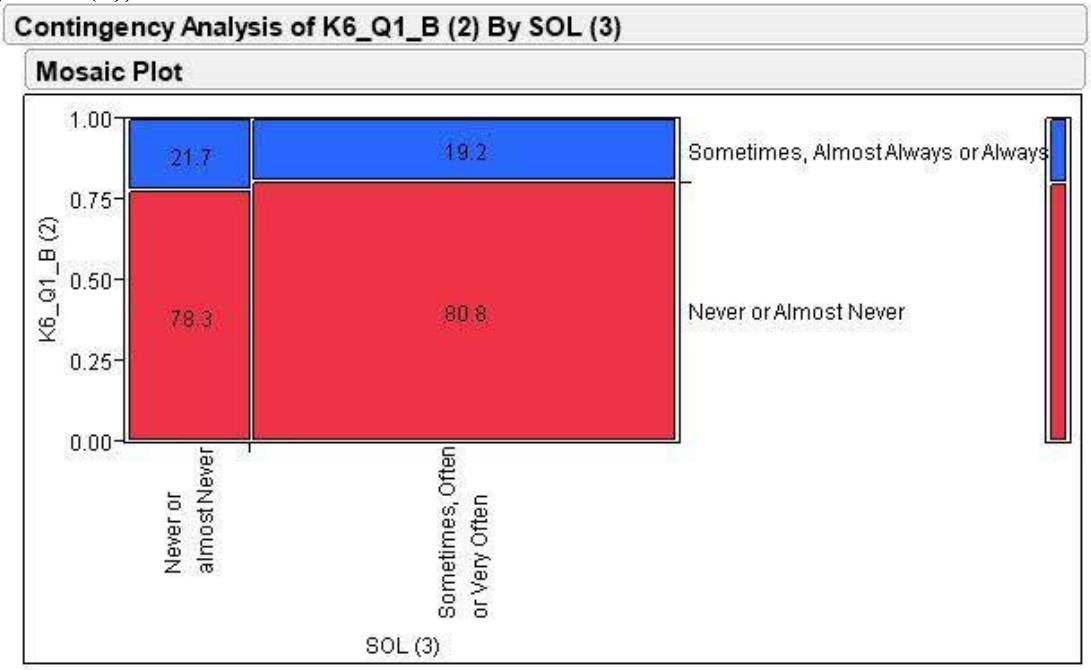


Figure 60.
Contingency Analysis Mosaic Plot of Feeling Restless or Fidgety by Sunlight Exposure (K6_Q1_C (2) by SOL (3))

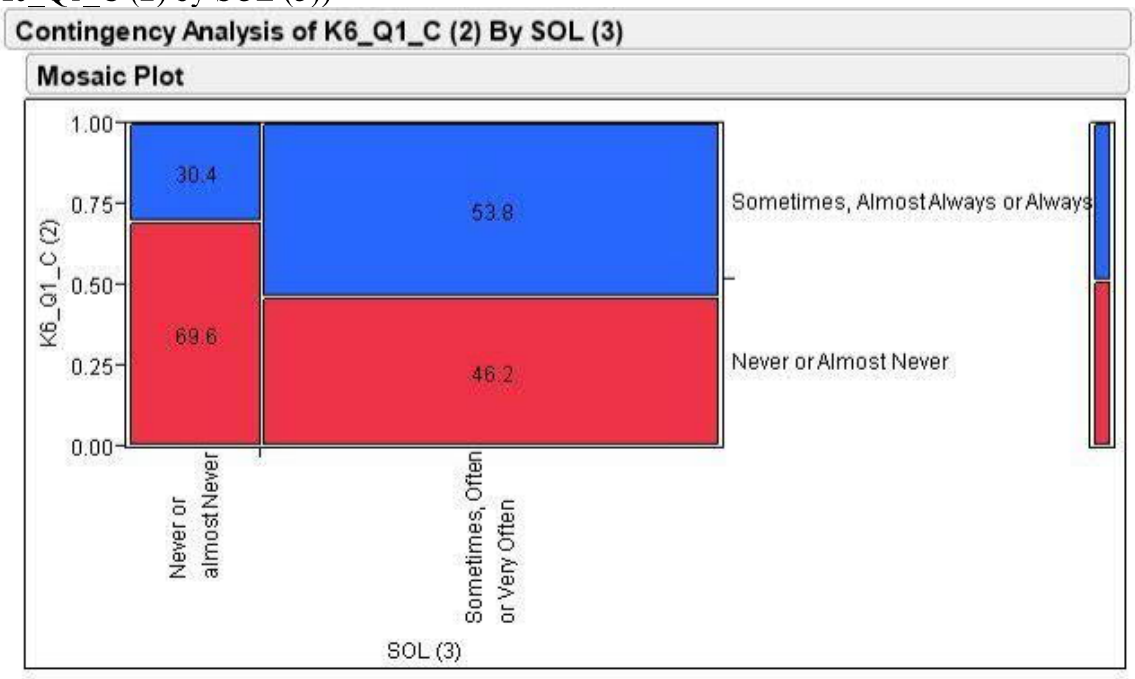


Figure 61.
Contingency Analysis Mosaic Plot of Feeling So Depressed That Nothing Could Cheer You Up by Sunlight Exposure (K6_Q1_D (2) by SOL (3))

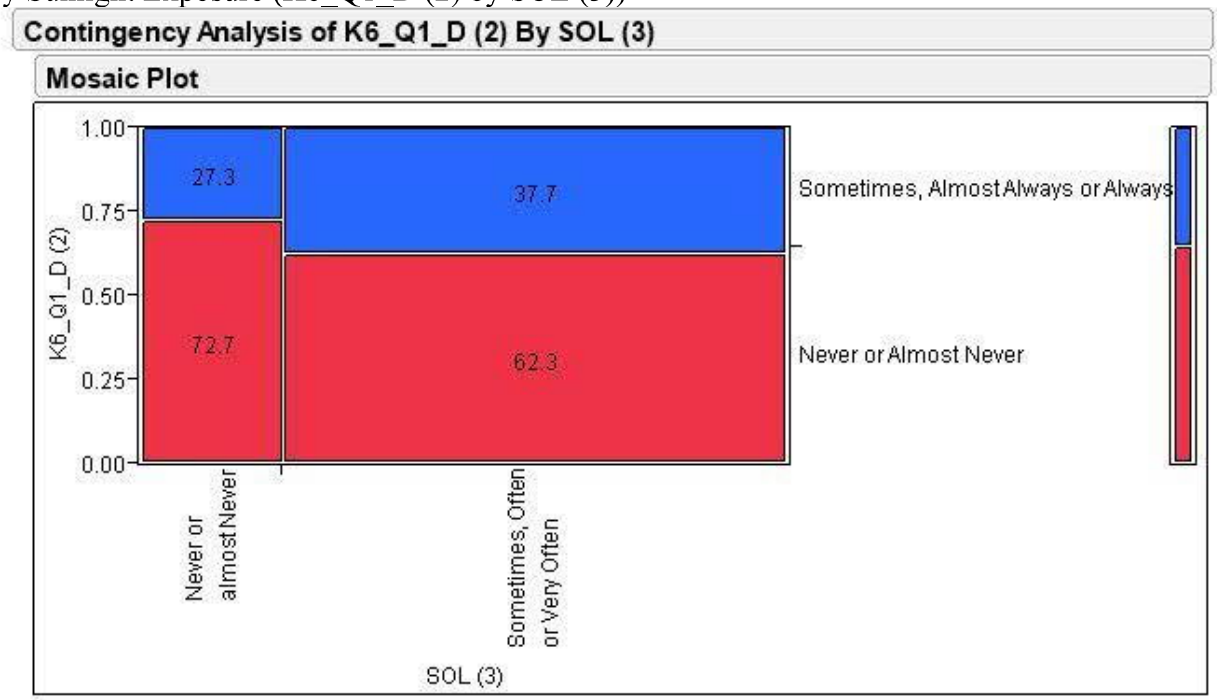


Figure 62.
Contingency Analysis Mosaic Plot of Feeling Like Everything Was an Effort by Sunlight Exposure (K6_Q1_E (2) by SOL (3))

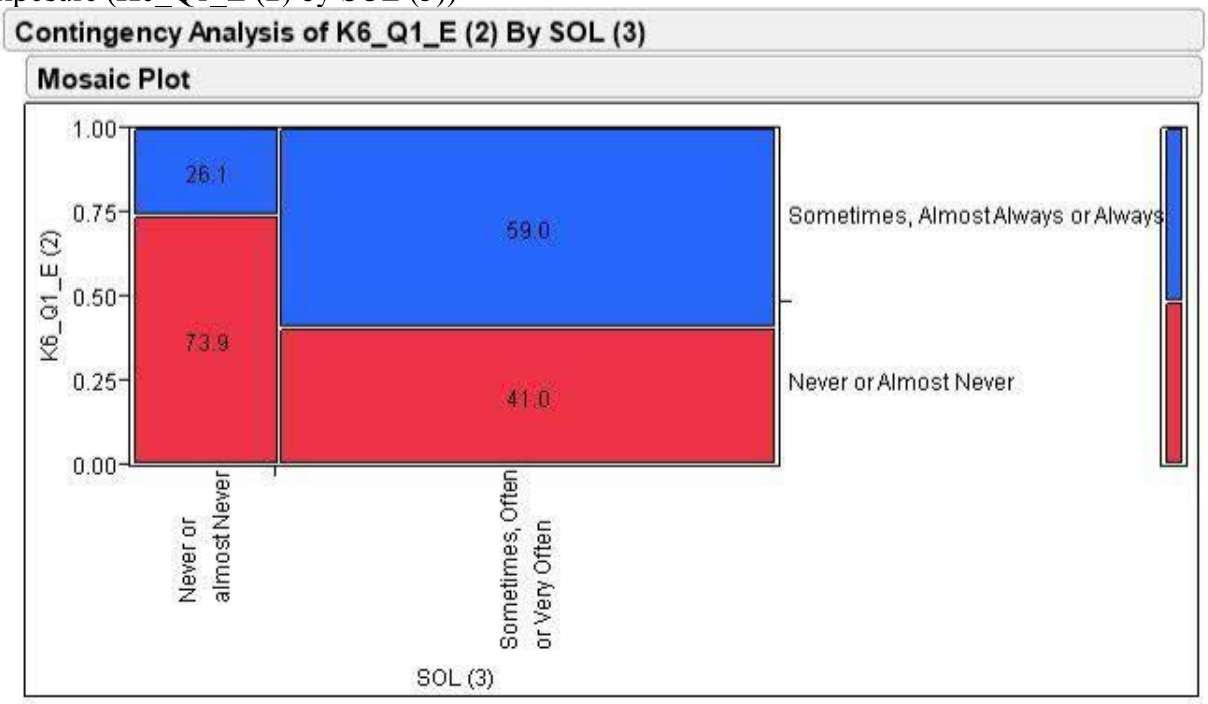


Figure 63.
Contingency Analysis Mosaic Plot of Feeling Worthless by Sunlight Exposure (K6_Q1_F (2) by SOL (3))

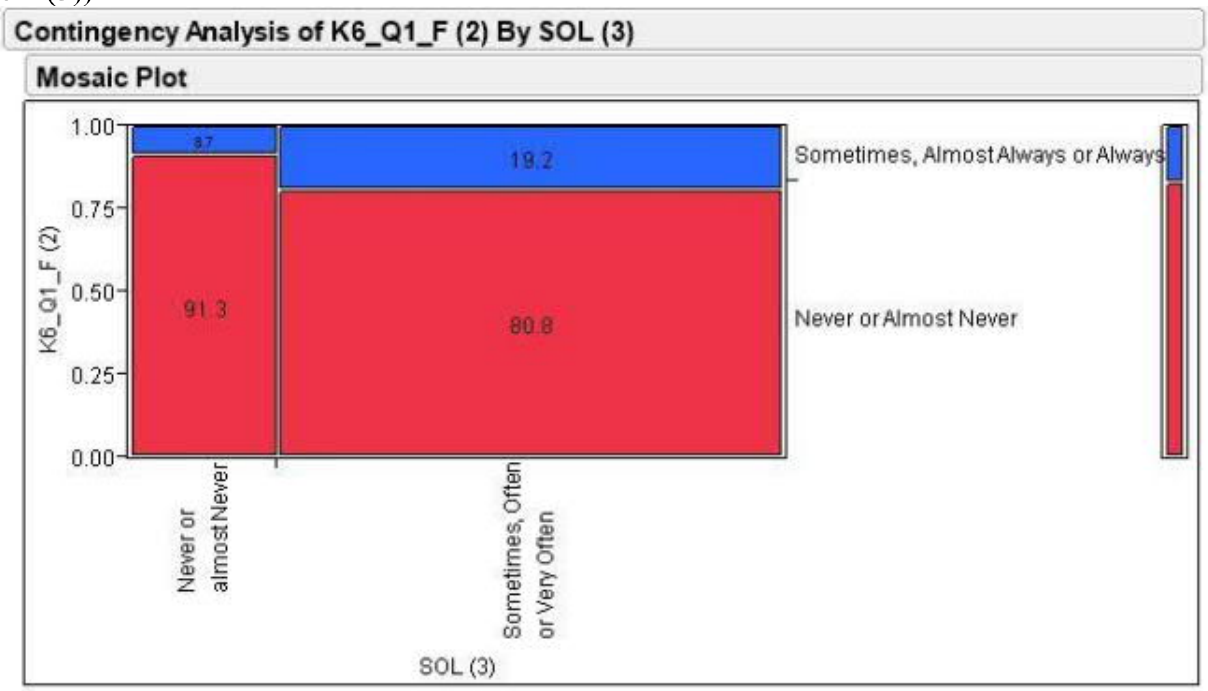


Figure 64.
Contingency Analysis Mosaic Plot of Mental Distress Score by Sunlight Exposure (K6_TOTAL (1) by SOL (3))

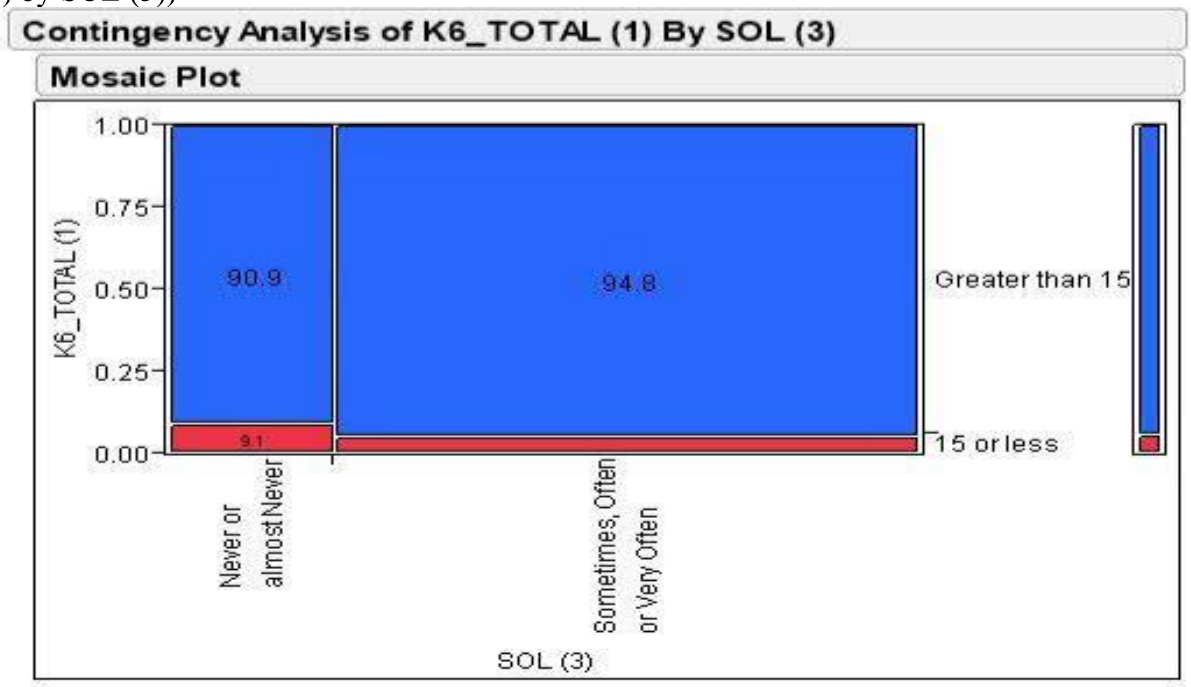


Figure 65.
Contingency Analysis Mosaic Plot of Feelings of Nervousness by Number of Break(s) Taken at Work (K6_Q1_A (2) by BREAKS_D (02))

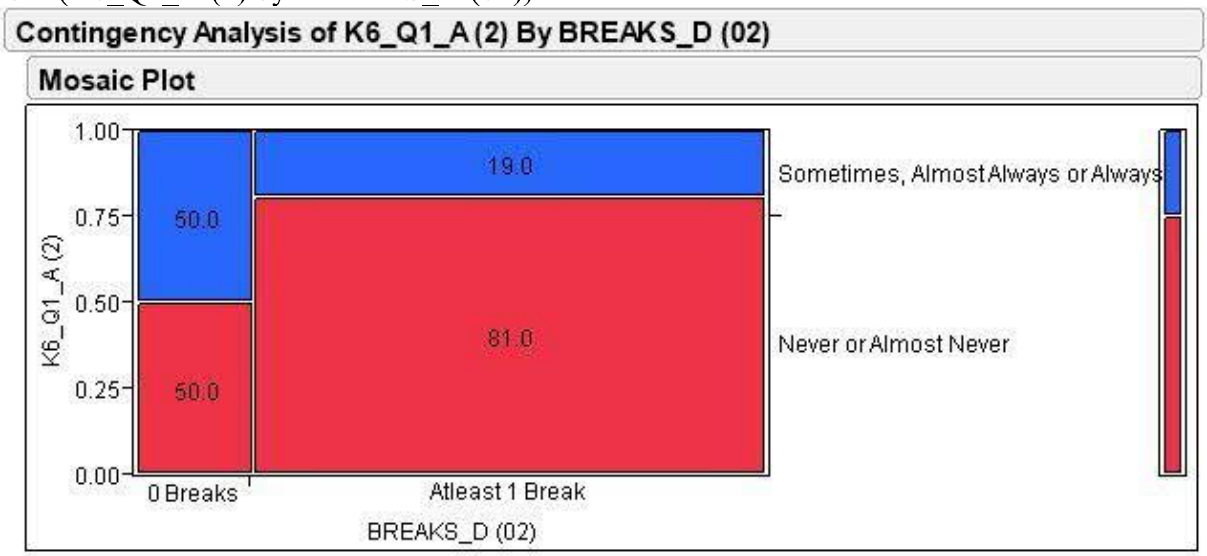


Figure 66.
Contingency Analysis Mosaic Plot of Feelings of Hopelessness by Number of Break(s) Taken at Work (K6_Q1_B (2) by BREAKS_D (02))

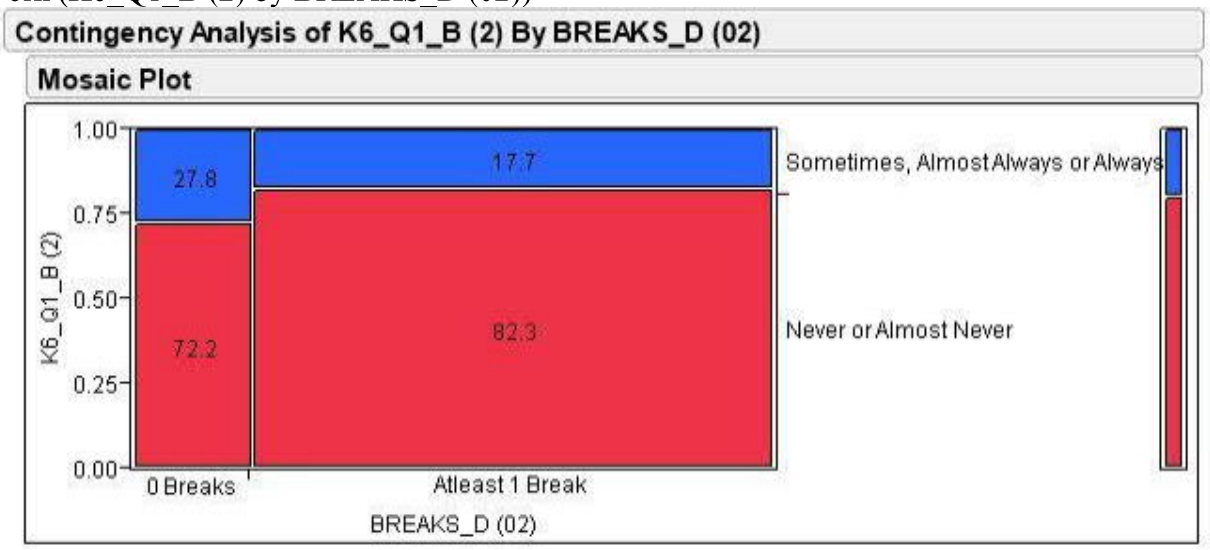


Figure 67.
Contingency Analysis Mosaic Plot of Feeling restless or Fidgety by Number of Break(s) Taken at Work (K6_Q1_C (2) by BREAKS_D (02)

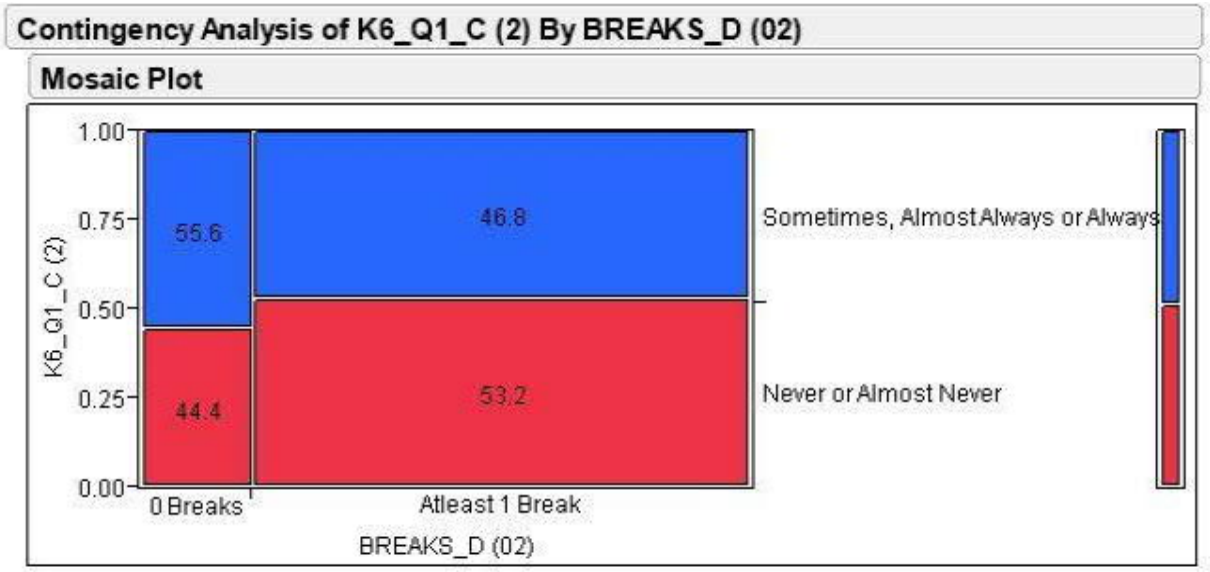


Figure 68.
Contingency Analysis Mosaic Plot of Feeling So Depressed That Nothing Could Cheer You Up by Number of Break(s) Taken at Work (K6_Q1_D (2) by BREAKS_D (02))

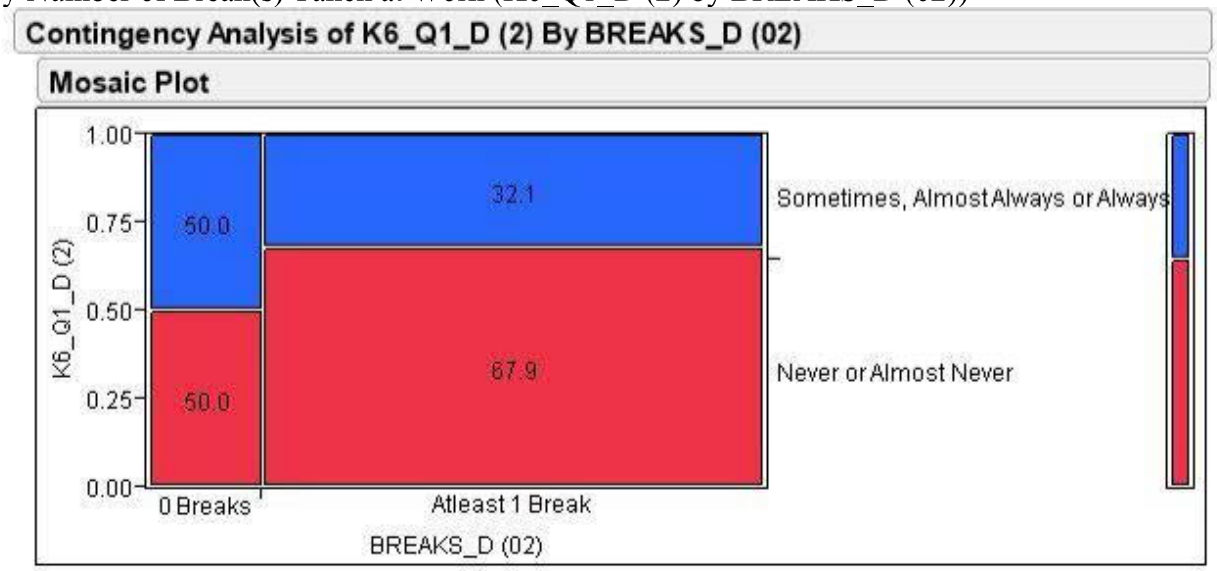


Figure 69.
Contingency Analysis Mosaic Plot of Feeling Like Everything Was an Effort by Number of Break(s) Taken at Work (K6_Q1_E (2) by BREAKS_D (02))

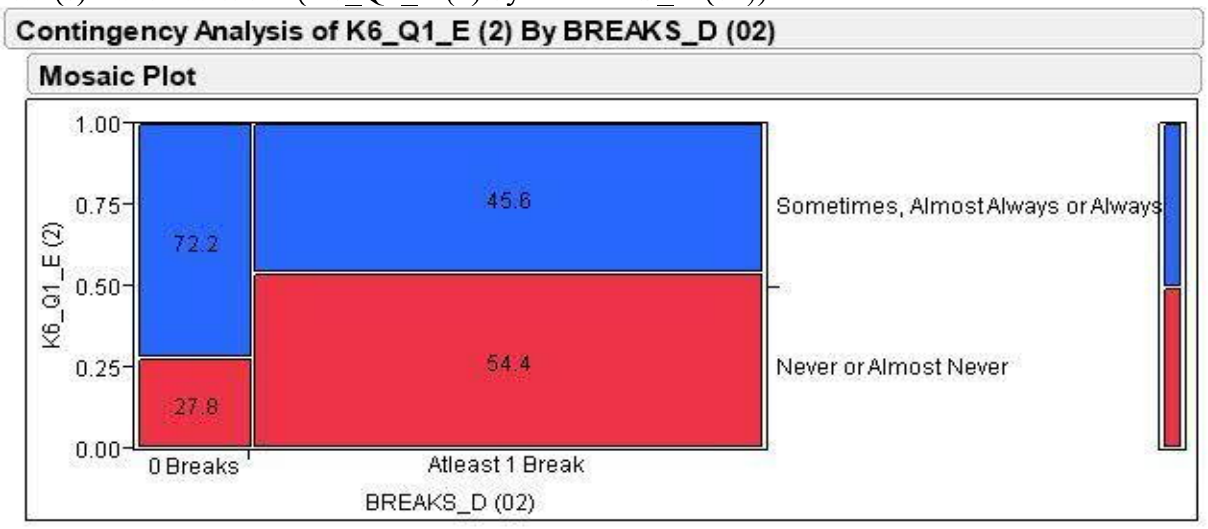


Figure 70.
Contingency Analysis Mosaic Plot of Feeling Worthless by Number of Break(s) Taken at Work (K6_Q1_F (2) by BREAKS_D (02))

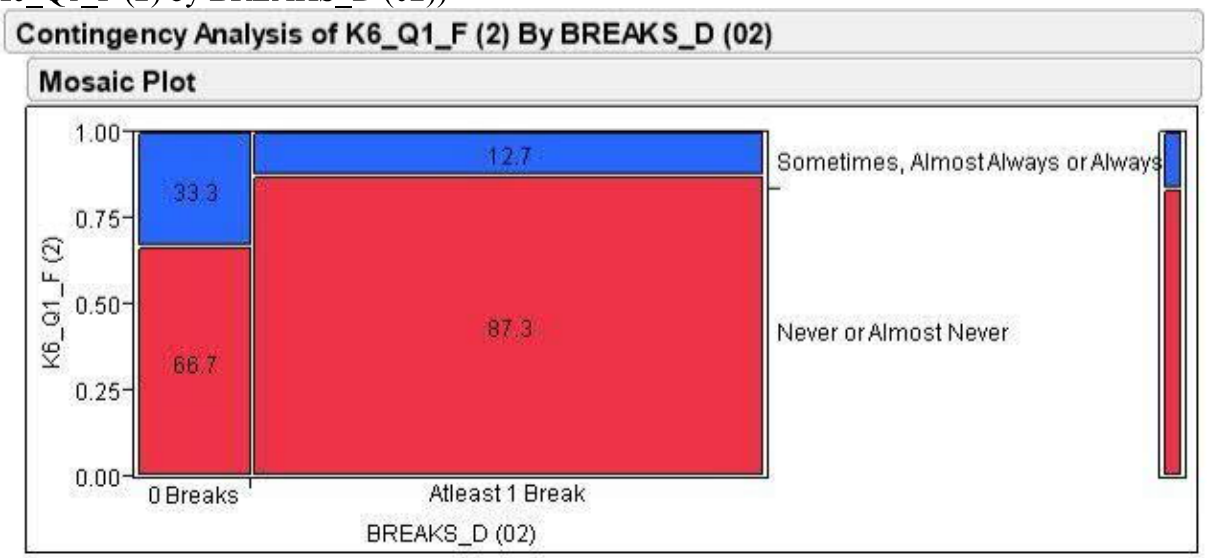


Figure 71.
Contingency Analysis Mosaic Plot of Mental Distress Score by Number of Break(s) Taken at Work (K6_TOTAL (1) by BREAKS_D (02))

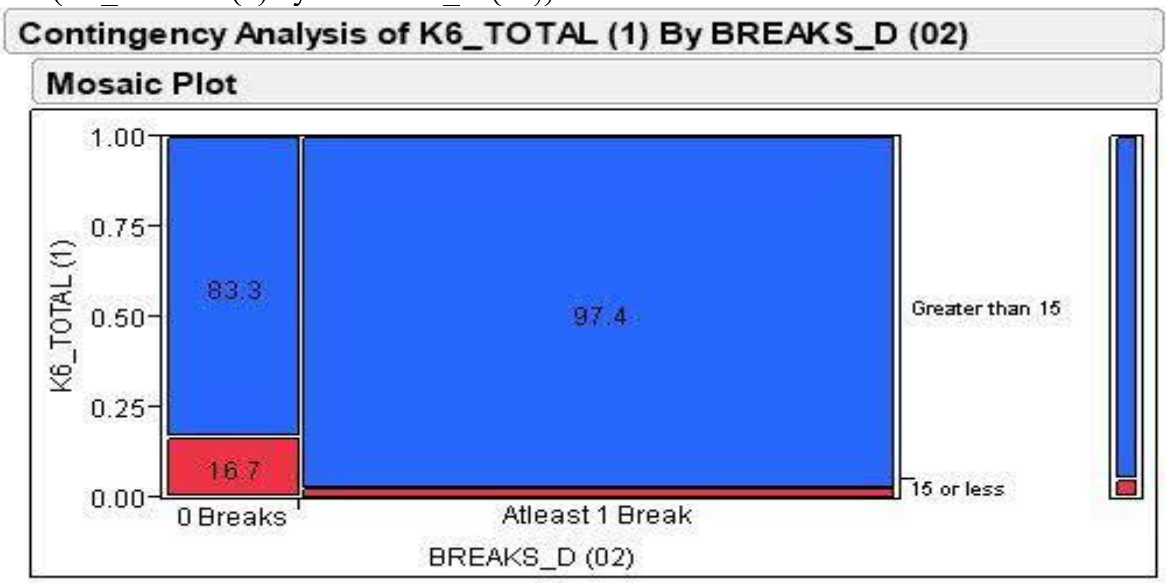


Figure 72.
Contingency Analysis Mosaic Plot of Sunlight Exposure by Number of Break(s) Taken at Work (SOL (3) by BREAKS_D (02))

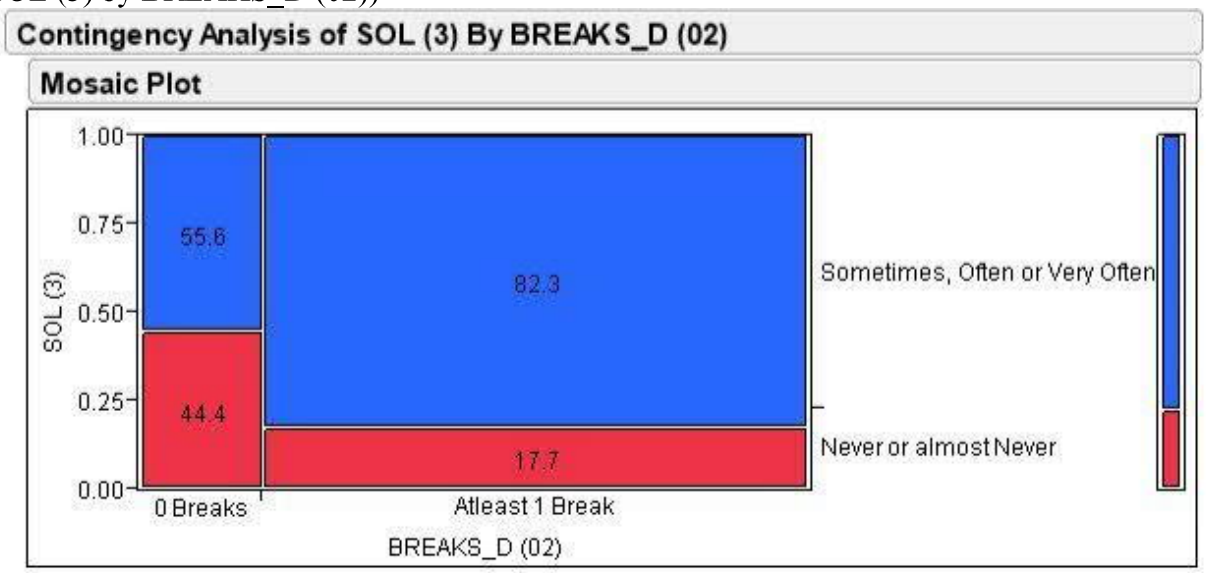


Figure 73.
Contingency Analysis Mosaic Plot of Length of Work In Direct Sunlight by Number of Break(s) Taken at Work (SOL_T (02) by BREAKS_D (02))

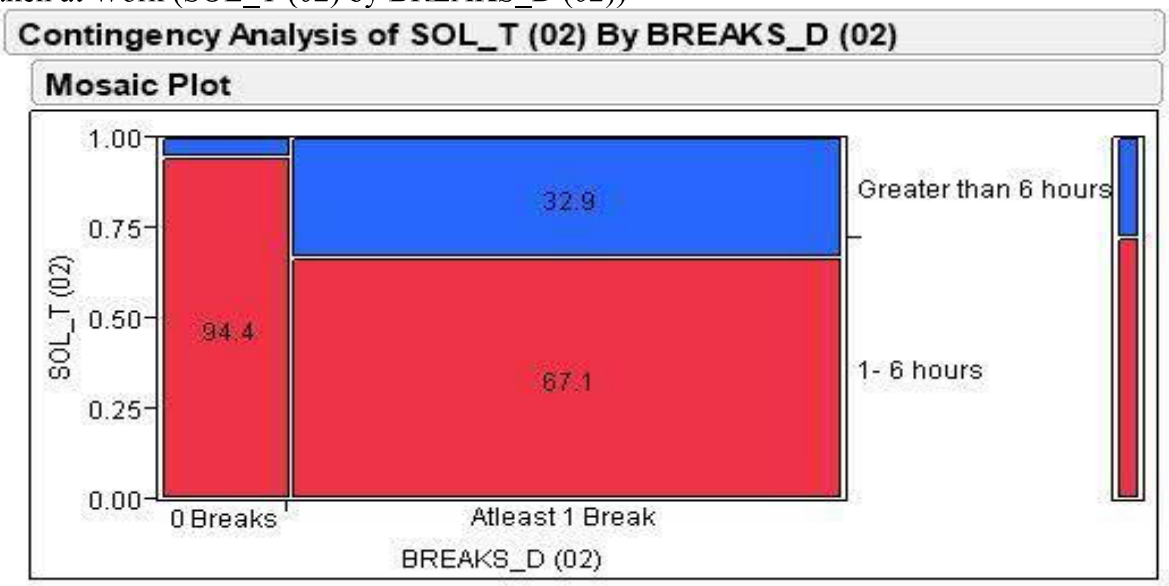


Figure 74.
Contingency Analysis Mosaic Plot of Self-Perceived Emotional Status by Sex (EMOT (1) by SEX)

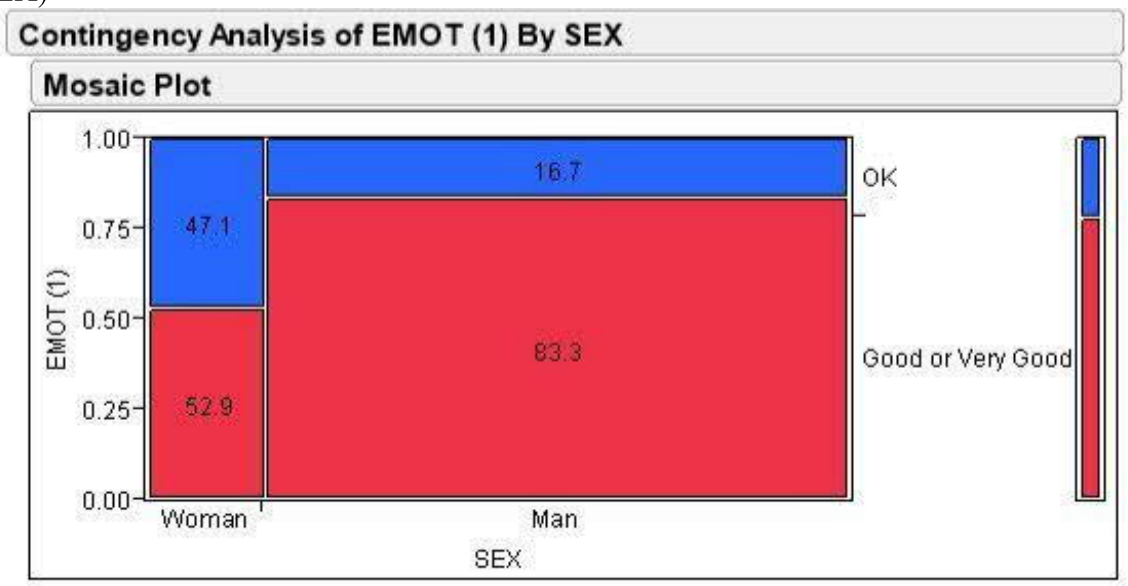


Figure 75.
Contingency Analysis Mosaic Plot of Feelings of Nervousness by Sex (K6_Q1_A (2) by SEX)

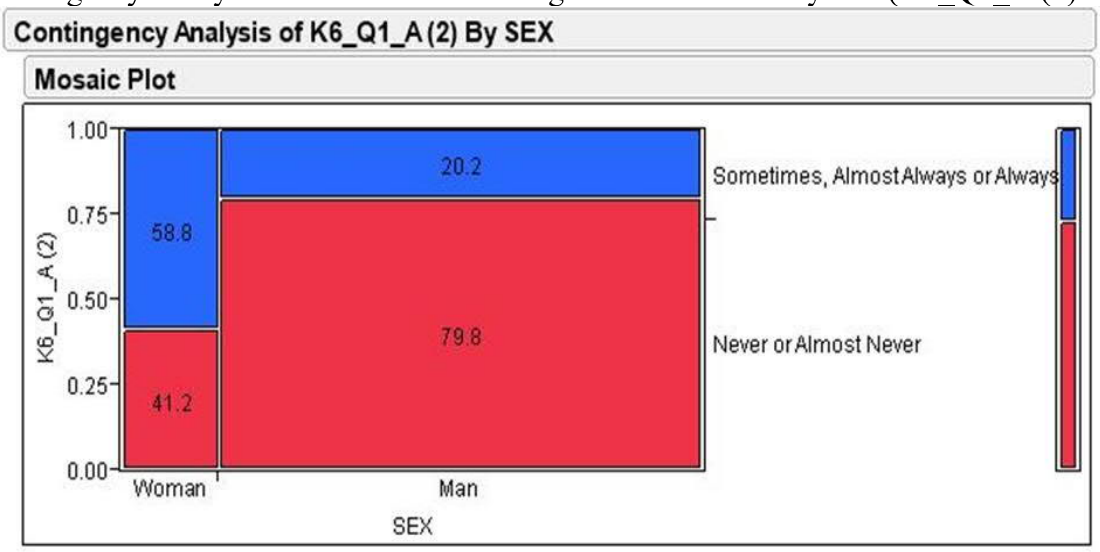


Figure 76.
Contingency Analysis Mosaic Plot of Feelings of Hopelessness by Sex (K6_Q1_B (2) by SEX)

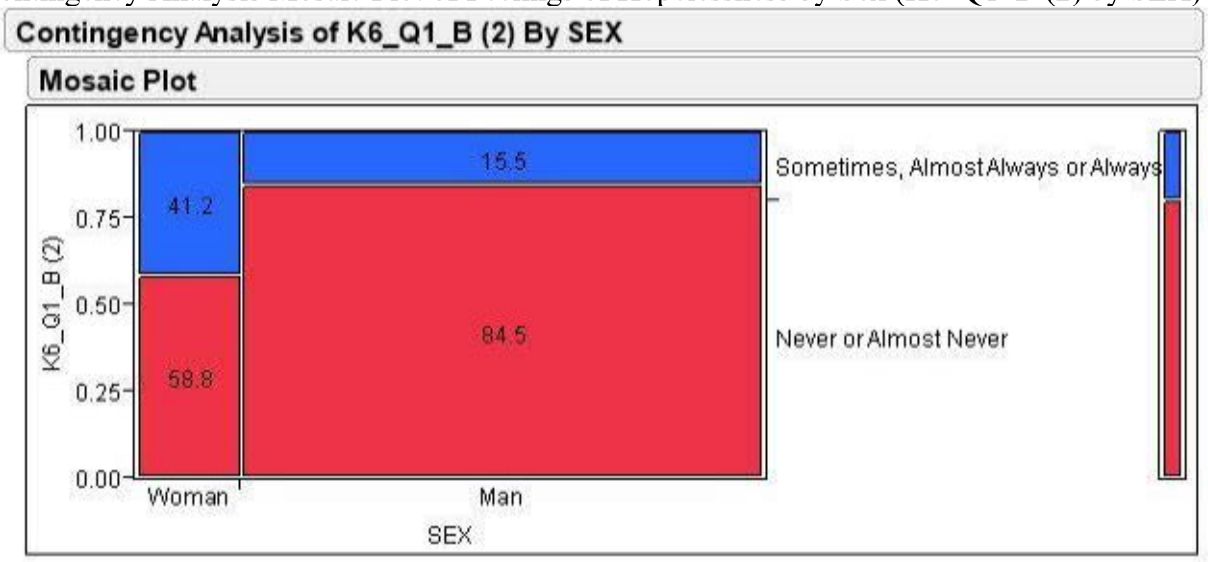


Figure 77.
Contingency Analysis Mosaic Plot of Feeling Restless or Fidgety by Sex (K6_Q1_C (2) by SEX)

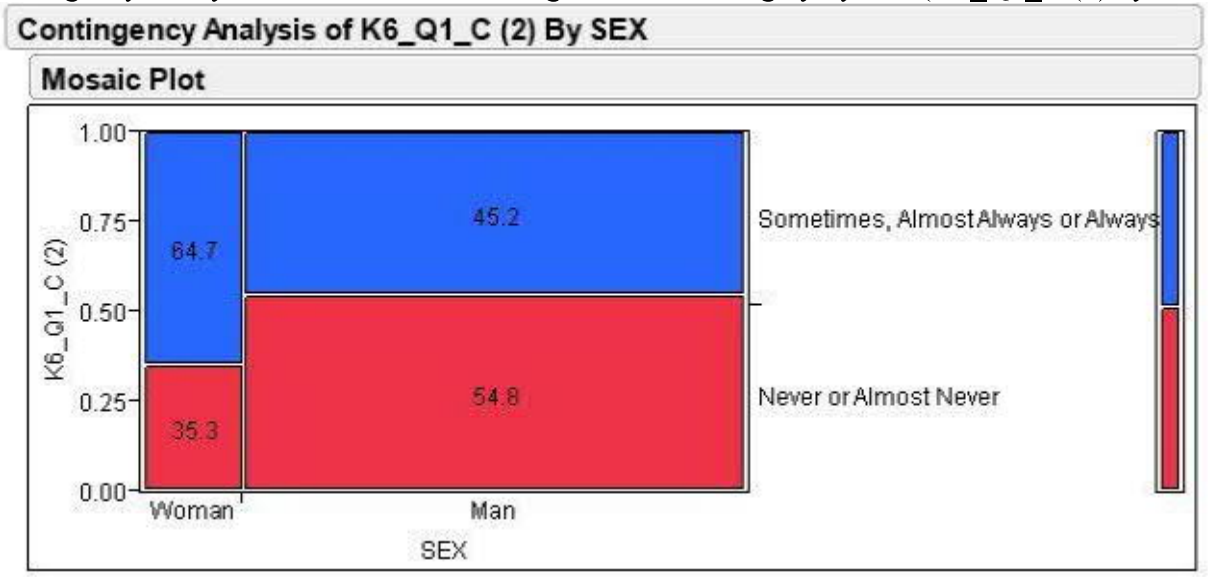


Figure 78.
Contingency Analysis Mosaic Plot of Feeling So Depressed That Nothing Could Cheer You Up by Sex (K6_Q1_D (2) by SEX)

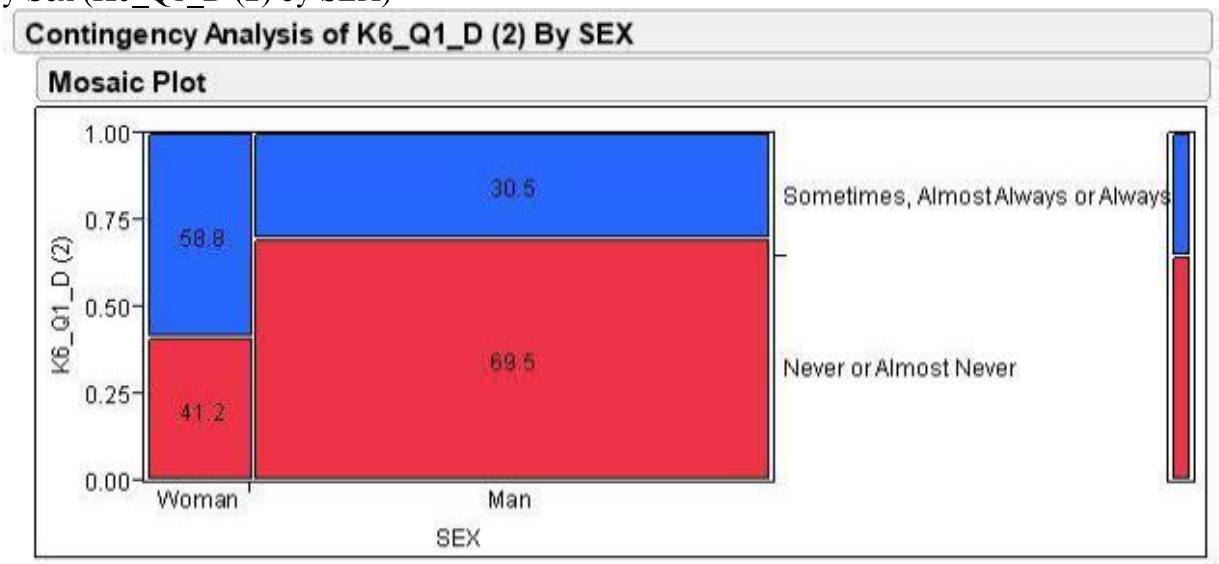


Figure 79.
Contingency Analysis Mosaic Plot of Feeling Like Everything Was an Effort by Sex (K6_Q1_E (2) by SEX)

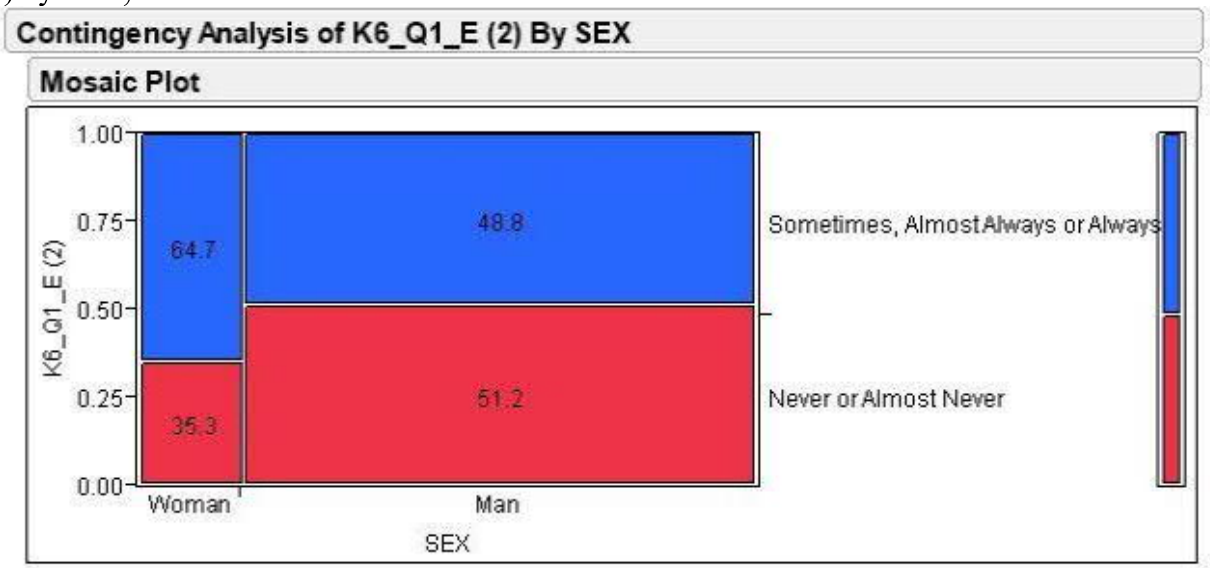


Figure 80.
Contingency Analysis Mosaic Plot of Feeling Worthless by Sex (K6_Q1_F (2) by SEX)

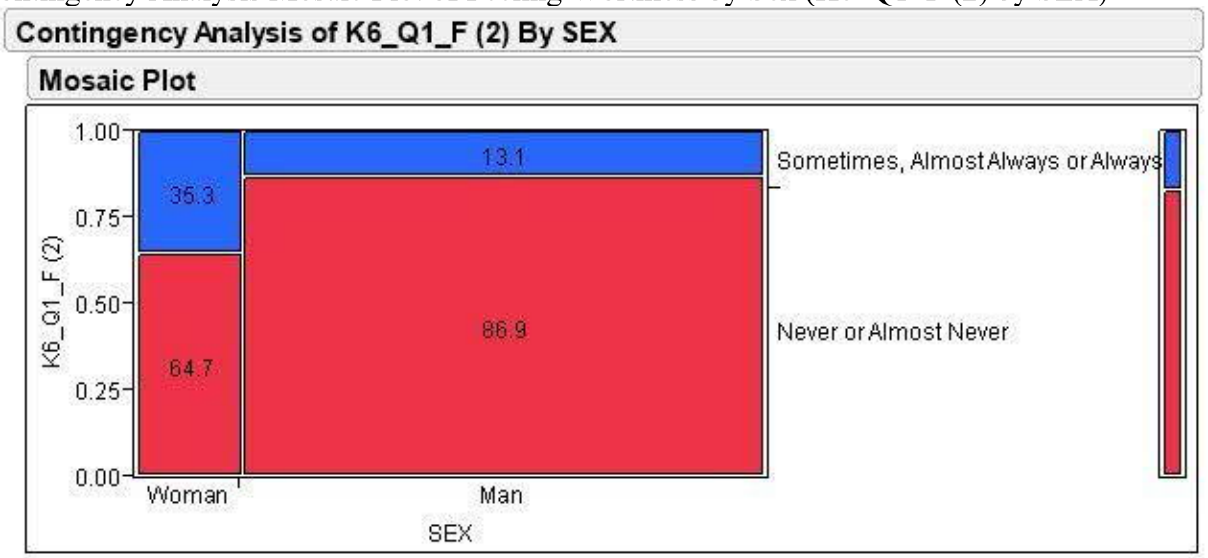


Figure 81.
Contingency Analysis Mosaic Plot of Mental Distress Score by Sex (K6_TOTAL (1) by SEX)

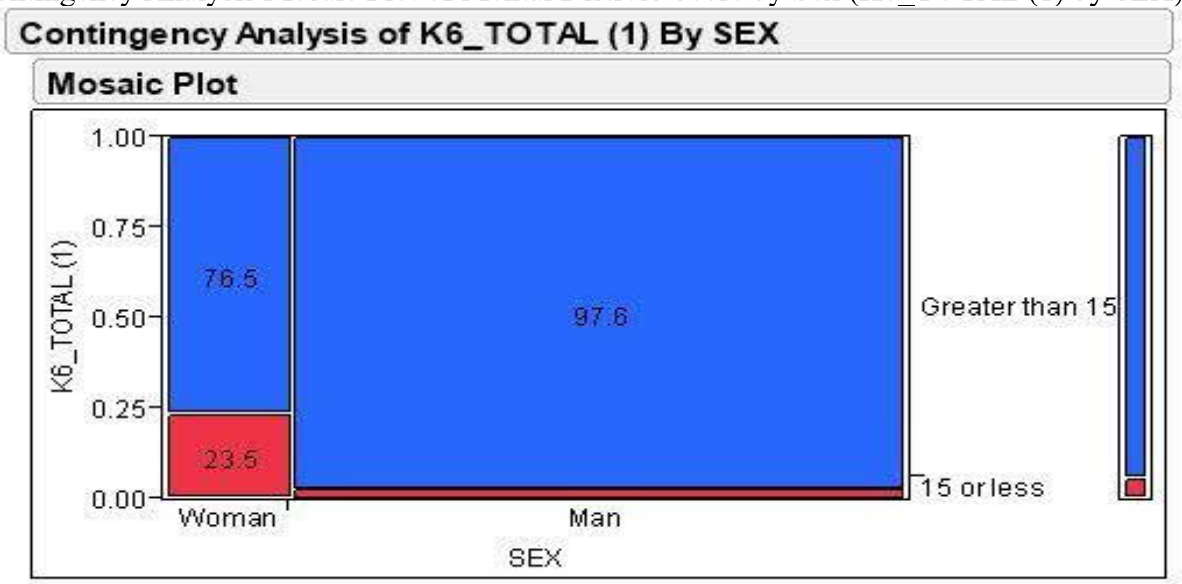


Figure 82.
Contingency Analysis Mosaic Plot of Feelings of Nervousness by Sleep (hours) (K6_Q1_A (2) by SLEEP (01))

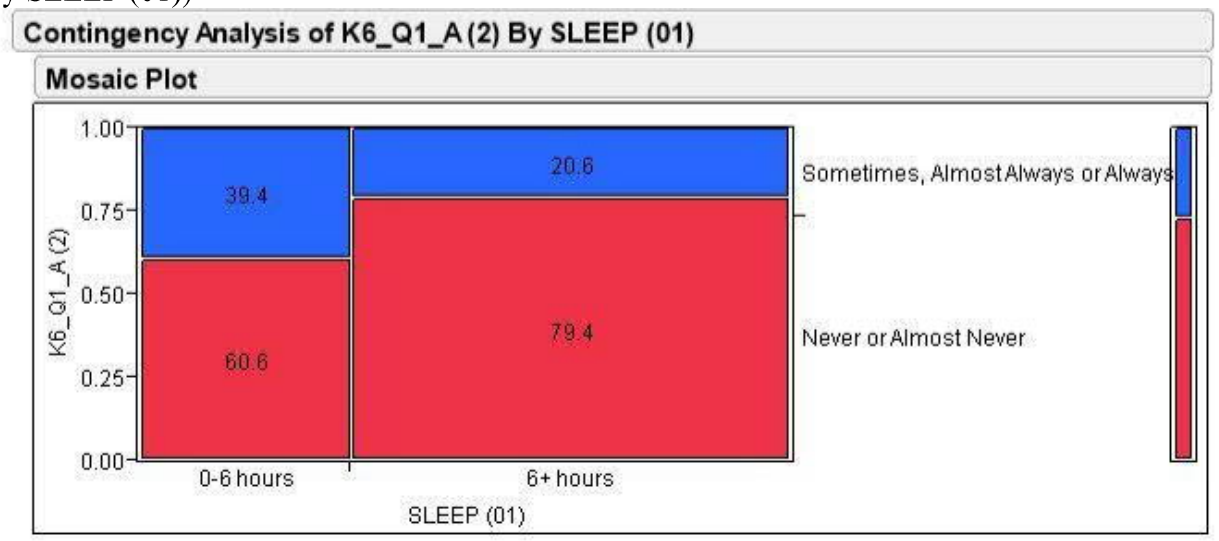


Figure 83.
Contingency Analysis Mosaic Plot of Feelings of Hopelessness by Sleep (hours) (K6_Q1_B (2) by SLEEP (01))

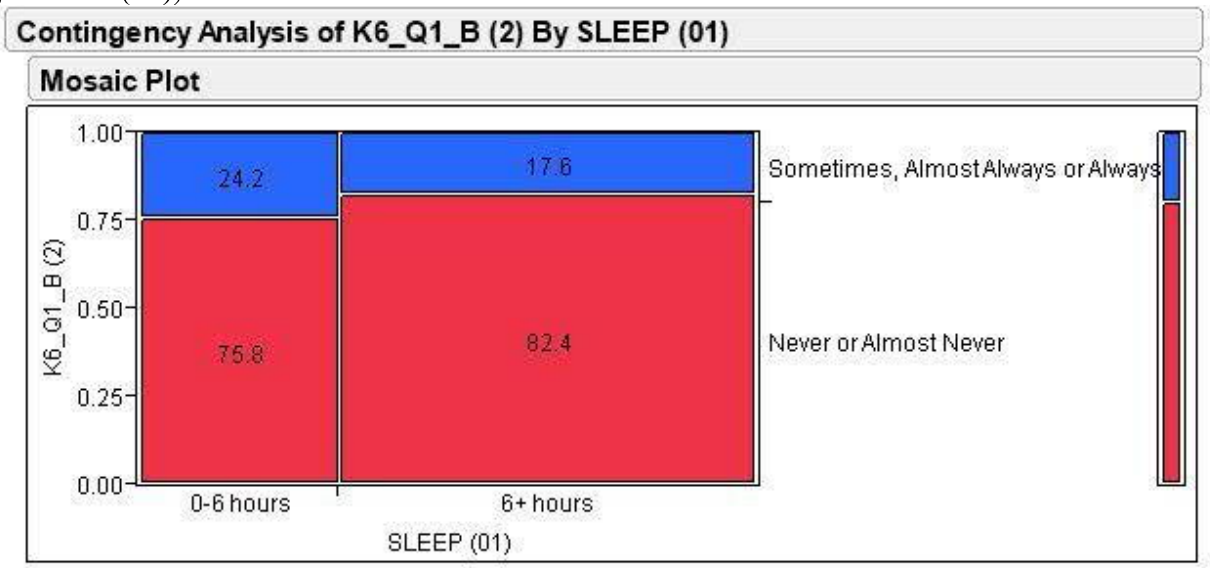


Figure 84.
Contingency Analysis Mosaic Plot of Feeling Restless or Fidgety by Sleep (hours) (K6_Q1_C (2) by SLEEP (01))

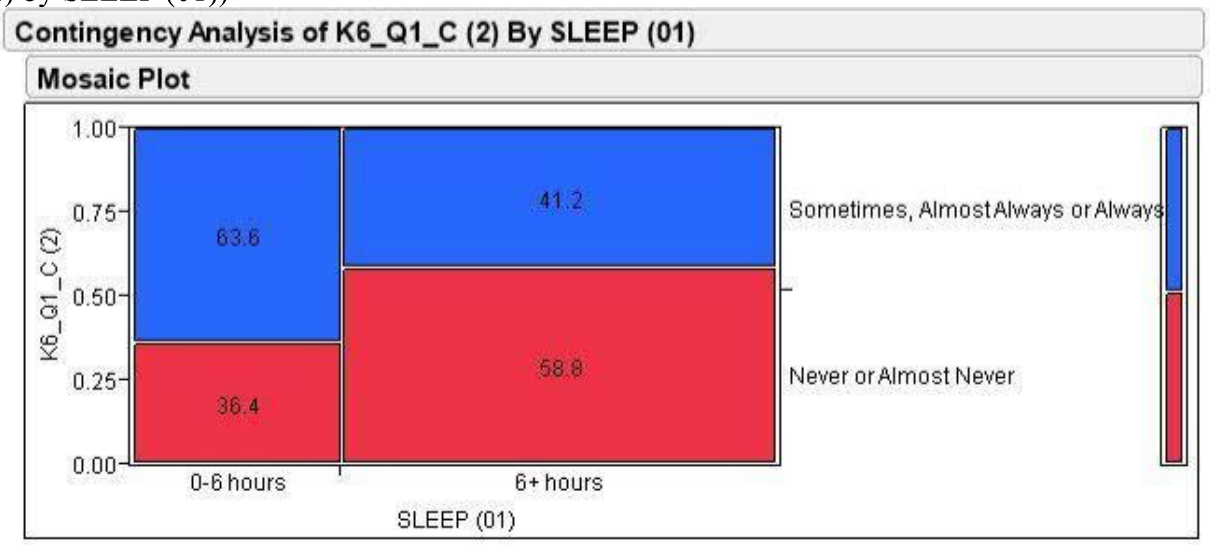


Figure 85.
Contingency Analysis Mosaic Plot of Feeling So Depressed That Nothing Could Cheer You Up by Sleep (hours) (K6_Q1_D (2) by SLEEP (01))

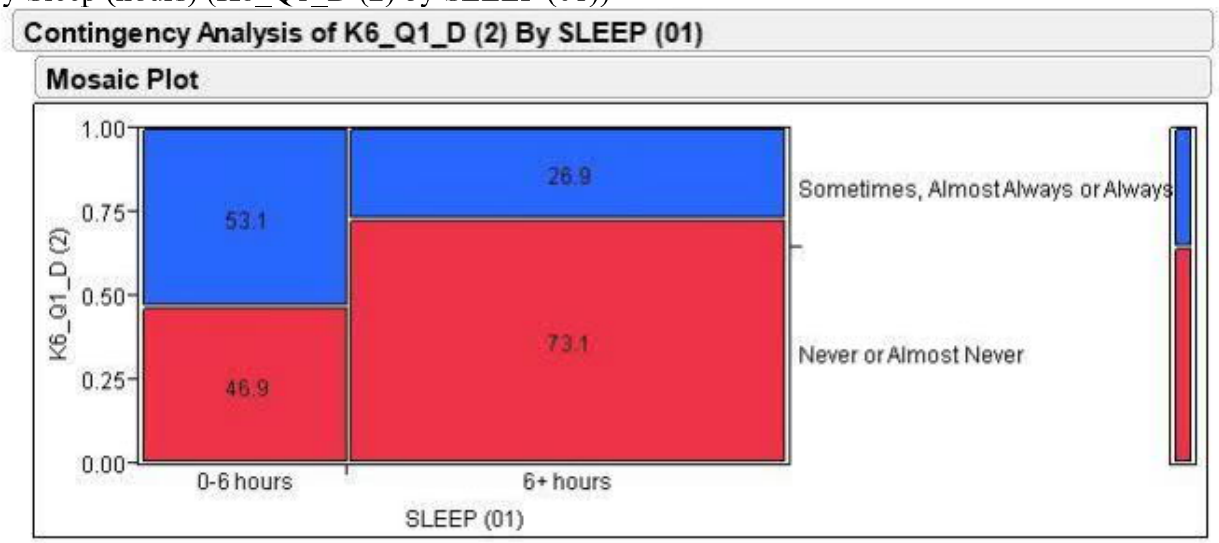


Figure 86.
Contingency Analysis Mosaic Plot of Feeling Like Everything Was an Effort by Sleep (hours) (K6_Q1_E (2) by SLEEP (01))

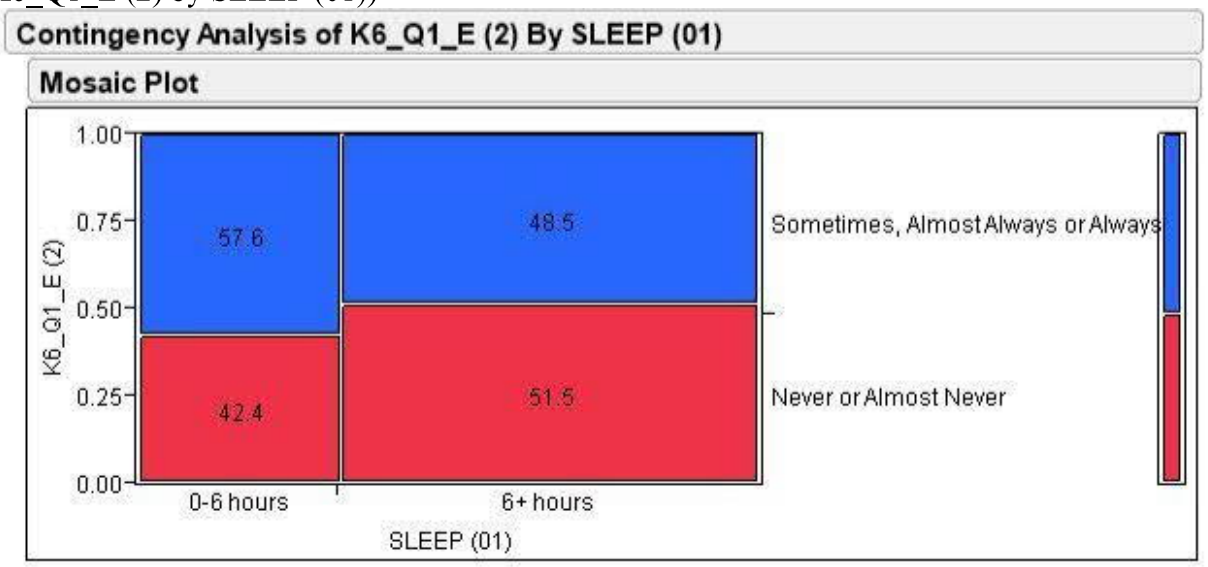


Figure 87.
Contingency Analysis Mosaic Plot of Feeling Worthless by Sleep (hours) (K6_Q1_F (2) by SLEEP (01))

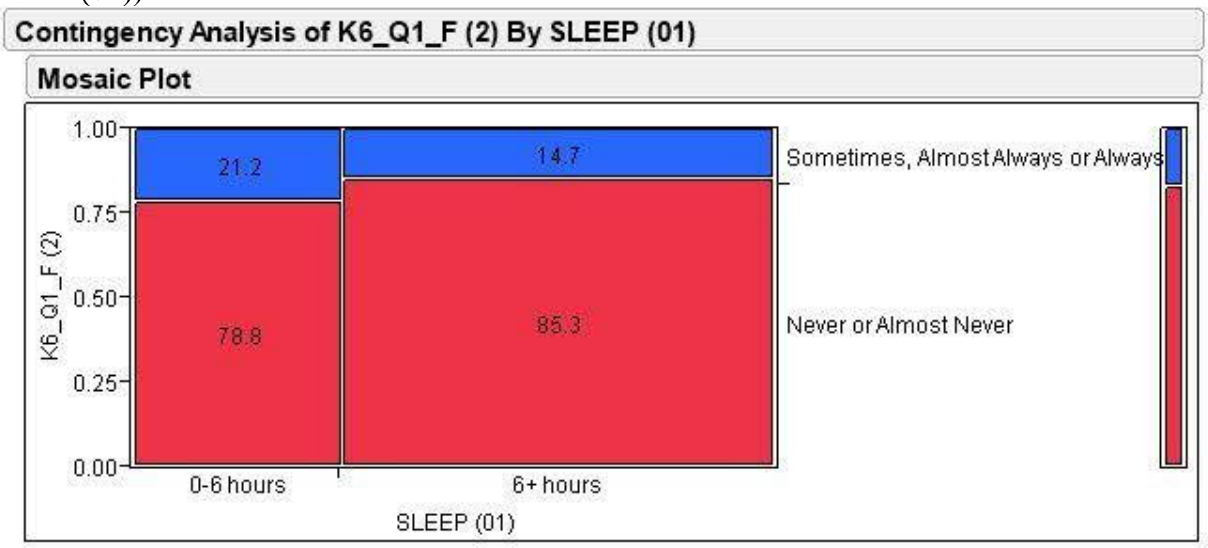


Figure 88.
Contingency Analysis Mosaic Plot of Mental Distress Score by Sleep (hours) (K6_TOTAL (1) by SLEEP (01))

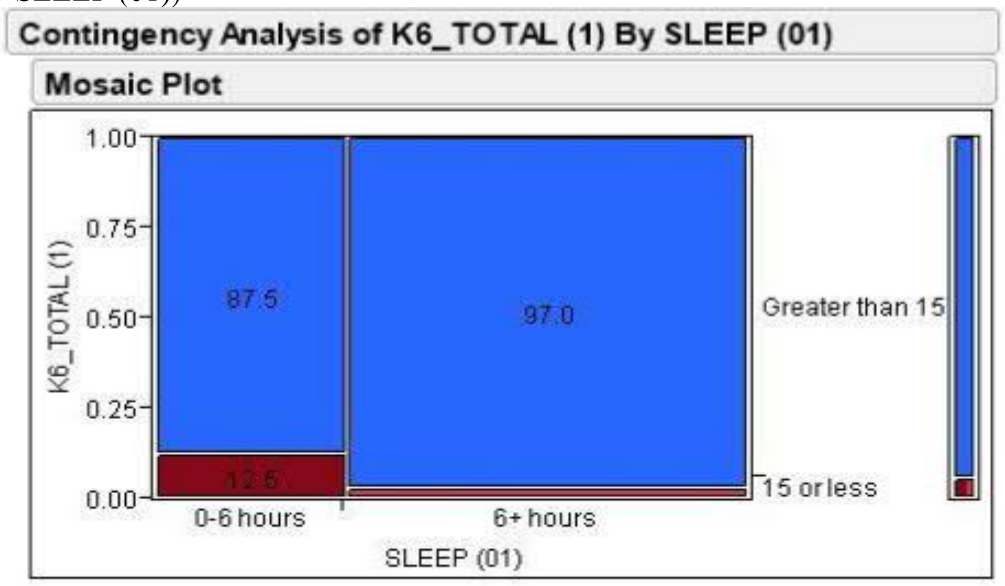


Figure 89.
Contingency Analysis Mosaic Plot of Self-Perceived Mental Health Status by Sleep (hours) (MENTAL_S (04) by SLEEP (01))

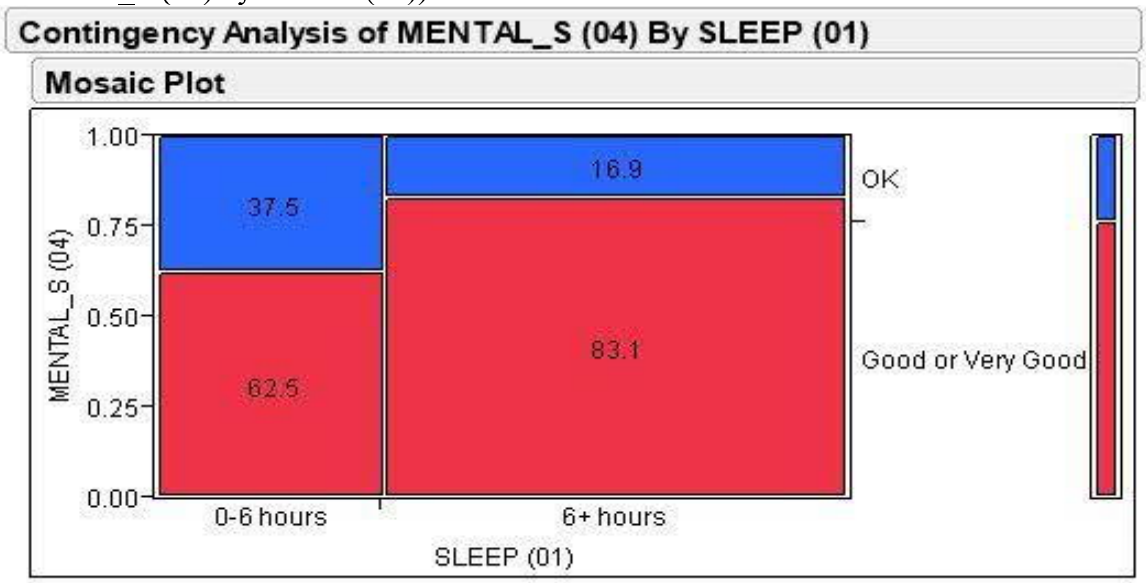


Figure 90.
Contingency Analysis Mosaic Plot of Self-Perceived Emotional Status by Work Organization Type (EMOT (1) by AD_1 (02))

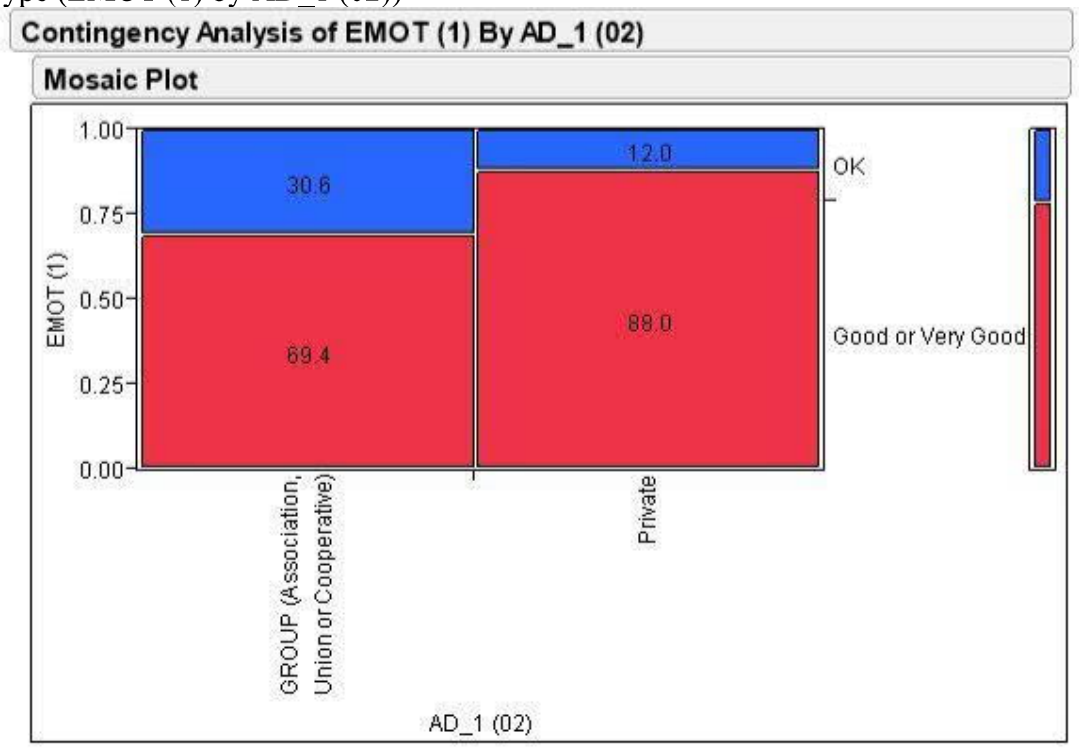


Figure 91.
Contingency Analysis Mosaic Plot of Feelings of Nervousness by Work Organization Type (K6_Q1_A (2) by AD_1 (02))

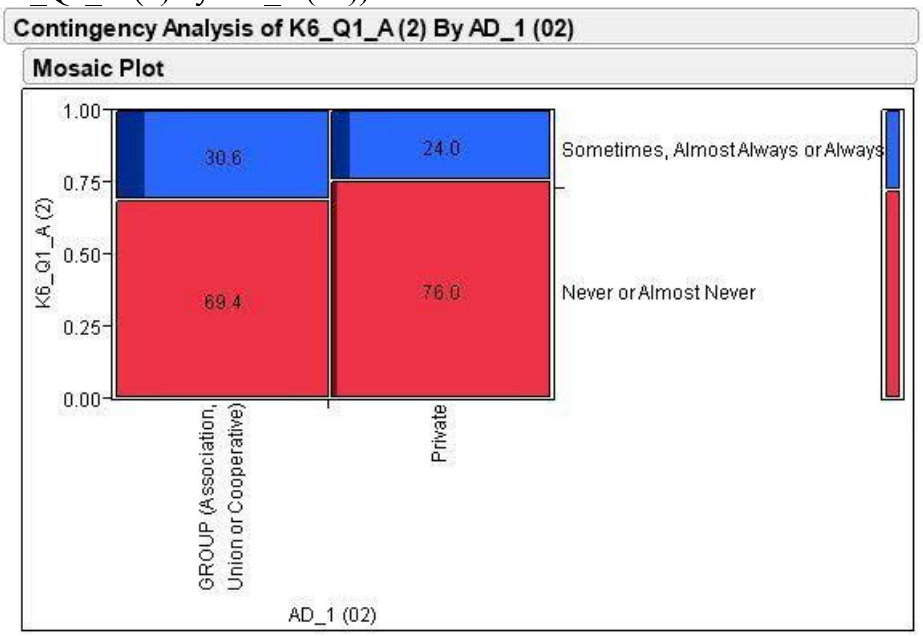


Figure 92.
Contingency Analysis Mosaic Plot of Feelings of Hopelessness by Work Organization Type (K6_Q1_B (2) by AD_1 (02))

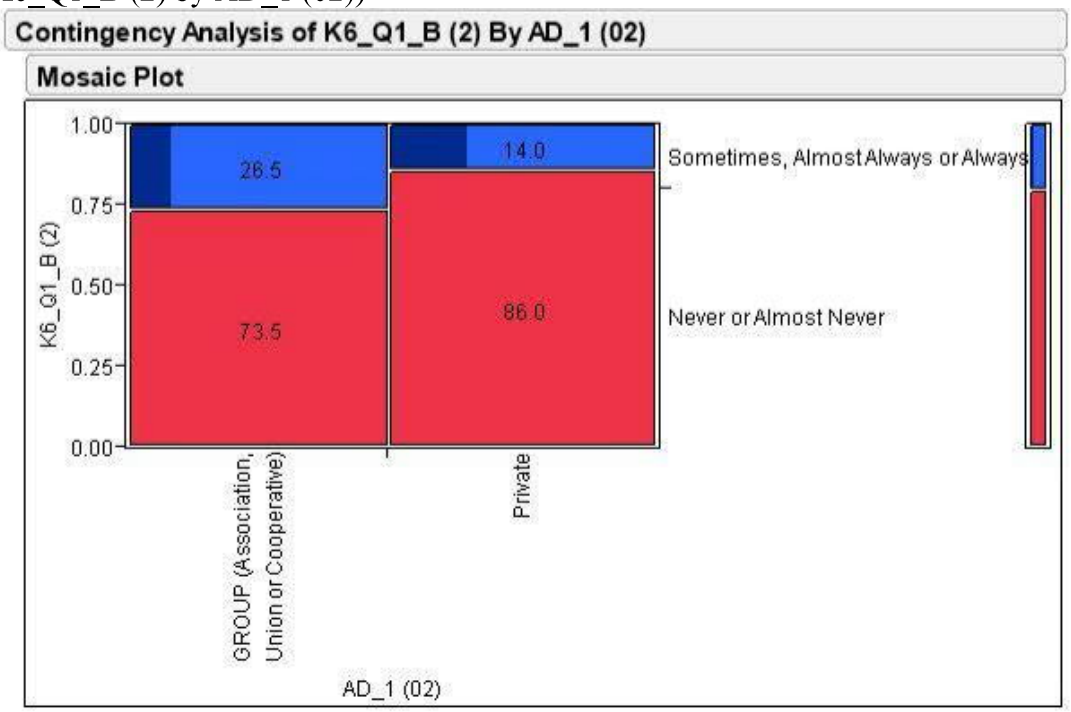


Figure 93.
Contingency Analysis Mosaic Plot of Feeling Restless or Fidgety by Work Organization Type (K6_Q1_C (2) by AD_1 (02))

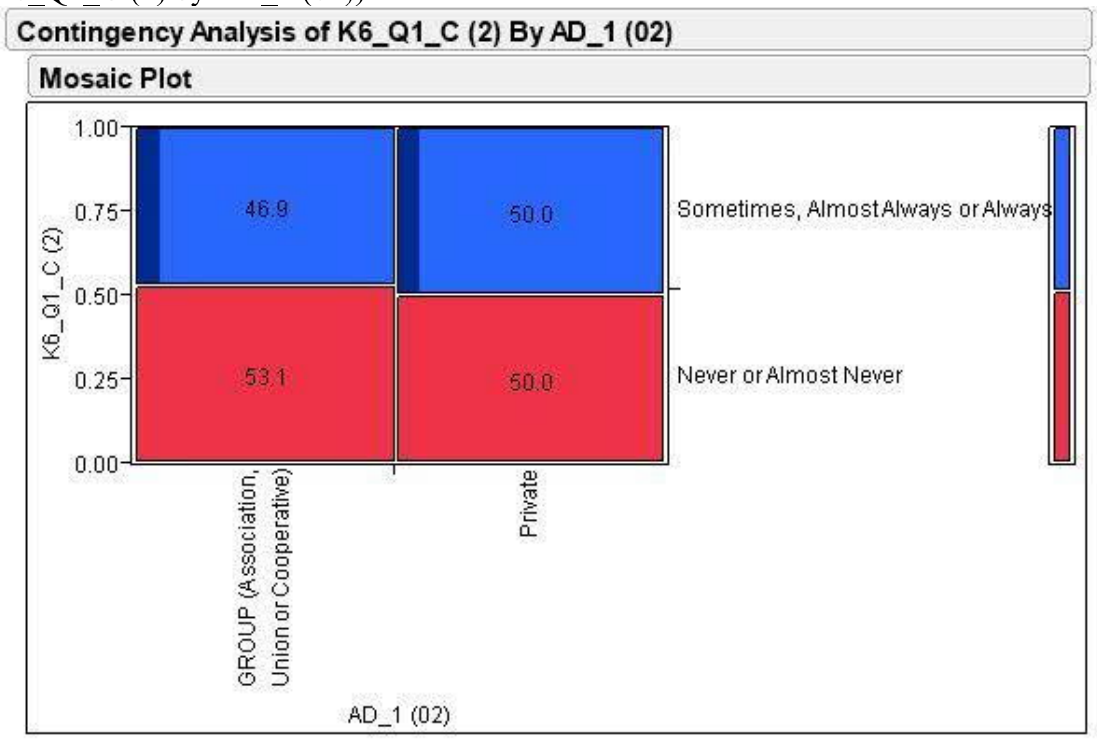


Figure 94.
Contingency Analysis Mosaic Plot of Feeling So Depressed That Nothing Could Cheer You Up by Work Organization Type (K6_Q1_D (2) by AD_1 (02))

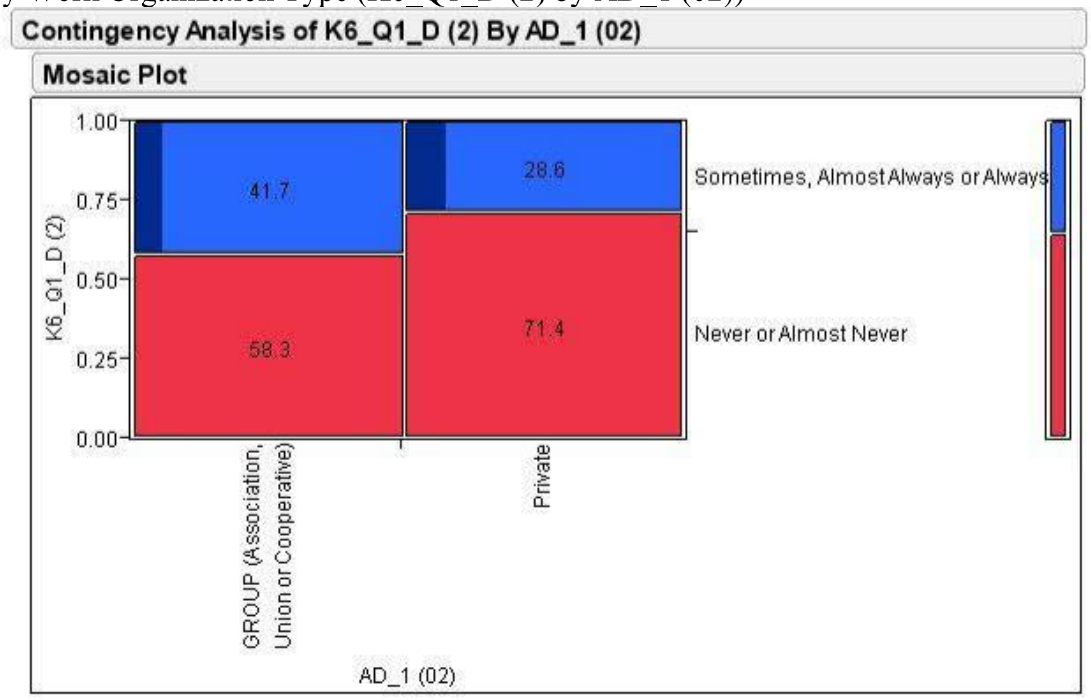


Figure 95.
Contingency Analysis Mosaic Plot of Feeling Like Everything Was an Effort by Work Organization Type (K6_Q1_E (2) by AD_1 (02))

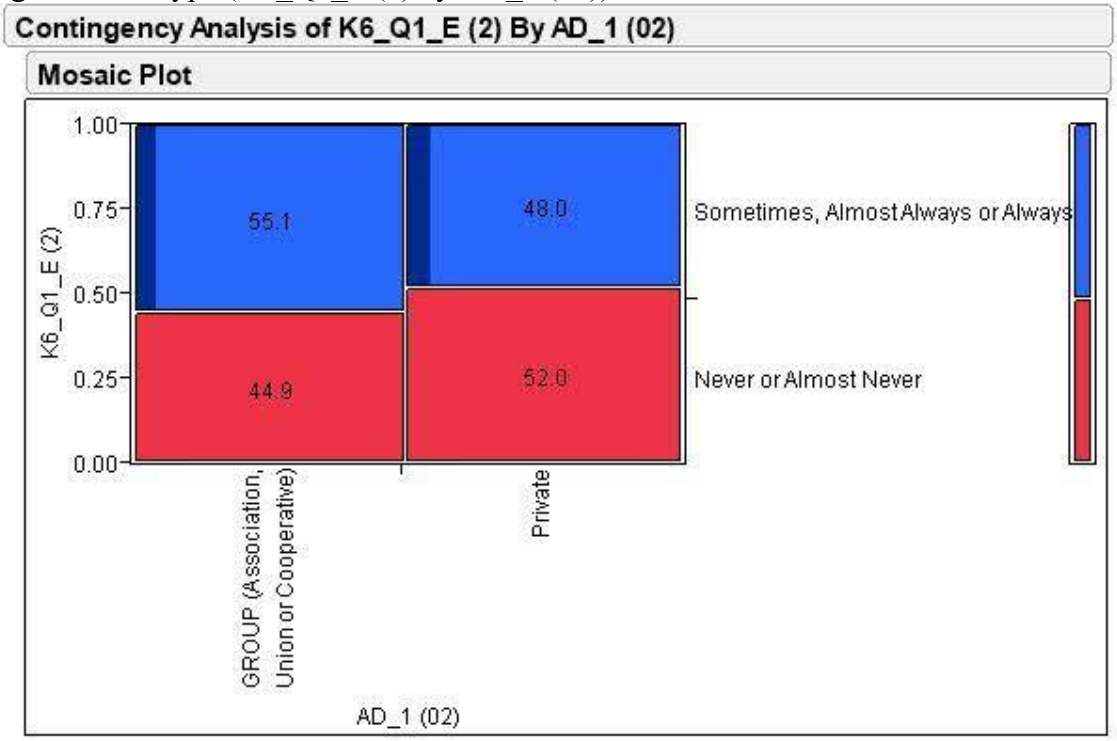


Figure 96.
Contingency Analysis Mosaic Plot of Feeling Worthless by Work Organization Type (K6_Q1_F (2) by AD_1 (02))

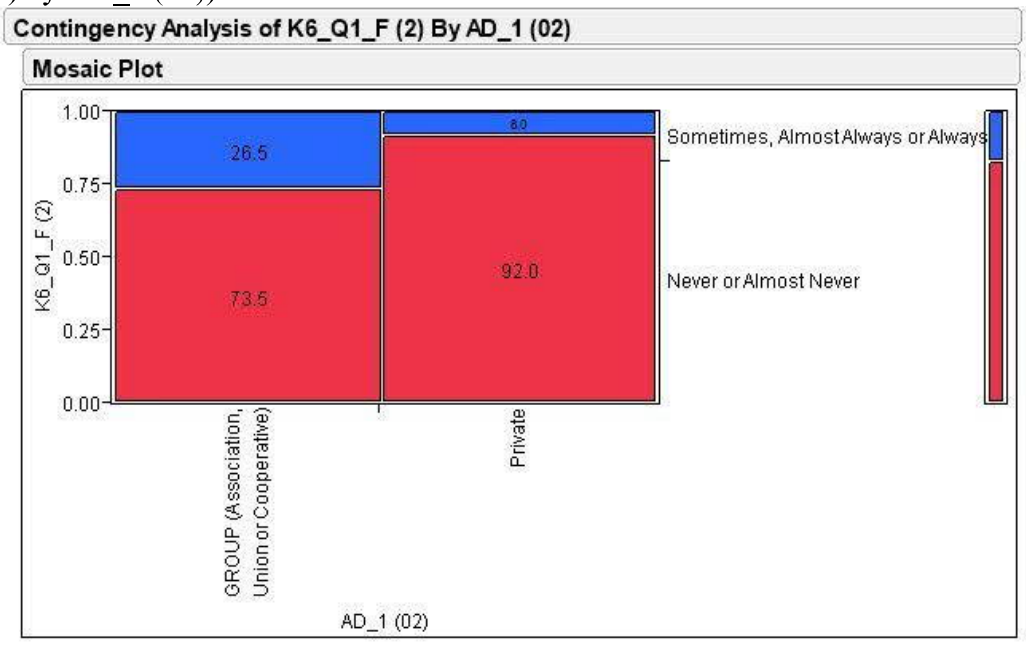


Figure 97.
Contingency Analysis Mosaic Plot of Mental Distress Score by Work Organization Type (K6_TOTAL (1) by AD_1 (02))

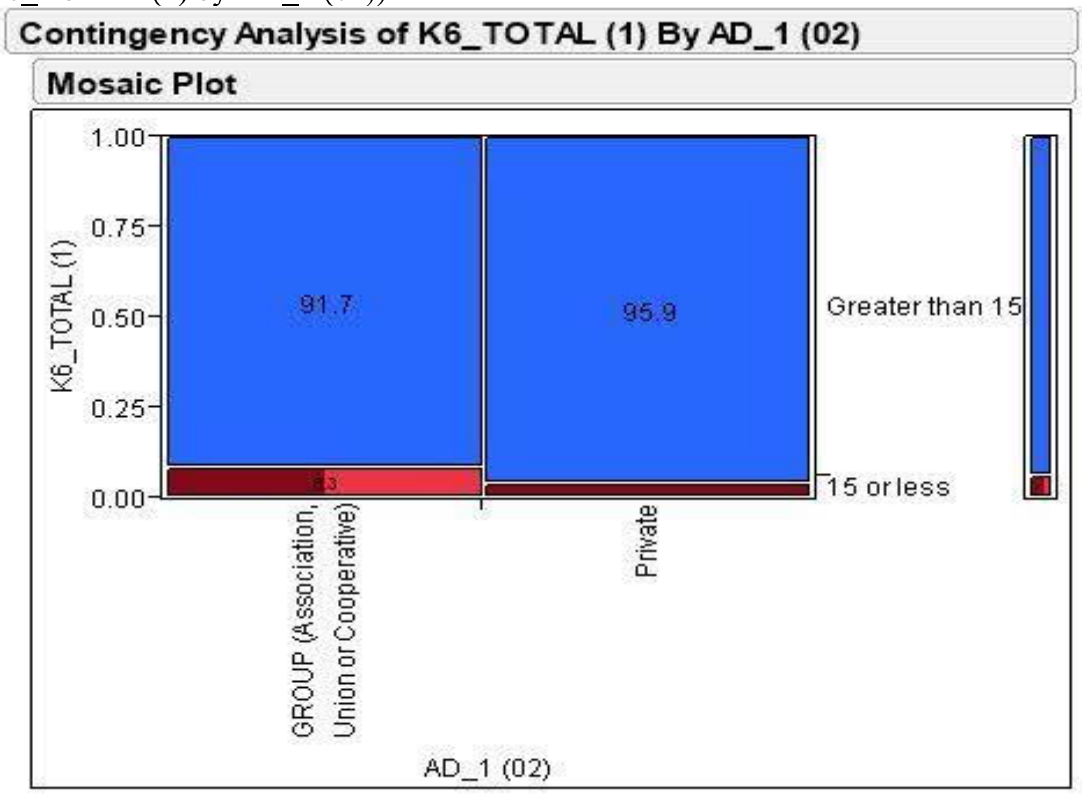


Figure 98.
Contingency Analysis Mosaic Plot of Number of Break(s) Taken at Work by Age (Years) (BREAKS_D by AGE (02))

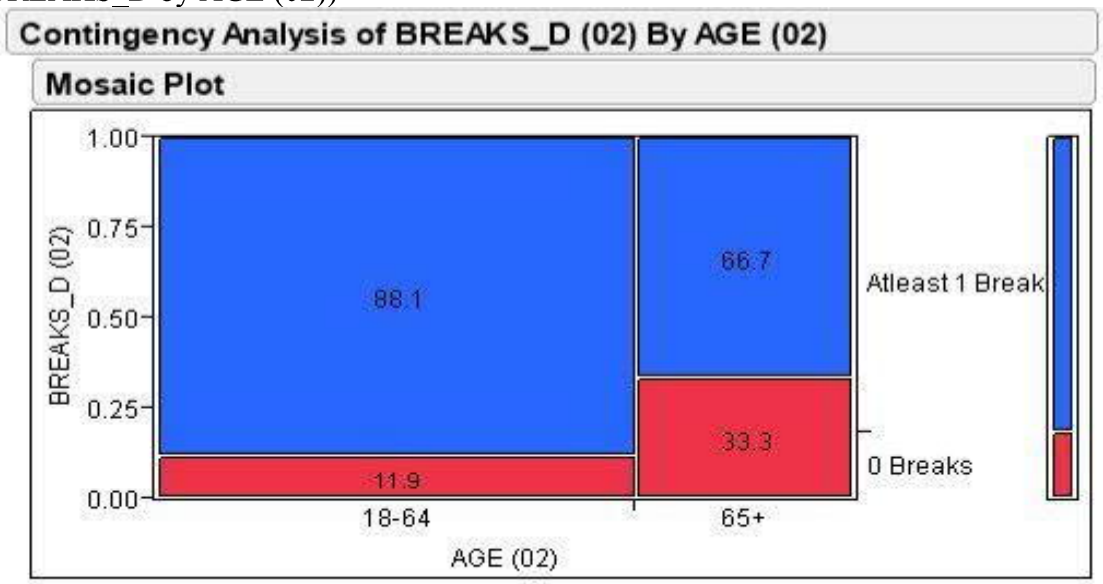


Figure 99.
Contingency Analysis Mosaic Plot of Feelings of Nervousness by Age (Years) (K6_Q1_A (2) by AGE (02))

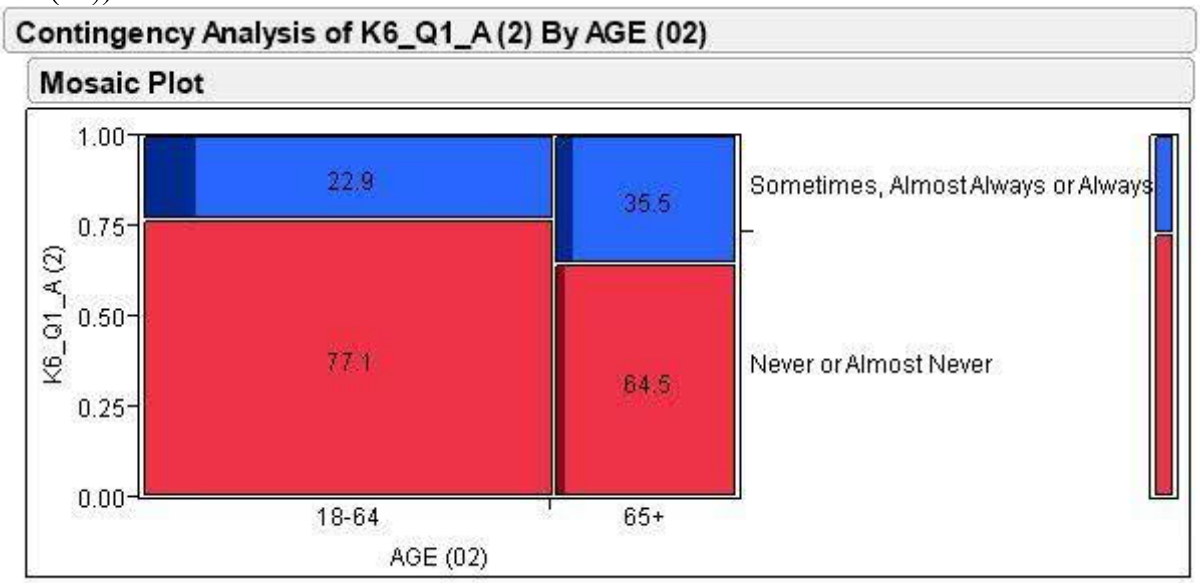


Figure 100.
Contingency Analysis Mosaic Plot of Feelings of Hopelessness by Age (Years) (K6_Q1_B (2) by AGE (02))

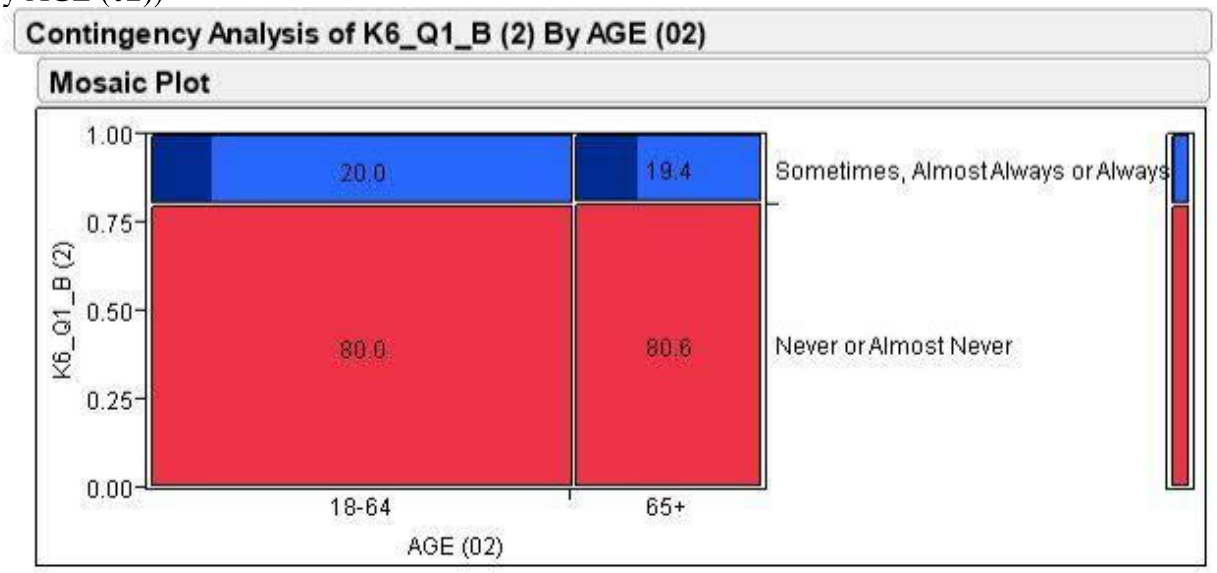


Figure 101.
Contingency Analysis Mosaic Plot of Feeling Restless or Fidgety by Age (Years) (K6_Q1_C (2) by AGE (02))

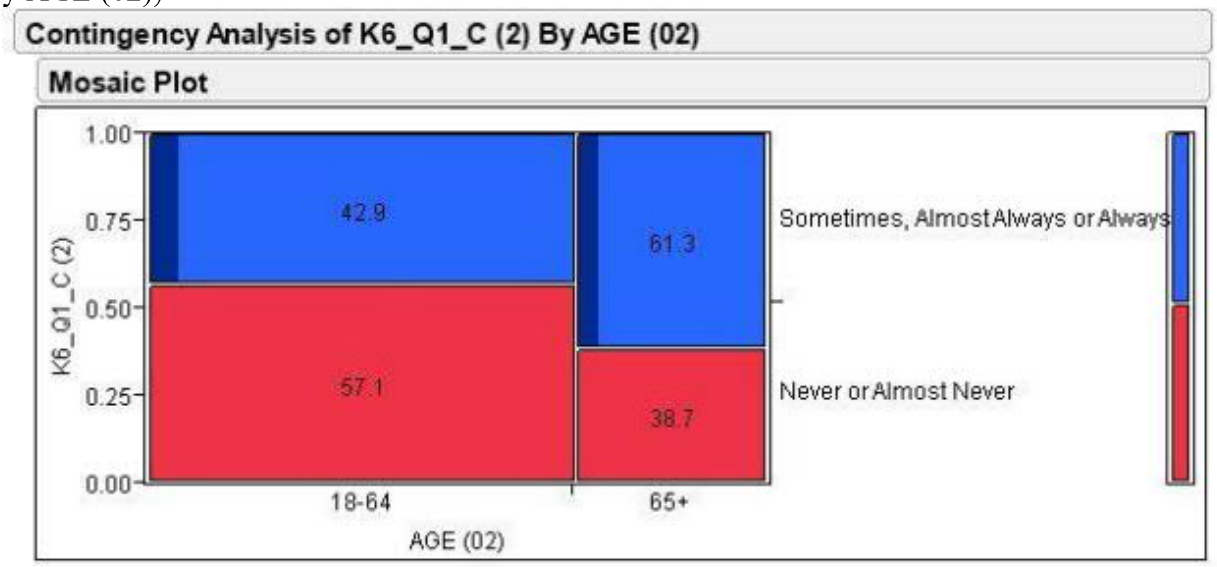


Figure 102.
Contingency Analysis Mosaic Plot of Feeling So Depressed That Nothing Could Cheer You Up by Age (Years) (K6_Q1_D (2) by AGE (02))

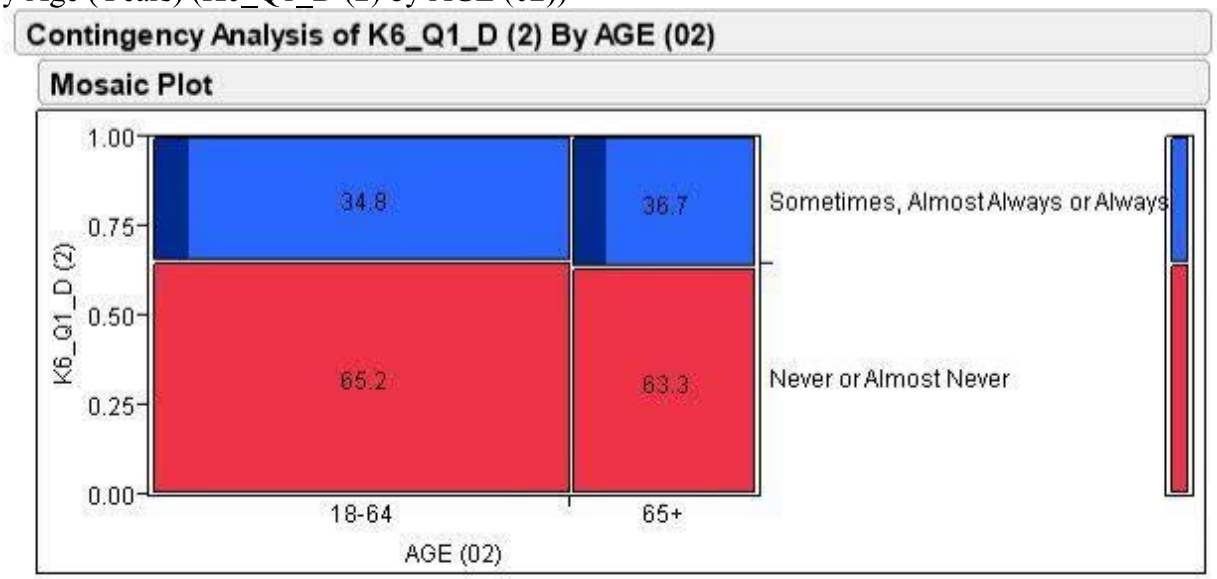


Figure 103.
Contingency Analysis Mosaic Plot of Feeling Like Everything Was an Effort by Age (Years) (K6_Q1_E (2) by AGE (02))

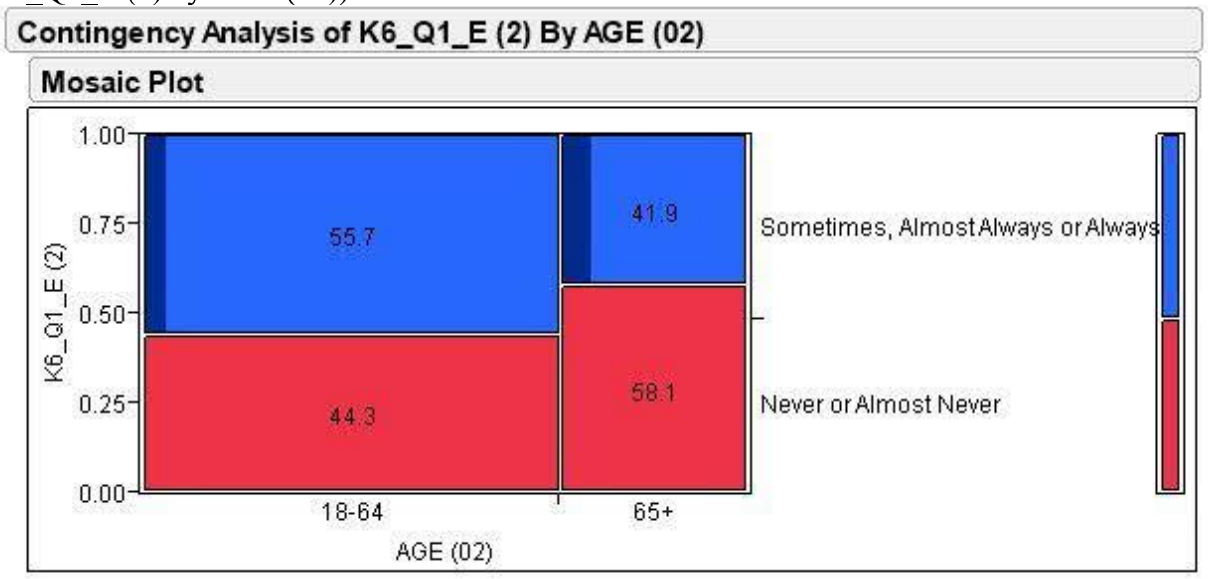


Figure 104.
Contingency Analysis Mosaic Plot of Feeling Worthless by Age (Years) (K6_Q1_F (2) by AGE (02))

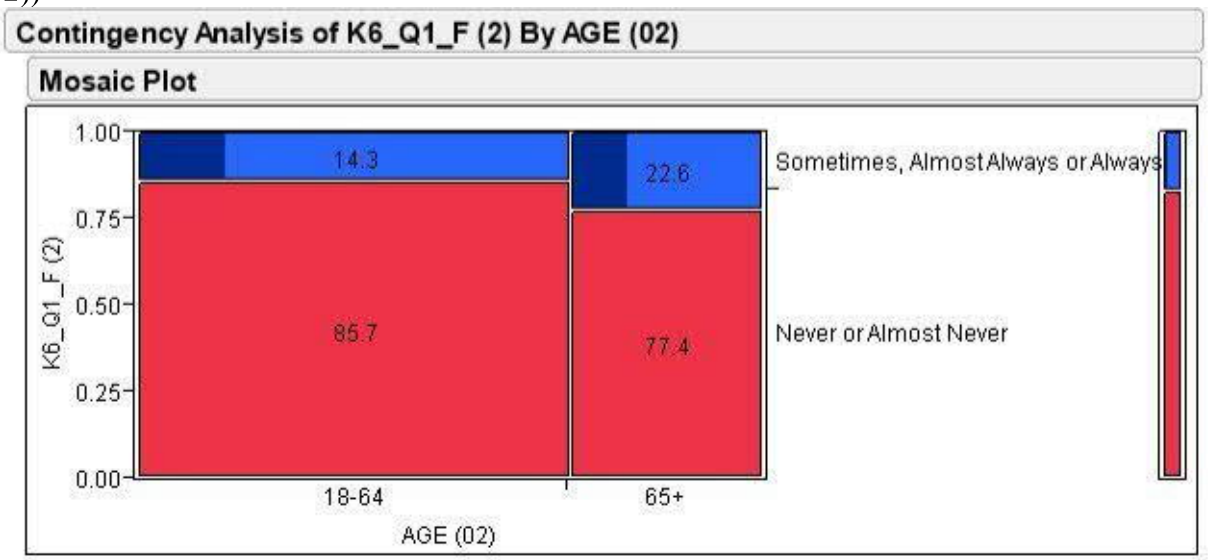


Figure 105.
Contingency Analysis Mosaic Plot of Mental Distress Score by Age (Years) (K6_TOTAL (1) by AGE (02))

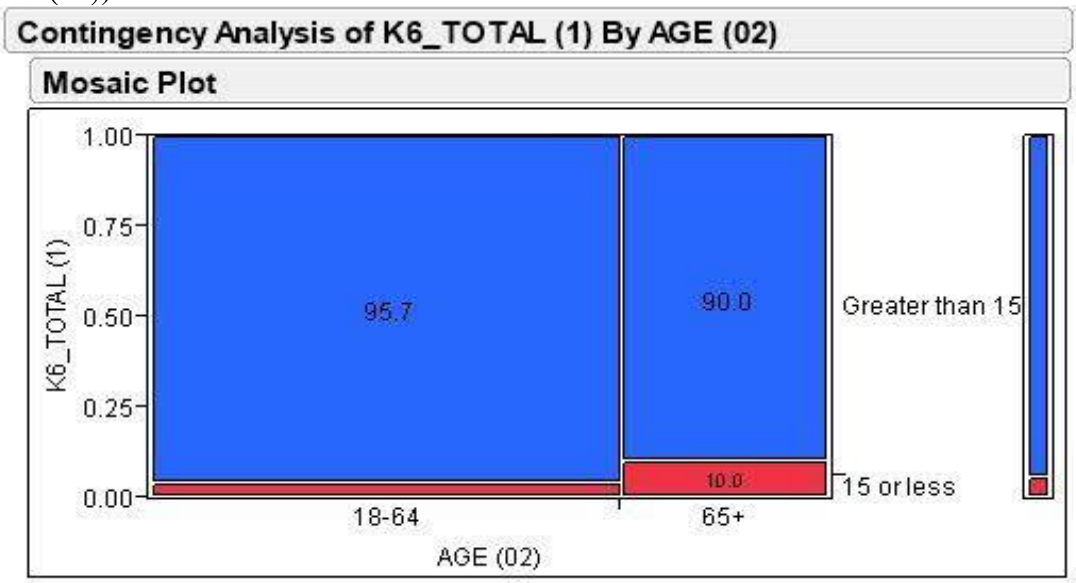


Figure 106.
Contingency Analysis Mosaic Plot of Sunlight Exposure by Age (Years) (SOL (3) by AGE (02))

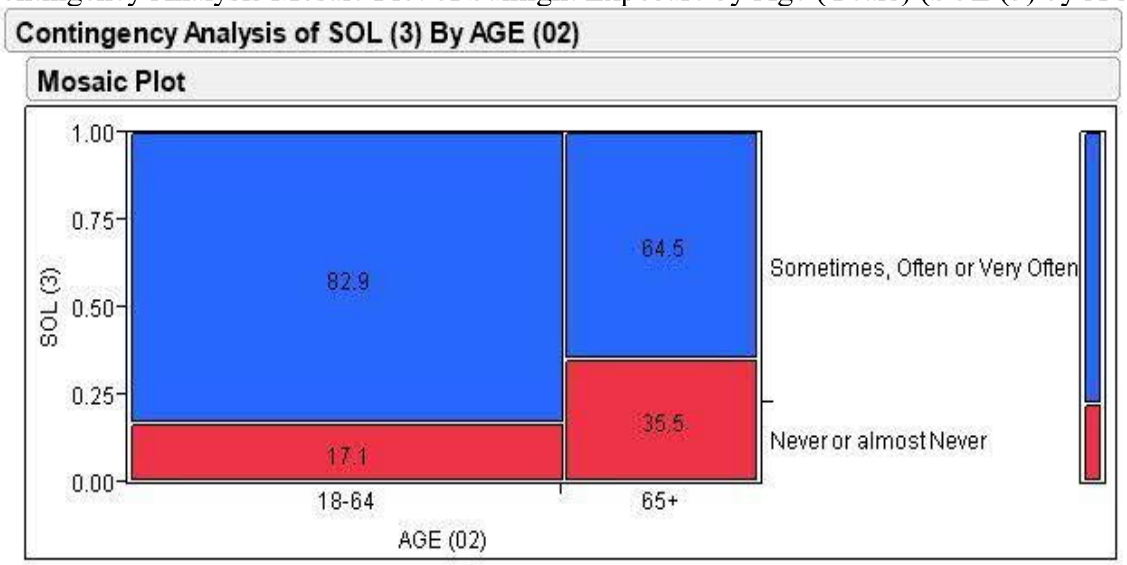


Figure 107.
Contingency Analysis Mosaic Plot of Length of Work in Direct Sunlight by Age (Years) (SOL_T (02) by AGE (02))

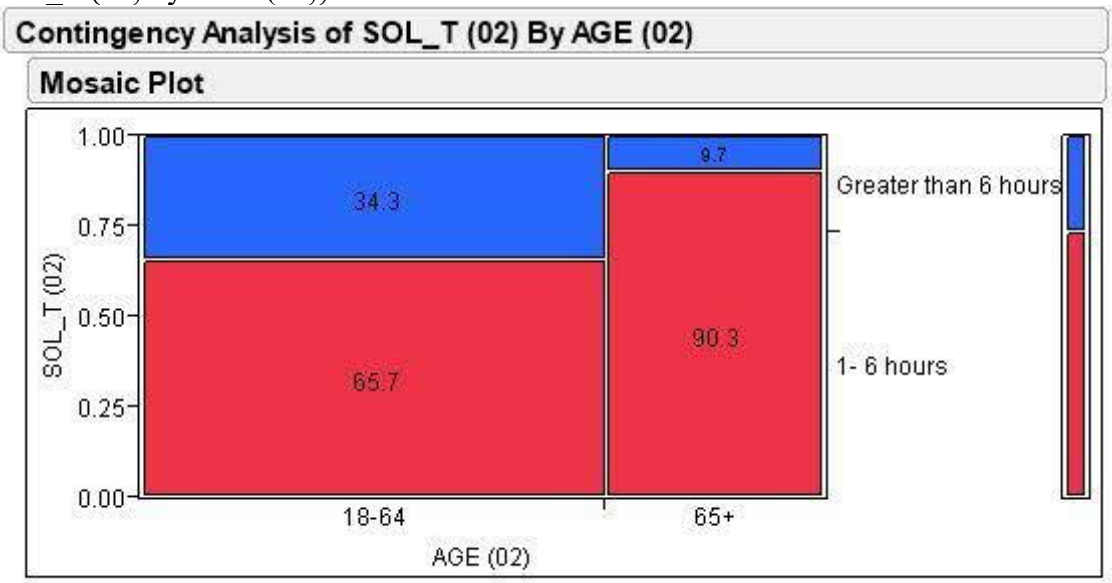


Figure 108.
Contingency Analysis Mosaic Plot of Feelings of Nervousness by Exposed Skin Percentage (K6_Q1_A (2) by CORP (2))

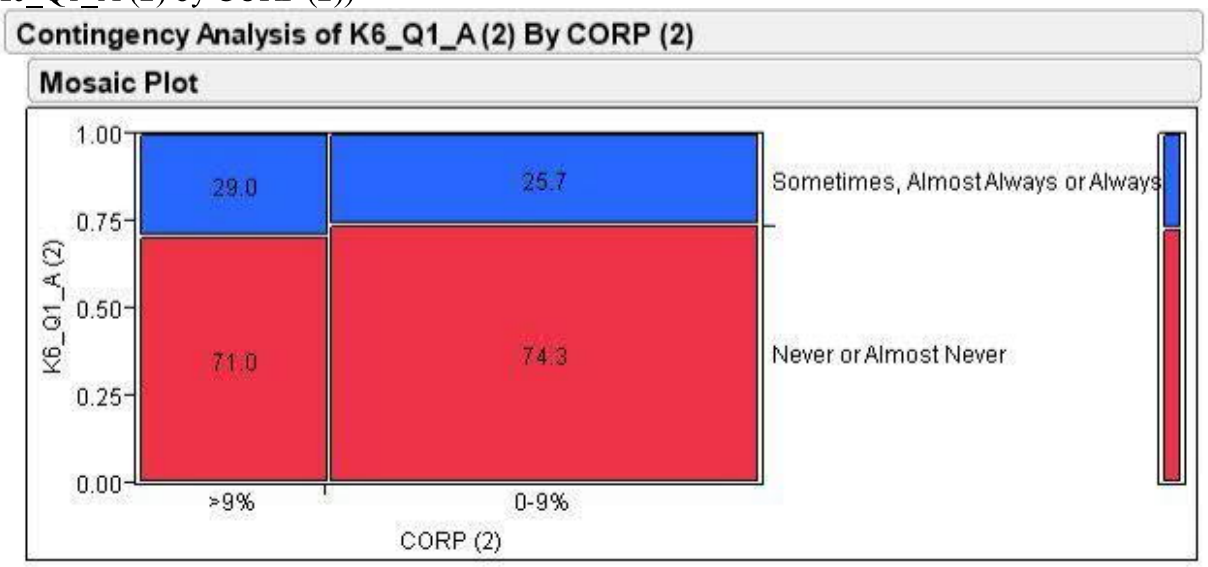


Figure 109.
Contingency Analysis Mosaic Plot of Feelings of Hopelessness by Exposed Skin Percentage (K6_Q1_B (2) by CORP (2))

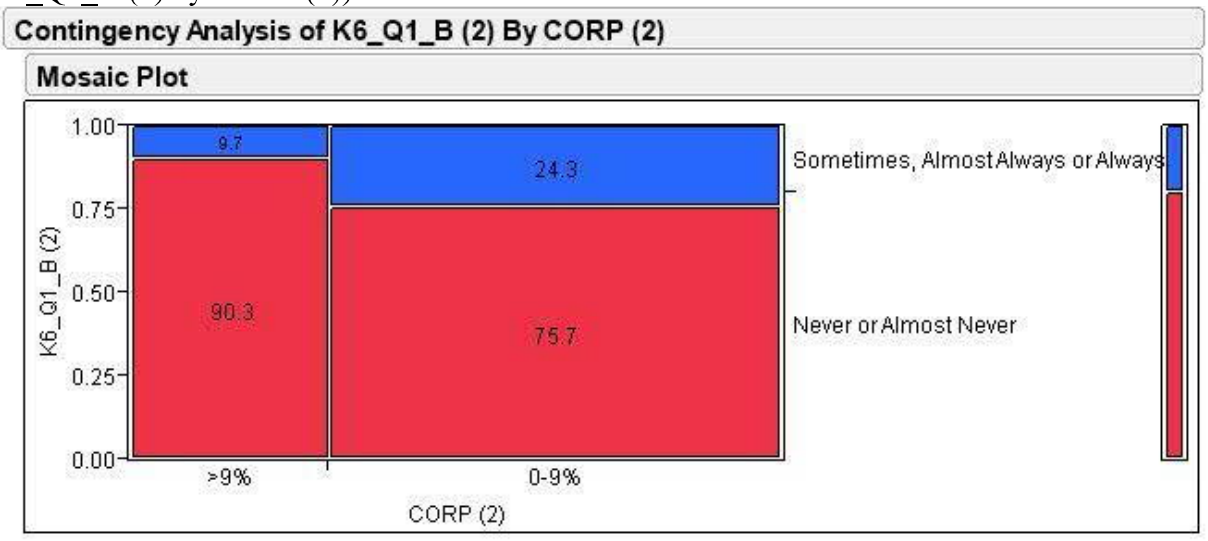


Figure 110.
Contingency Analysis Mosaic Plot of Feeling Restless or Fidgety by Exposed Skin Percentage (K6_Q1_C (2) by CORP (2))

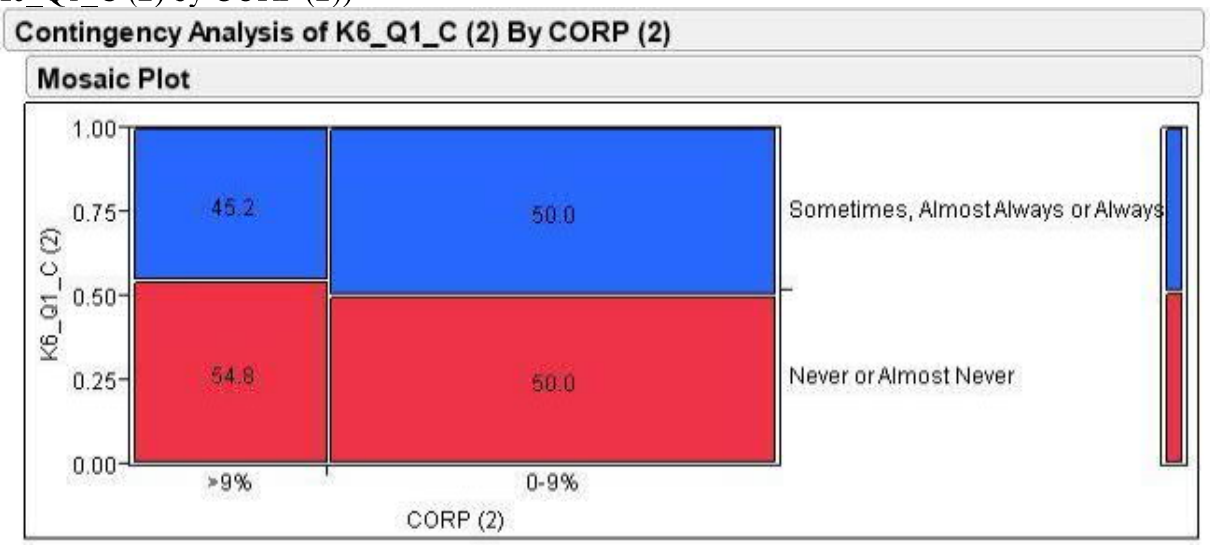


Figure 111.
Contingency Analysis Mosaic Plot of Feeling So Depressed That Nothing Could Cheer You Up by Exposed Skin Percentage (K6_Q1_D (2) by CORP (2))

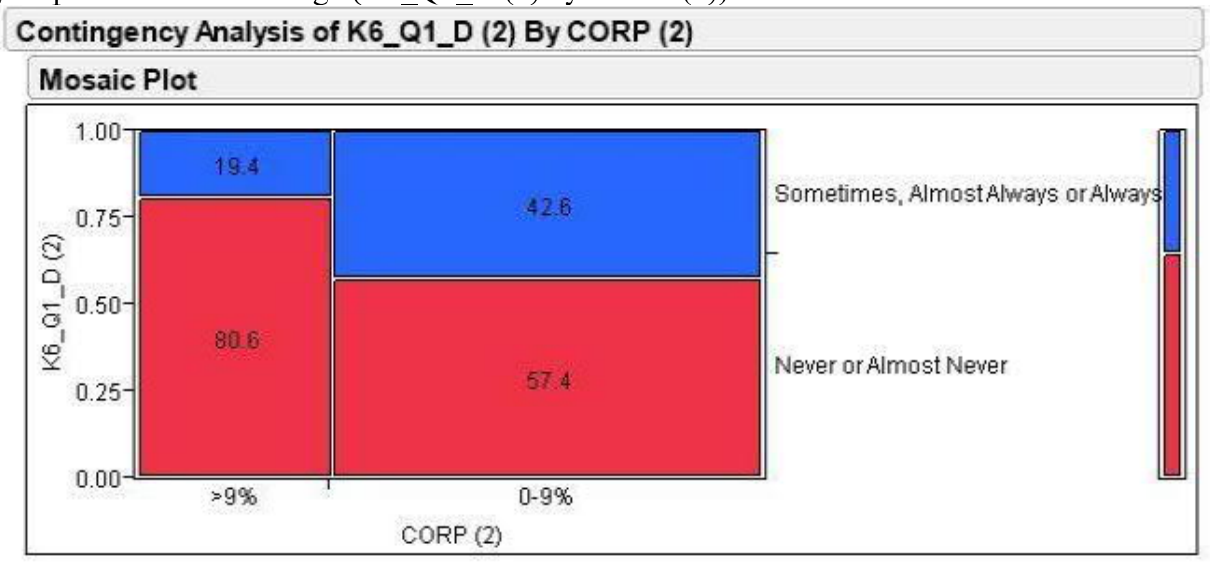


Figure 112.
Contingency Analysis Mosaic Plot of Felling Like Everything Was an Effort by Exposed Skin Percentage (K6_Q1_E (2) by CORP (2))

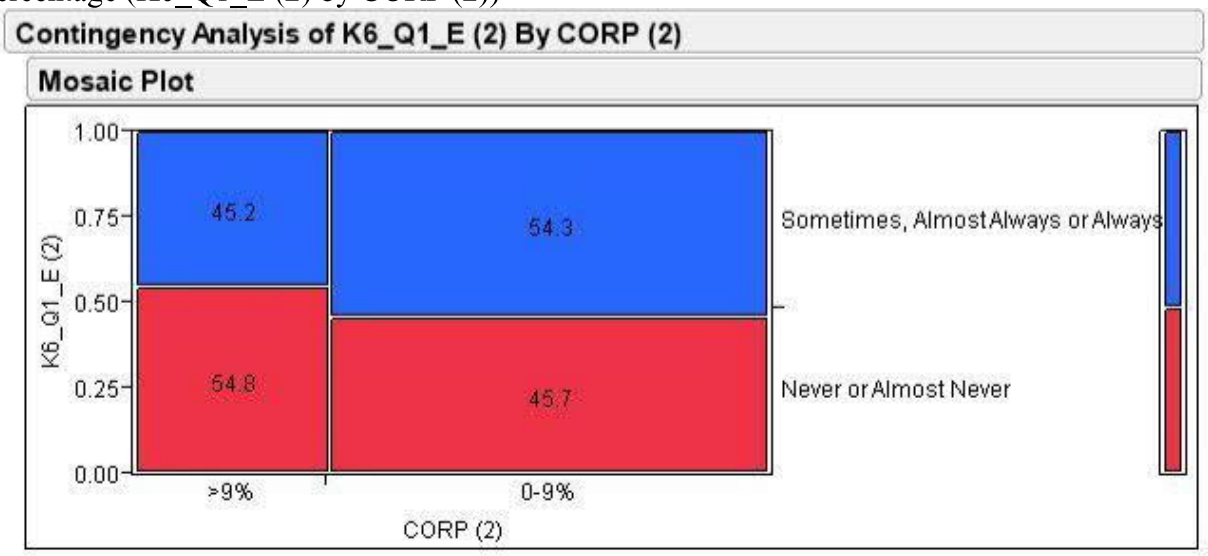


Figure 113.
Contingency Analysis Mosaic Plot of Feeling Worthless by Exposed Skin Percentage (K6_Q1_F (2) by CORP (2))

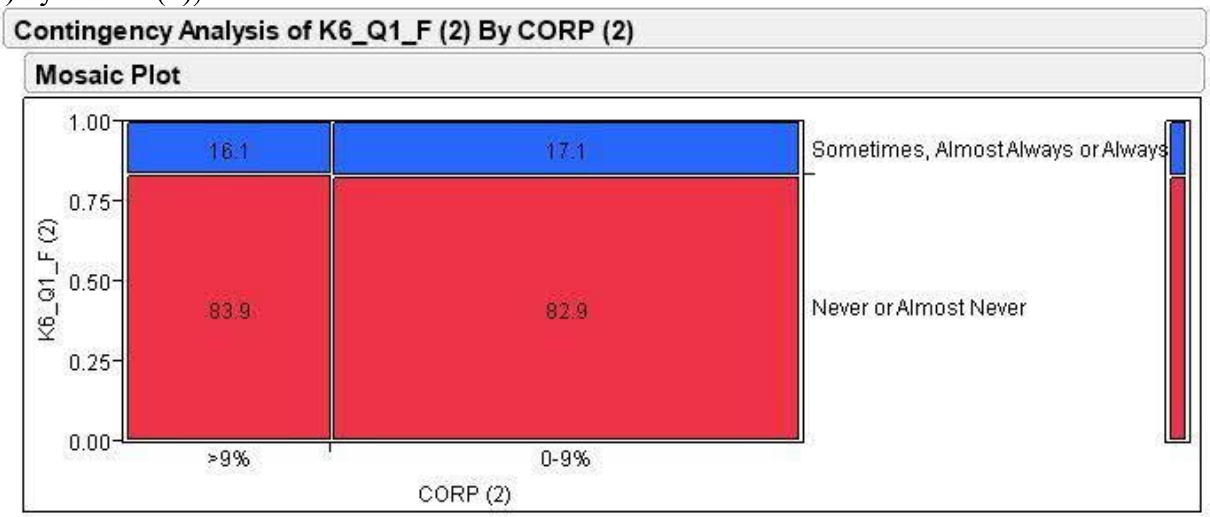


Figure 114.
Contingency Analysis Mosaic Plot of Mental Distress Score by Exposed Skin Percentage (K6_TOTAL (1) by CORP (2))

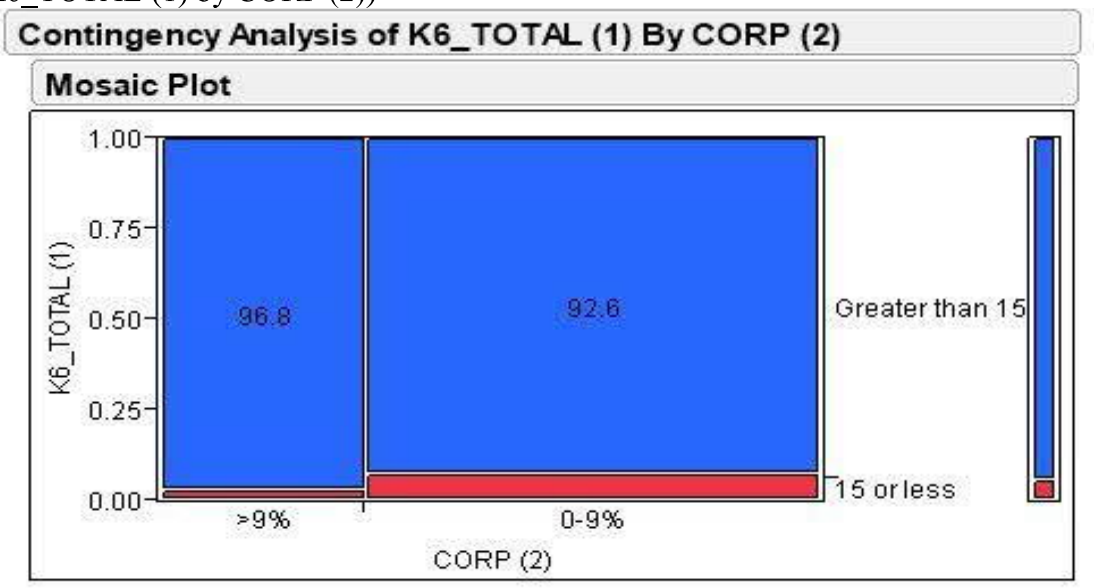


Table 1.
Contingency Table of Feelings of Nervousness by Sunlight Exposure (K6_Q1_A (2) by SOL (3))

Count (n) Total %	**SOL (3)**			
		Never or Almost Never	**Sometimes, Often or Very Often**	**Row Sum (n) Row %**
K6_Q1_A (2)	**Sometimes, Almost Always or Always**	57 56.44	21 20.79	78 77.23
	Never or Almost Never	17 16.83	6 5.94	23 22.77
	Column Sum (n) Column %	74 73.27	27 26.73	101 100

Table 2.
Contingency Table of Feel Hopelessness by Sunlight Exposure (K6_Q1_B (2) by SOL (3))

Count (n) Total %	**SOL (3)**			
		Never or Almost Never	**Sometimes, Often or Very Often**	**Row Sum (n) Row %**
K6_Q1_B (2)	**Sometimes, Almost Always or Always**	5 4.95	15 14.85	20 19.80
	Never or Almost Never	18 17.82	63 62.38	81 80.20
	Column Sum (n) Column %	23 22.77	78 77.23	101 100

Table 3.
Contingency Table of Feeling Restless or Fidgety by Sunlight Exposure (K6_Q1_C (2) by SOL (3))

Count (n) Total %	**SOL (3)**			
		Never or Almost Never	**Sometimes, Often or Very Often**	**Row Sum (n) Row %**
K6_Q1_C (2)	**Sometimes, Almost Always or Always**	7 6.93	42 41.58	49 48.51
	Never or Almost Never	16 15.84	36 35.64	52 51.49
	Column Sum (n) Column %	23 22.77	78 77.23	101 100

Table 4.
Contingency Table of Feeling So Depressed That Nothing Could Cheer You Up by Sunlight Exposure (K6_Q1_D (2) by SOL (3))

Count (n) Total %		SOL (3)		
		Never or Almost Never	Sometimes, Often or Very Often	Row Sum (n) Row %
K6_Q1_D (2)	Sometimes, Almost Always or Always	6 6.06	29 29.29	35 35.35
	Never or Almost Never	16 16.16	48 48.48	64 64.65
	Column Sum (n) Column %	22 22.22	77 77.78	99 100

Table 5.
Contingency Table of Feeling Like Everything Was an Effort by Sunlight Exposure (K6_Q1_E (2) by SOL (3))

Count (n) Total %		SOL (3)		
		Never or Almost Never	Sometimes, Often or Very Often	Row Sum (n) Row %
K6_Q1_E (2)	Sometimes, Almost Always or Always	6 5.94	46 45.54	52 51.49
	Never or Almost Never	17 16.83	32 31.68	49 48.51
	Column Sum (n) Column %	23 22.77	78 77.23	101 100

Table 6.
Contingency Table of Feeling Worthless by Sunlight Exposure (K6_Q1_F (2) by SOL (3))

Count (n) Total %		SOL (3)		
		Never or Almost Never	Sometimes, Often or Very Often	Row Sum (n) Row %
K6_Q1_F (2)	Sometimes, Almost Always or Always	2 1.98	15 14.85	17 16.83
	Never or Almost Never	21 20.79	63 62.38	84 83.17
	Column Sum (n) Column %	23 22.77	78 77.23	101 100

Table 7.
Contingency Table of Mental Distress Score by Sunlight Exposure (K6_TOTAL (1) by SOL (3))

Count (n) Total %	**SOL (3)**			
		Never or Almost Never	**Sometimes, Often or Very Often**	**Row Sum (n) Row %**
K6_TOTAL (1)	**Greater than 15**	20 20.20	73 73.74	93 93.94
	15 or Less	2 2.02	4 4.04	6 6.06
	Column Sum (n) Column %	22 22.22	77 77.78	99 100

Table 8.
Contingency Table of Feelings of Nervousness by Number of Break(s) Taken at Work (K6_Q1_A (2) by BREAKS_D (02))

Count (n) Total %	**BREAKS_D (02)**			
		0 Breaks	**At Least 1 Break**	**Row Sum (n) Row %**
K6_Q1_A (2)	**Sometimes, Almost Always or Always**	9 9.28	15 15.46	24 24.74
	Never or Almost Never	9 9.28	64 65.98	73 75.26
	Column Sum (n) Column %	18 18.56	79 81.44	97 100

Table 9.
Contingency Table of Feelings of Hopelessness by Number of Break(s) Taken at Work (K6_Q1_B (2) by BREAKS_D (02))

Count (n) Total %	**BREAKS_D (02)**			
		0 Breaks	**At Least 1 Break**	**Row Sum (n) Row %**
K6_Q1_B (2)	**Sometimes, Almost Always or Always**	5 5.15	14 14.43	19 19.59
	Never or Almost Never	13 13.40	65 67.01	78 80.41
	Column Sum (n) Column %	18 18.56	79 81.44	97 100

Table 10.
Contingency Table of Feeling Restless or Fidgety by Number of Break(s) Taken at Work (K6_Q1_C (2) by BREAKS_D (02))

Count (n) Total %		BREAKS_D (02)		
		0 Breaks	At Least 1 Break	Row Sum (n) Row %
K6_Q1_C (2)	Sometimes, Almost Always or Always	10 10.31	37 38.14	47 48.45
	Never or Almost Never	8 8.25	42. 43.30	50 51.55
	Column Sum (n) Column %	18 18.56	79 81.44	97 100

Table 11.
Contingency Table of Feeling So Depressed That Nothing Could Cheer You Up by Number of Break(s) Taken at Work (K6_Q1_D (2) by BREAKS_D (02))

Count (n) Total %		BREAKS_D (02)		
		0 Breaks	At Least 1 Break	Row Sum (n) Row %
K6_Q1_D (2)	Sometimes, Almost Always or Always	9 9.38	25 26.04	34 35.42
	Never or Almost Never	9 9.38	53 55.21	62 64.58
	Column Sum (n) Column %	18 18.75	78 81.25	96 100

Table 12.
Contingency Table of Feeling Like Everything Was an Effort by Number of Break(s) Taken at Work (K6_Q1_E (2) by BREAKS_D (02))

Count (n) Total %		BREAKS_D (02)		
		0 Breaks	At Least 1 Break	Row Sum (n) Row %
K6_Q1_E (2)	Sometimes, Almost Always or Always	13 13.40	36 37.11	49 50.52
	Never or Almost Never	5 5.15	43 44.33	48 49.48
	Column Sum (n) Column %	18 18.56	79 81.44	97 100

Table 13.
Contingency Table of Feeling Worthless by Number of Break(s) Taken at Work (K6_Q1_F (2) by BREAKS_D (02))

Count (n) Total %	BREAKS_D (02)			
		0 Breaks	At Least 1 Break	Row Sum (n) Row %
K6_Q1_F (2)	Sometimes, Almost Always or Always	6 6.19	10 10.31	16 16.49
	Never or Almost Never	12 12.37	69 71.13	81 83.51
	Column Sum (n) Column %	18 18.56	79 81.44	97 100

Table 14.
Contingency Table of Mental Distress Score by Number of Break(s) Taken at Work (K6_TOTAL (1) by BREAKS_D (02))

Count (n) Total %	BREAKS_D (02)			
		0 Breaks	At Least 1 Break	Row Sum (n) Row %
K6_TOTAL (1)	Greater than 15	15 15.63	76 79.17	91 94.79
	15 or Less	3 3.13	2 2.08	5 5.21
	Column Sum (n) Column %	18 18.75	78 81.25	96 100

Table 15.
Contingency Table of Sunlight Exposure by Number of Break(s) Taken at Work (SOL (3) by BREAKS_D (02))

Count (n) Total %	BREAKS_D (02)			
		0 Breaks	At Least 1 Break	Row Sum (n) Row %
SOL (3)	Sometimes, Often or Very Often	10 10.31	65 67.01	75 77.32
	Never or Almost Never	8 8.25	14 14.43	22 22.68
	Column Sum (n) Column %	18 18.56	79 81.44	97 100

Table 16.
Contingency Table of Length of Work in Direct Sunlight (hours) by Number of Break(s) Taken at Work (SOL_T (02) by BREAKS_D (02))

Count (n) Total %	**BREAKS_D (02)**			
		0 Breaks	**At Least 1 Break**	**Row Sum (n) Row %**
SOL_T (02)	**Greater than 6 Hours**	1 1.06	25 26.60	26 27.66
	1-6 Hours	17 18.09	51 54.26	68 72.34
	Column Sum (n) Column %	18 19.15	76 80.85	94 100

Table 17.
Contingency Table of Self-Perceived Emotional Status by Sex (EMOT (1) by SEX)

Count (n) Total %	**SEX**			
		Woman	**Man**	**Row Sum (n) Row %**
EMOT (1)	**OK**	8 7.92	14 13.86	22 21.78
	Good or Very Good	9 8.91	70 69.31	79 78.22
	Column Sum (n) Column %	17 16.83	84 83.17	101 100

Table 18.
Contingency Table of Feelings of Nervousness by Sex (K6_Q1_A (2) by SEX)

Count (n) Total %	**SEX**			
		Woman	**Man**	**Row Sum (n) Row %**
K6_Q1_A (2)	**Sometimes, Almost Always or Always**	10 9.90	17 16.83	27 26.73
	Never or Almost Never	7 6.93	67 66.34	74 73.27
	Column (n) Column %	17 16.83	84 83.17	101 100

Table 19.
Contingency Table of Feelings of Hopelessness by Sex (K6_Q1_B (2) by SEX)

Count (n) Total %	**SEX**			
		Woman	**Man**	**Row Sum (n) Row %**
K6_Q1_B (2)	**Sometimes, Almost Always or Always**	7 6.93	13 12.87	20 19.80
	Never or Almost Never	10 9.90	71 70.30	81 80.20
	Column Sum (n) Column %	17 16.83	84 83.17	101 100

Table 20.
Contingency Table of Feeling Restless or Fidgety by Sex (K6_Q1_C (2) by SEX)

Count (n) Total %	**SEX**			
		Woman	**Man**	**Row Sum (n) Row %**
K6_Q1_C (2)	**Sometimes, Almost Always or Always**	11 10.89	38 37.62	49 48.51
	Never or Almost Never	6 5.94	46 45.54	52 51.49
	Column Sum (n) Column %	17 16.83	84 83.17	101 100

Table 21.
Contingency Table of Feeling So Depressed That Nothing Could Cheer You Up by Sex (K6_Q1_D (2) by SEX)

Count (n) Total %	**SEX**			
		Woman	**Man**	**Row Sum (n) Row %**
K6_Q1_D (2)	**Sometimes, Almost Always or Always**	10 10.10	25 25.25	35 35.35
	Never or Almost Never	7 7.07	57 57.58	64 64.65
	Column Sum (n) Column %	17 17.17	82 82.82	99 100

Table 22.
Contingency Table of Feeling Like Everything Was an Effort by Sex (K6_Q1_E (2) by SEX)

Count (n) Total %		SEX		
		Woman	**Man**	**Row Sum (n) Row %**
K6_Q1_E (2)	**Sometimes, Almost Always or Always**	11 10.89	41 40.59	52 51.49
	Never or Almost Never	6 5.94	43 42.57	49 48.51
	Column Sum (n) Column %	17 16.83	84 83.17	101 100

Table 23.
Contingency Table of Feeling Worthless by Sex (K6_Q1_F (2) by SEX)

Count (n) Total %		SEX		
		Woman	**Man**	**Row Sum (n) Row %**
K6_Q1_F (2)	**Sometimes, Almost Always or Always**	6 5.94	11 10.89	17 16.83
	Never or Almost Never	11 10.89	73 72.28	84 83.17
	Column Sum (n) Column %	17 16.83	84 83.17	101 100

Table 24.
Contingency Table of Mental Distress Score by Sex (K6_TOTAL (1) by SEX)

Count (n) Total %		SEX		
		Woman	**Man**	**Row Sum (n) Row %**
K6_TOTAL (1)	**Greater than 15**	13 13.13	80 80.81	93 93.94
	15 or Less	4 4.04	2 2.02	6 6.06
	Column Sum (n) Column %	17 17.17	82 82.83	99 100

Table 25.
Contingency Table of Feelings of Nervousness by Sleep (hours) (K6_Q1_A (2) by SLEEP (01))

Count (n) Total %		SLEEP (01)		
		0-6 Hours	6+ Hours	Row Sum (n) Row %
K6_Q1_A (2)	Sometimes, Almost Always or Always	13 12.87	14 13.86	27 26.73
	Never or Almost Never	20 19.80	54 53.47	74 73.27
	Column (n) Column %	33 32.67	68 67.33	101 100

Table 26.
Contingency Table of Feelings of Hopelessness by Sleep (hours) (K6_Q1_B (2) by SLEEP (01))

Count (n) Total %		SLEEP (01)		
		0-6 Hours	6+ Hours	Row Sum (n) Row %
K6_Q1_B (2)	Sometimes, Almost Always or Always	8 7.92	12 11.88	20 19.80
	Never or Almost Never	25 24.75	56 55.45	81 80.20
	Column (n) Column %	33 32.67	68 67.33	101 100

Table 27.
Contingency Table of Feeling Restless or Fidgety by Sleep (hours) (K6_Q1_C (2) by SLEEP (01))

Count (n) Total %		SLEEP (01)		
		0-6 Hours	6+ Hours	Row Sum (n) Row %
K6_Q1_C (2)	Sometimes, Almost Always or Always	21 20.79	28 27.72	49 48.51
	Never or Almost Never	12 11.88	40 39.60	52 51.49
	Column Sum (n) Column %	33 32.67	68 67.33	101 100

Table 28.
Contingency Table of Feeling So Depressed That Nothing Could Cheer You Up by Sleep (hours) (K6_Q1_D (2) by SLEEP (01))

Count (n) Total %		SLEEP (01)		
		0-6 hours	**6+ hours**	**Row Sum (n) Row %**
K6_Q1_D (2)	**Sometimes, Almost Always or Always**	17 17.17	18 18.18	35 35.35
	Never or Almost Never	15 15.15	49 49.49	64 64.65
	Column Sum (n) Column %	32 32.32	67 67.68	99 100

Table 29.
Contingency Table of Feeling Like Everything Was an Effort by Sleep (hours) (K6_Q1_E (2) by SLEEP (01))

Count (n) Total %		SLEEP (01)		
		0-6 Hours	**6+ Hours**	**Row Sum (n) Row %**
K6_Q1_E (2)	**Sometimes, Almost Always or Always**	19 18.81	33 32.67	52 51.49
	Never or Almost Never	14 13.86	35 34.65	49 48.51
	Column Sum (n) Column %	33 32.67	68 67.33	101 100

Table 30.
Contingency Table of Feeling Worthless by Sleep (hours) (K6_Q1_F (2) by SLEEP (01))

Count (n) Total %		SLEEP (01)		
		0-6 Hours	**6+ Hours**	**Row Sum (n) Row %**
K6_Q1_F (2)	**Sometimes, Almost Always or Always**	7 6.93	10 9.90	17 16.83
	Never or Almost Never	26 25.74	58 57.43	84 83.17
	Column Sum (n) Column %	33 32.67	68 67.33	101 100

Table 31.
Contingency Table of Mental Distress Score by Sleep (hours) (K6_TOTAL (1) by SLEEP (01))

Count (n) Total %	**SLEEP (01)**			
		0-6 Hours	**6+ Hours**	**Row Sum (n) Row %**
K6_TOTAL (1)	**Greater than 15**	28 28.28	65 65.66	93 93.94
	15 or Less	4 4.04	2 2.02	6 6.06
	Column Sum (n) Column %	32 32.32	67 67.68	99 100

Table 32.
Contingency Table of Self-Perceived Mental Health Status by Sleep (hours) (MENTAL_S (04) by SLEEP (01))

Count (n) Total %	**SLEEP (01)**			
		0-6 Hours	**6+ Hours**	**Row Sum (n) Row %**
MENATL_S (04)	**OK**	12 12.37	11 11.34	23 23.71
	Good or Very Good	20 20.62	54 55.67	74 76.29
	Column Sum (n) Column %	32 32.99	65 67.01	97 100

Table 33.
Contingency Table of Self-Perceived Emotional Status by Work Organization Type (EMOT (1) by AD_1 (02))

Count (n) Total %	**AD_1 (02)**			
		Group (Association, Union or Cooperative)	**Private**	**Row Sum (n) Row %**
EMOT (1)	**OK**	15 15.15	6 6.06	21 21.21
	Good or Very Good	34 34.34	44 44.44	78 78.79
	Column Sum (n) Column %	49 49.49	50 50.51	99 100

Table 34.
Contingency Table of Feelings of Nervousness by Work Organization Type (K6_Q1_A (2) by AD_1 (02))

Count (n) Total %		AD_1 (02)		
		Group (Association, Union or Cooperative)	Private	Row Sum (n) Row %
K6_Q1_A (2)	Sometimes, Almost Always or Always	15 15.15	12 12.12	27 27.27
	Never or Almost Never	34 34.34	38 38.38	72 72.73
	Column Sum (n) Column %	49 49.49	50 50.51	99 100

Table 35.
Contingency Table of Feelings of Hopelessness by Work Organization Type (K6_Q1_B (2) by AD_1 (02))

Count (n) Total %		AD_1 (02)		
		Group (Association, Union or Cooperative)	Private	Row Sum (n) Row %
K6_Q1_B (2)	Sometimes, Almost Always or Always	13 13.13	7 7.07	20 20.20
	Never or Almost Never	36 36.36	43 43.43	79 79.80
	Column Sum (n) Column %	49 49.49	50 50.51	99 100

Table 36.
Contingency Table of Feeling Restless or Fidgety by Work Organization Type (K6_Q1_C (2) by AD_1 (02))

Count (n) Total %		AD_1 (02)		
		Group (Association, Union or Cooperative)	Private	Row Sum (n) Row %
K6_Q1_C (2)	Sometimes, Almost Always or Always	23 23.23	25 25.25	48 48.48
	Never or Almost Never	26 26.26	25 25.25	51 51.52
	Column Sum (n) Column %	49 49.49	50 50.51	99 100

Table 37.
Contingency Table of Feeling So Depressed That Nothing Could Cheer You Up by Work Organization Type (K6_Q1_D (2) by AD_1 (02))

Count (n) Total %	**AD_1 (02)**			
		Group (Association, Union or Cooperative)	**Private**	**Row Sum (n) Row %**
K6_Q1_D (2)	**Sometimes, Almost Always or Always**	20 20.62	14 14.43	34 35.05
	Never or Almost Never	28 28.87	35 36.08	63 64.95
	Column Sum (n) Column %	48 49.48	49 50.52	97 100

Table 38.
Contingency Table of Feeling Like Everything Was an Effort by Work Organization Type (K6_Q1_E (2) by AD_1 (02))

Count (n) Total %	**AD_1 (02)**			
		Group (Association, Union or Cooperative)	**Private**	**Row Sum (n) Row %**
K6_Q1_E (2)	**Sometimes, Almost Always or Always**	27 27.27	24 24.24	51 51.52
	Never or Almost Never	22 22.22	26 26.26	48 48.48
	Column Sum (n) Column %	49 49.49	50 50.51	99 100

Table 39.
Contingency Table of Feeling Worthless by Work Organization Type (K6_Q1_F (2) by AD_1 (02))

Count (n) Total %	**AD_1 (02)**			
		Group (Association, Union or Cooperative)	**Private**	**Row Sum (n) Row %**
K6_Q1_F (2)	**Sometimes, Almost Always or Always**	13 13.13	4 4.04	17 17.17
	Never or Almost Never	36 36.36	46 46.46	82 82.83
	Column Sum (n) Column %	49 49.49	50 50.51	99 100

Table 40.
Contingency Table of Mental Distress Score by Work Organization Type (K6_TOTAL (1) by AD_1 (02))

Count (n) Total %		AD_1 (02)		
		Group (Association, Union or Cooperative)	**Private**	**Row Sum (n) Row %**
K6_TOTAL (1)	**Greater than 15**	44 45.36	47 48.45	91 93.81
	15 or Less	4 4.12	2 2.06	6 6.19
	Column Sum (n) Column %	48 49.48	49 50.52	97 100

Table 41.
Contingency Table of Number of Break(s) Taken at Work by Age (Years) (BREAKS_D (02) by AGE (02))

Count (n) Total %		AGE (02)		
		18-64	**65+**	**Row Sum (n) Row %**
BREAKS_D (02)	**At least 1 Break**	59 60.82	20 20.62	79 81.44
	0 Breaks	8 8.25	10 10.31	18 18.56
	Column Sum (n) Column %	67 69.07	30 30.93	97 100

Table 42.
Contingency Table of Feelings of Nervousness by Age (Years) (K6_Q1_A (2) by AGE (02))

Count (n) Total %		AGE (02)		
		18-64	**65+**	**Row Sum (n) Row %**
K6_Q1_A (2)	**Sometimes, Almost Always or Always**	16 15.84	11 10.89	27 26.73
	Never or Almost Never	54 53.47	20 19.80	74 73.27
	Column Sum (n) Column %	70 69.31	31 30.69	101 100

Table 43.
Contingency Table of Feelings of Hopelessness by Age (Years) (K6_Q1_B (2) by AGE (02))

Count (n) Total %		AGE (02)		
		18-64	**65+**	**Row Sum (n) Row %**
K6_Q1_B (2)	**Sometimes, Almost Always or Always**	14 13.86	6 5.94	20 19.80
	Never or Almost Never	56 55.45	25 24.75	81 80.20
	Column Sum (n) Column %	70 69.31	31 30.69	101 100

Table 44.
Contingency Table of Feeling Restless or Fidgety by Age (Years) (K6_Q1_C (2) by AGE (02))

Count (n) Total %		AGE (02)		
		18-64	**65+**	**Row Sum (n) Row %**
K6_Q1_C (2)	**Sometimes, Almost Always or Always**	30 29.70	19 18.81	49 48.51
	Never or Almost Never	40 39.60	12 11.88	52 51.49
	Column Sum (n) Column %	70 69.31	31 30.69	101 100

Table 45.
Contingency Table of Feeling So Depressed That Nothing Could Cheer You Up by Age (Years) (K6_Q1_D (2) by AGE (02))

Count (n) Total %		AGE (02)		
		18-64	**65+**	**Row Sum (n) Row %**
K6_Q1_D (2)	**Sometimes, Almost Always or Always**	24 24.24	11 11.11	35 35.35
	Never or Almost Never	45 45.45	19 19.19	64 64.65
	Column Sum (n) Column %	69 69.70	30 30.30	99 100

Table 46.
Contingency Table of Feeling Like Everything Was an Effort by Age (Years) (K6_Q1_E (2) by AGE (02))

Count (n) Total %		AGE (02)		
		18-64	**65+**	**Row Sum (n) Row %**
K6_Q1_E (2)	**Sometimes, Almost Always or Always**	39 38.61	13 12.87	52 51.49
	Never or Almost Never	31 30.69	18 17.82	49 48.51
	Column Sum (n) Column %	70 69.31	31 30.69	101 100

Table 47.
Contingency Table of Feeling Worthless by Age (Years) (K6_Q1_F (2) by AGE (02))

Count (n) Total %		AGE (02)		
		18-64	**65+**	**Row Sum (n) Row %**
K6_Q1_F (2)	**Sometimes, Almost Always or Always**	10 9.90	7 6.93	17 16.83
	Never or Almost Never	60 59.41	24 23.76	84 83.17
	Column Sum (n) Column %	70 69.31	31 30.69	101 100

Table 48.
Contingency Table of Mental Distress Score by Age (Years) (K6_TOTAL (1) by AGE (02))

Count (n) Total %		AGE (02)		
		18-64	**65+**	**Row Sum (n) Row %**
K6_TOTAL (1)	**Greater than 15**	66 66.67	27 27.27	93 93.94
	15 or Less	3 3.03	3 3.03	6 6.06
	Column Sum (n) Column %	69 69.70	30 30.30	99 100

Table 49.
Contingency Table of Sunlight Exposure by Age (Years) (SOL (3) by AGE (02))

Count (n) Total %	**AGE (02)**			
		18-64	**65+**	**Row Sum (n) Row %**
SOL (3)	**Sometimes, Often or Very Often**	58 57.43	20 19.80	78 77.23
	Never or Almost Never	12 11.88	11 10.89	23 22.77
	Column Sum (n) Column %	70 69.31	31 30.69	101 100

Table 50.
Contingency Table of Length of Work in Direct Sunlight by Age (Years) (SOL_T (02) by AGE (02))

Count (n) Total %	**AGE (02)**			
		18-64	**65+**	**Row Sum (n) Row %**
SOL_T (02)	**Greater than 6 Hours**	23 23.47	3 3.06	26 26.53
	1-6 Hours	44 44.90	28 28.57	72 73.47
	Column Sum (n) Column %	67 68.37	31 31.63	98 100

Table 51.
Contingency Table of Feelings of Nervousness by Exposed Skin Percentage (K6_Q1_A (2) by CORP (2))

Count (n) Total %	**CORP (2)**			
		> 9%	**0-9%**	**Row Sum (n) Row %**
K6_Q1_A (2)	**Sometimes, Almost Always or Always**	9 8.91	18 17.82	27 26.73
	Never or Almost Never	22 21.78	52 51.49	74 73.27
	Column Sum (n) Column %	31 30.69	70 69.31	101 100

Table 52.
Contingency Table of Feelings of Hopelessness by Exposed Skin Percentage (K6_Q1_B (2) by CORP (2))

Count (n) Total %	**CORP (2)**			
		> 9%	**0-9%**	**Row Sum (n) Row %**
K6_Q1_B (2)	**Sometimes, Almost Always or Always**	3 2.97	17 16.83	20 19.80
	Never or Almost Never	28 27.72	53 52.48	81 80.20
	Column Sum (n) Column %	31 30.69	70 69.31	101 100

Table 53.
Contingency Table of Feeling Restless or Fidgety by Exposed Skin Percentage (K6_Q1_C (2) by CORP (2))

Count (n) Total %	**CORP (2)**			
		> 9%	**0-9%**	**Row Sum (n) Row %**
K6_Q1_C (2)	**Sometimes, Almost Always or Always**	14 13.86	35 34.65	49 48.51
	Never or Almost Never	17 16.83	35 34.65	52 51.49
	Column Sum (n) Column %	31 30.69	70 69.31	101 100

Table 54.
Contingency Table of Feeling So Depressed That Nothing Could Cheer You Up by Exposed Skin Percentage (K6_Q1_D (2) by CORP (2))

Count (n) Total %	**CORP (2)**			
		> 9%	**0-9%**	**Row Sum (n) Row %**
K6_Q1_D (2)	**Sometimes, Almost Always or Always**	6 6.06	29 29.29	35 35.35
	Never or Almost Never	25 25.25	39 39.39	64 64.65
	Column Sum (n) Column %	31 31.31	68 68.69	99 100

Table 55.
Contingency Table of Feeling Like Everything Was an Effort by Exposed Skin Percentage (K6_Q1_E (2) by CORP (2))

Count (n) Total %		CORP (2)		
		> 9%	0-9%	Row Sum (n) Row %
K6_Q1_E (2)	Sometimes, Almost Always or Always	14 13.86	38 37.62	52 51.49
	Never or Almost Never	17 16.83	32 31.68	49 48.51
	Column Sum (n) Column %	31 30.69	70 69.31	101 100

Table 56.
Contingency Table of Feeling Worthless by Exposed Skin Percentage (K6_Q1_F (2) by CORP (2))

Count (n) Total %		CORP (2)		
		> 9%	0-9%	Row Sum (n) Row %
K6_Q1_F (2)	Sometimes, Almost Always or Always	5 4.95	12 11.88	17 16.83
	Never or Almost Never	26 25.74	58 57.43	84 83.17
	Column Sum (n) Column %	31 30.69	70 69.31	101 100

Table 57.
Contingency Table of Mental Distress Score by Exposed Skin Percentage (K6_TOTAL (1) by CORP (2))

Count (n) Total %		CORP (2)		
		> 9%	0-9%	Row Sum (n) Row %
K6_TOTAL (1)	Greater than 15	30 30.30	63 63.64	93 93.94
	15 or Less	1 1.01	5 5.05	6 6.06
	Column Sum (n) Column %	31 31.31	68 68.69	99 100

Appendix B.

This appendix contains the integrated questionnaire design used for the Mental Health and Sun/ Heat Exposure of Agricultural Workers in the Alexander Skutch Biological Corridor (MHASBC 2020) investigation. Both Spanish and English versions of the questionnaire are located in this appendix and are displayed in the way they were used in the field during data collection.

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Mental Health and Sun/ Heat Exposure of Agricultural Workers in the Alexander Skutch Biological Corridor (MHASBC 2020) Questionnaire in English

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Participant Name:_____

Date Administered:_____

Inicio:_____:_____ Fin:_____:_____

Contact Information:

Email:_____

Phone:_____

Address:_____

1. Relation to University

Keep it conversational, to build relationship **1.1** (RU_1)Do you know what York University (Las Nubes Research Centre) is? (if not explain it's a university located north of Santa Elena near Chiripo)	a) Yes b) No c) Don't know d) No Response e) N/A
1.2 (RU_2) What is, if any, your relationship to the University? (ex: homestay, work, Casita Azul, tours…)	a) Yes_____Specify? b) None c) Don't know d) No Response e) N/A

2. Descriptive Information

2.1 (SEX) Sex?	a) Male b) Female c) Other:_____ Specify? d) Don't know e) No response

2.2 (AGE) What is your age ?	
2.3 (COM) Which community do you live in ?	a) Santa Elena b) Quizzara c) Montecarlo d) San Francisco e) San Ignacio f) Santa Marta g) Santa Maria

3. Work

3.1 (WORK_P) What is your primary job? (what provides the most income)	
3.2 (WORK_T) How long have you worked in your primary job?	
3.3 (AD_1) Do you belong to a Union, Association, Cooperative or are you Private/ Independent?	a) Union/Association/ Cooperative b) Private c) Other:_____ Specify? d) Don't know e) No response
3.4 (AD_2) If you belong to an organization, in what ways do they support you?	
3.5 (BOSS_1) Are you a boss or supervisor?	a) Yes_____Specify? b) No c) Don't know

If yes, how many people work under you?	d) No Response e) N/A
3.6 (BOSS_2) **If no,** what is your position? (example: laborer)	
3.7 (HOURS_D) How many hours a day do you work?	
3.8 (BREAKS_D) How many breaks do you take per day? (includes "lunch break" if applicable)	
3.9 (BREAKS_T) On average, how long are each of your breaks? (includes "lunch break" if applicable)	
3.10 (BREAKS_B) Does your boss encourage you to take regular breaks while at work? (ex: 1 per hour?) (**If you have a boss)**	a) Yes_____Specify? b) No c) Don't know d) No Response e) N/A
3.11 (BATH) Are you allowed to use the bathroom as needed while at work? If no, why not?	a) Yes b) No_____Specify? c) Don't know d) No Response e) N/A

3.12 (LIKE_1) Do you like your work?	a) Yes b) No c) Don't know d) No Response e) N/A
3.13 (LIKE_2) If yes, what about it do you like?	
3.14 (LIKE_3) If yes or no what about it do you not like?	
3.15 (LIKE_4) What can be improved?	
3.16 (FEEL_W) Over the past 30 days, how have you felt while at work?	a) Very Bad b) Bad c) Normal d) Good e) Very Good
3.17 (FEEL_D) If you feel tired at work at what point of the workday do you begin to feel the most tired?	a) Morning b) Afternoon c) Evening d) Night

3.18 (STRESS_W) How much stress/ worry do you feel while at work? On a scale of 0-4 (0= none, 4= severe)	0, 1, 2, 3, 4
3.19 (STRESS_WP) Is work your main cause of stress/ worry overall? If Yes, (Why?)	a) Yes_____Specify? b) No c) Don't know d) No Response e) N/A _____ _____ _____
3.20 (STRESS_WP_2) If not, what is your main cause of stress/ worry?	_____ _____ _____ _____ _____
3.21 (STRESS_R) What do you do to relieve stress? (For example: some people drink alcohol, meditate, pray, smoke, exercise...etc.)	

3.22 (BORED) While at work do you ever feel bored or unchallenged? Why?	a) Yes_____Why? b) No_____Why? c) Sometimes d) Don't know e) No response _____ _____ _____ _____
3.23 (SAT_1) Are you satisfied with your work?	a) Yes b) No c) Somewhat d) Don't know e) No Response f) N/A g) Other:_____
3.24 (SAT_2) If no, why not?	_____ _____ _____ _____ _____
3.25 (HARD) Do you feel as though you need to work harder now at the same job in comparison to the past? If Yes or somewhat, how come? If No, why not?	a) Yes b) No c) Somewhat d) Don't know e) No Response f) N/A g) Other:_____

4. Economics

4.1 (BILLS_W) How much do you earn per hour of work? (If unable to answer, move to the next question)	
4.2 (BILLS_Y) How much do you earn per year?	
4.3 (INFL_1) What do you feel influences how much you make? (education, global demand/prices, experience, climate change)	
4.4 (INFL_2) How do these influences impact your livelihood?	

5. Work Environment

5.1 (SHADE) Are there shaded areas at your workplace?	a) Yes_____Specify? b) No c) Don't know d) No Response e) N/A
5.2 (SOL) How often do you work in direct sunlight?	a) Never b) Not often c) Somewhat often d) Often e) Very Often

5.3 (SOL_T) On average, for how long per day do you work in continuous direct sunlight?	
5.4 (COOL) On hot days how do you cool off while at work?	
5.5 (BH_D) Does your boss encourage you to take breaks on very hot days? (If they have a boss)	a) Yes b) No c) Don't know d) No Response e) N/A
5.6 (REGARD) While at work do you ever feel that regardless of what you do you can't get cool?	a) Yes b) No c) Don't know d) No Response e) N/A
5.7 (STOP_W) Have you ever had to stop working, skip a day of work or be sent home because the heat or sun was too intense?	a) Yes_____explain? b) No c) Don't know d) No Response e) N/A
5.8 (STOP_W_2) If no, why not?	

5.9 (FOCUS_H) On hot days do you have a hard time focusing or completing work tasks?	a) Yes_____explain? b) No c) Don't know d) No Response e) N/A

5.10 (SIT) Do you sit for long periods of time at work?	a) Yes b) No
5.11 (SAME) How often do you perform the same tasks?	a) Never b) Not often c) Somewhat often d) Often e) Very Often
5.12 (PAIN) For how often per day do you stay in an uncomfortable position?	a) Never a) Not often b) Somewhat often c) Often d) Very Often
5.13 (FOCUS_R) Do you have a hard time focusing or completing work tasks after continuously performing the same action?	a) Yes_____Specify? b) No c) Don't know d) No Response e) N/A
5.14 (INJ_1) Have you ever been injured due to loss of concentration?	a) Yes_____Specify? b) No c) Don't know d) No Response e) N/A
5.15 (INJ_2) If Yes, explain how, what happened?	

6. Work Equipment

6.1 (HAT) Do you wear a hat while at work (if yes, what type?)	a) Yes_____Specify? b) Sometimes c) No d) Don't know e) No Response f) N/A
6.2 (HAT_M) What material is your hat made of?	a) Rubber b) Leather c) Cotton d) Wool e) Straw f) Other_____? g) Don't know h) No Response i) N/A
6.3 (SUN_G) Do you wear sunglasses while at work?	a) Yes_____Specify colour of lens? b) No c) Don't know d) No Response e) N/A
6.4 (CORP) What parts of your body is NOT covered in clothes?	a) Head b) Face c) Neck d) Torso e) Back f) Upper arms g) Lower Arms h) Hands i) Upper Legs j) Lower Legs k) Feet l) Other_____? m) Don't know n) No Response

6.5 (MAT) What type of material is your clothes principally made of?	a) Wool b) Cotton c) Leather d) Synthetic e) Other_____? f) Don't know g) No Response
6.6 (SHOE) What type of shoes do you wear at work?	a) Running shoes b) Boots c) Sandals d) Other_____? e) Don't know f) No response
6.7 (SHOE_M) What material are your shoes primary made of ? (multiple choice)	a) Rubber b) Wool c) Cotton d) Leather e) Synthetic cloth f) Other_____? g) Don't know h) No response
6.8 (BlOCK) Do you put on sunscreen? and where? If yes, what FPS? If no, why not?	

6.9 (STRAPS) Do you wear any support straps at work (if so what type? (back, wrist, etc).	

6.10 (STRAPS_M) What material is your support straps made of?	

7. Drugs & Alcohol (Everything you answer will be strictly confidential) (last 30 days)

7.1 (CAFE) Do you drink coffee? If yes, how many cups of coffee do you have a day?	a) Yes b) No c) Sometimes How many_____ per day?
7.2 (ALCH) Do you drink alcoholic drinks?	a) Yes b) No c) Sometimes d) Don't know e) No response
7.3 (ALCH_TY) If yes, what type of drink do you have most often? (ex, beer, wine, rum, guarro, casique, whisky)	
7.4 (ALCH_Q) On average, if you drink, how much do you drink per drinking event? (Leave as open-ended, qualitative question)	

7.5 (ALCH_O) How often do you drink?	a) Never b) Not often c) Somewhat often d) Often e) Very Often (could change to days, weeks, months)
7.6 (TOBA) Do you use tobacco products?	a) Yes b) No c) Sometimes d) Don't know e) No response
7.7 (TOBA_TY) If yes, which product? (ex: vape, cigar, cigarette)	
7.8 (TOBA_Q) If you use tobacco products, how much per smoking event?	
7.9 (TOBA_O) How often do you use (tobacco)? (ex: every day, once a month, only on rare occasions…)	
7.10 (DRUGS) Do you use any other types of drugs recreationally? (ex: marijuana, cocaine, heroin, crack…)	a) Yes_____ Specify? b) No c) Sometimes d) Don't know e) No Response

7.11 (DRUGS_O) If yes, how often do you use these drugs? (for example, once per day, 5 times a week, rare occasions).	a) No response b) Don't know _____ _____ _____ _____
7.12 (DRUGS_Q) When you do use how much do you use? (Open ended)	

8. Health

8.1 (EMOT) In general, how do you feel? (This refers to an emotional state)	a) Very Bad b) Bad c) Ok d) Good e) Very Good f) Don't know g) No Response
8.2 (BIOL) How do you consider your overall health? (This is a biological state)	a) Very bad b) Bad c) Regular d) Good e) Very good f) Don't know g) No response

8.3 (EAT) On a regular workday, how often do you eat breakfast, lunch and/or dinner? (Open Ended)	a) All of the time b) Most of the time c) Some of the time d) A little of the time e) None of the time
8.4 (TOMA) Normally, what kind of drinks do you have while at work? (Coffee, Water, Gatorade, Other?) (cup= 250ml) (bottle= 500ml) (large bottle= 1L).	
8.5 (TOMA_C) How many cups of the beverage do you drink while at work?	
8.6 (SLEEP) On average, for the past 30 days, how many hours of continuous sleep do you get per night?	a) 0-3 hours per night b) 3-6 hours per night c) 6-9 hours per night d) 9+ hours per night e) Other_____ Specify? f) Don't know g) No response

9. Health Conditions While at Work

9.1 (THRST) How often do you feel dehydrated/thirsty while at work?	a) Very often b) Often c) Sometimes d) Not often e) Never f) Don't know g) No response
9.2 (MUSC) How often do your muscles feel weak while at work?	a) All the time b) Most of the time c) Some of the time d) A little of the time e) Never f) Don't know g) No response
9.3 (MUSC_T) At what point of the workday do your muscles feel the weakest?	a) Beginning b) Middle c) End d) Don't know e) No response
9.4 (ILL) While at work or after having worked do you ever feel sick? (ex: weak, tired, headache, muscle cramps, nausea, blurred vision).	a) All the time b) Many times c) Sometimes d) Not really e) Never f) Don't know g) No Response

9.5 (ILL_SYM) If responded a), b), c) or d) ask them: Which symptoms they most often experience?	(ex: weak, tired, headache, muscle cramps, nausea, blurred vision)

10. K6 Psych Test

Binding margin – do not write

MENTAL HEALTH

K6+

Provider: _____

Provider ID:

|_|_|_|_|_|_|_|_|_|_|

Date completed: __ __ / __ __ / __ __ __ __

Please use gummed label if available

Patient or Client Identifier:

|_|_|_|_|_|_|_|_|_|_|

Surname:

Other names:

Date of Birth: Sex:

__ __ / __ __ / __ __ __ __ Male ☐ Female ☐

Address:

The following questions ask about how you have been feeling during the **past 30 days**. For each question, please circle the number that best describes how often you had this feeling.

Q1. During the past 30 days, about how often did you feel …	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. …nervous?	1	2	3	4	5
b. …hopeless?	1	2	3	4	5
c. …restless or fidgety?	1	2	3	4	5
d. …so depressed that nothing could cheer you up?	1	2	3	4	5
e. …that everything was an effort?	1	2	3	4	5
f. …worthless?	1	2	3	4	5

MENTAL HEALTH

K6+ SELF-REPORT MEASURE (1 of 2)

Please turn over the page to continue

Q2. The last six questions asked about feelings that might have occurred during the past 30 days. Taking them altogether, did these feelings occur More often in the past 30 days than is usual for you, about the same as usual, or less often than usual? (If you never have any of these feelings, circle response option "4.")

More often than usual			About the same as usual	Less often than usual		
A lot	Some	A little		A little	Some	A lot
1	2	3	4	5	6	7

The next few questions are about how these feelings may have affected you in the past 30 days. You need not answer these questions if you answered "None of the time" to **all** of the six questions about your feelings.

Q3. During the past 30 days, how many days out of 30 were you totally unable to work or carry out your normal activities because of these feelings?

_____ **(Number of days)**

Q4. **Not counting the days you reported in response to Q3**, how many days in the past 30 were you able to do only half or less of what you would normally have been able to do, because of these feelings?

_____ **(Number of days)**

Q5. During the past 30 days, how many times did you see a doctor or other health professional about these feelings?

_____ **(Number of times)**

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Q6. During the past 30 days, how often have physical health problems been the main cause of these feelings?	1	2	3	4	5

Thank you for completing this questionnaire.

11. Mental Health

11.1 (MENTAL) Do you know what mental health is (surveyor explains if no or somewhat) WHO "Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community".	a) Yes b) Somewhat c) No d) No response
11.2 (MENTAL_S) How do you consider your mental health status?	a) Very bad b) Bad c) Ok d) Good e) Very Good f) Don't know g) No response
11.3 (MENTAL_G) How important do you believe it is to have good mental health?	a) Very important b) Somewhat important c) Neutral d) Not very important e) Not important f) Don't know g) No response
11.4 (MENTAL_H) Do you or your family have a history of mental illness? If so which?	a) Yes_____Specify? b) No c) Don't know d) No Response

11.5 (MENTAL_B) If you have a Boss/ Supervisor How often does your boss ask you about your mental health?	a) A lot b) Many times c) Normally d) Not really e) Never f) Don't know g) No response

13. Comments or Questions for Investigators?

Figure 2.

Mental Health and Sun/ Heat Exposure of Agricultural Workers in the Alexander Skutch Biological Corridor (MHASBC 2020) Questionnaire in Spanish

---

Nombre: _____ Información Contacto:

Fecha: _____ Correo Electrónico: _____

Comienza: _____:_____Termina:_____:_____ Teléfono:_____

Direcciones de la casa: _____

1. Relación con la universidad

* Mantenlo conversacional, para construir una relación * **1.1** (RU1) ¿Sabes qué es la Universidad de York (Centro de Investigación Las Nubes)? (si no explica, es una universidad ubicada al norte de Santa Elena cerca de Chiripo)	f) Si g) No h) No Sabe i) No Responde j) N/A
1.2 (RU_2) ¿Cuál es, en su caso, su relación con la Universidad? (Ej: alojamiento familiar, trabajo, Casita Azul, tours ...)	f) Si_____espicifique? g) Ninguno h) No Sabe i) No Responde j) N/A

2. Información Descriptiva

2.1 (SEX) Sexo?	f) Hombre g) Mujer h) Otro_____Especifique? i) No Sabe j) No Responde

2.2 (AGE) Edad?	
2.3 (COM) ¿En qué comunidad vive?	h) Santa Elena i) Quizzara j) Montecarlo k) San Francisco l) San Ignacio m) Santa Marta n) Santa Maria

3. Trabajo

3.1 (WORK_P) ¿Cuál es su trabajo principal? (lo que proporciona más ingresos)	
3.2 (WORK_T) ¿Cuánto tiempo ha trabajado en su trabajo principal?	
3.3 (AD_1) ¿Pertenece a un sindicato, asociación, cooperativa o es privado / independiente?	f) Sindicato/Asociacion/ Cooperativa g) Privado h) Otro_____especifique? i) No Sabe j) No Responde
3.4 (AD_2) Si pertenece a una organización, ¿de qué manera te apoyan?	

3.5 (BOSS_1) ¿Es jefe o supervisor? En caso afirmativo, ¿cuántas personas trabajan debajo de usted?	f) Si_____Especifique? g) No h) No Sabe i) No Responde j) N/A
3.6 (BOSS_2) Si no, ¿cuál es su posición? (ejemplo: trabajador)	
3.7 (HOURS_D) ¿Cuántas horas al día trabaja?	
3.8 (BREAKS_D) ¿Cuántos descansos toma por día? (incluye "almuerzo" si corresponde)	
3.9 (BREAKS_T) En promedio, ¿cuánto duran cada uno de sus descansos? (incluye "almuerzo" si corresponde)	
3.10 (BREAKS_B) ¿Su jefe le anima a tomar descansos regulares en el trabajo? (ej: 1 por hora?) (Si tienes un jefe)	f) Si_____Especifique? g) No h) No Sabe i) No Responde j) N/A

3.11 (BATH) ¿Se le permite usar el baño según sea necesario mientras está en el trabajo? Si no, ¿por qué no?	f) Si g) No_____Especifique? h) No Sabe i) No Responde j) N/A
3.12 (LIKE_1) ¿Le gusta su trabajo?	f) Si g) No h) No Sabe i) No Responde j) N/A
3.13 (LIKE_2) En caso afirmativo, ¿qué le gusta?	
3.14 (LIKE_3) En caso que no, ¿qué no le gusta?	
3.15 (LIKE_4) ¿Qué se puede mejorar?	
3.16 (FEEL_W) En los últimos 30 días, ¿cómo se ha sentido en el trabajo?	a) Muy Malo b) Malo c) Normal d) Bien e) Muy Bien

3.17 (FEEL_D) Si se siente cansado en el trabajo, ¿en qué momento de la jornada laboral comienza a sentirse más cansado?	a) Comienzo b) Medio c) Antes Termina Trabajo d) Después Trabajo
3.18 (STRESS_W) ¿Cuánto estrés / preocupación siente en el trabajo? En una escala de 0-4 (0 = ninguna, 4 = severa)	0, 1, 2, 3, 4
3.19 (STRESS_WP) ¿Es el trabajo su principal causa de estrés / preocupación en general? ¿Si es así por qué?)	f) Si_____Especifique? g) No h) No Sabe i) No Responde j) N/A
3.20 (STRESS_WP_2) Si no, ¿cuál es su principal causa de estrés / preocupación?	
3.21 (STRESS_R) ¿Qué hace para aliviar el estrés? (Por ejemplo: algunas personas beben alcohol, meditan, rezan, fuman, hacen ejercicio ... etc.)	

3.22 (BORED) En el trabajo, ¿alguna vez te sientes aburrido o sin respuesta? ¿Por qué?	f) Si_____ Por qué? g) No_____ Por que? h) Tal vez i) No Sabe j) No responde
3.23 (SAT_1) ¿Estás satisfecho con tu trabajo?	h) Si i) No j) Un Poco k) No Sabe l) No Responde m) N/A n) Otra:_____
3.24 (SAT_2) Si no, ¿por qué no?	
3.25 (HARD) ¿Siente que necesita trabajar más ahora en el mismo trabajo en comparación con el pasado? En caso afirmativo o algo, ¿cómo es que? Si no, ¿por qué no?	h) Si i) No j) Un Poco k) No Sabe l) No Responde m) N/A n) Otra:_____

4. Economics

4.1 (BILLS_W) ¿Cuánto gana por hora de trabajo? (Si no puede responder, pase a la siguiente pregunta)	
4.2 (BILLS_Y) ¿Cuánto gana por año?	
4.3 (INFL_1) ¿Qué aspectos siente que influye en cuánto gana? (educación, demanda / precios globales, experiencia, cambio climático)	
4.4 (INFL_2) ¿Cómo afectan estas influencias a su sustento?	

5. Ambiente de trabajo

5.1 (SHADE) ¿Hay áreas sombreadas en su lugar de trabajo?	f) Si_____Especifique? g) No h) No Sabe i) No Responde j) N/A
5.2 (SOL) ¿Con qué frecuencia trabaja bajo la luz solar directa?	f) Nunca g) Casi Nunca h) A Veces i) Muchas veces j) Bastante veces
5.3 (SOL_T) En promedio, ¿durante cuánto tiempo al día trabaja bajo la luz solar directa continua?	

5.4 (COOL) En los días calurosos, ¿cómo se refresca en el trabajo?	
5.5 (BH_D) ¿Su jefe le anima a tomar descansos en días muy calurosos? (Si tienen un jefe)	f) Si g) No h) No Sabe i) No Responde j) N/A
5.6 (REGARD) Mientras está en el trabajo, ¿siente que, independientemente de lo que hace, no puede mantenerse fresco?	f) Si g) No h) No Sabe i) No Responde j) N/A
5.7 (STOP_W) ¿Alguna vez ha tenido que dejar de trabajar, omitir un día de trabajo o ser enviado a casa porque el calor o el sol eran demasiado intensos?	f) Si_____Especifque? g) No h) No Sabe i) No Responde j) N/A
5.8 (STOP_W_2) Si no, ¿por qué no?	

5.9 (FOCUS_H) En los días calurosos, ¿tiene dificultades para concentrarse o completar tareas de trabajo?	f) Si_____Especifique? g) No h) No Sabe i) No Responde j) N/A

5.10 (SIT) ¿Se sienta durante largos períodos de tiempo en el trabajo?	a) Si b) No
5.11 (SAME) ¿Con qué frecuencia realiza las mismas tareas?	a) Nunca b) Casi Nunca c) A veces d) Muchas Veces e) Bastante Veces
5.12 (PAIN) ¿Con qué frecuencia al día se queda en una posición incómoda?	b) Nunca e) Casi Nunca f) A Veces g) Muchas Veces h) Bastante Veces
5.13 (FOCUS_R) ¿Le resulta difícil concentrarse o completar tareas de trabajo después de realizar continuamente la misma acción?	f) Si_____Especifique? g) No h) No Sabe i) No Responde j) N/A
5.14 (INJ_1) ¿Alguna vez se lesionó debido a la pérdida de concentración?	f) Si_____Especifique? g) No h) No Sabe i) No Responde j) N/A
5.15 (INJ_2) En caso afirmativo, explique cómo, ¿qué pasó?	

6. Equipo de trabajo

6.1 (HAT) ¿Usa sombrero en el trabajo (en caso afirmativo, ¿de qué tipo?)	g) Si_____Especifique? h) A Veces i) No j) No Sabes k) No Responde l) N/A
6.2 (HAT_M) ¿De qué material está hecho su sombrero?	j) Caucho k) Cuero l) Algodon m) Lana n) Paja o) Otra_____? p) No Sabe q) No Responde r) N/A
6.3 (SUN_G) ¿Usa gafas de sol en el trabajo?	a) Sí____ ¿Especificar el color de la lente? b) No c) No Sabe d) No Responde e) N / A
6.4 (CORP) ¿Qué partes de su cuerpo NO están cubiertas de ropa cuando trabaja?	o) Cabeza p) Cara q) Cuello r) Torso s) Espalda t) Brazos Mejor u) Brazos Inferior v) Manos w) Muslo x) Piernas y) Pies z) Otra_____? aa) No Sabe bb) No Responde

6.5 (MAT) ¿De qué tipo de material está hecha principalmente su ropa?	h) Lana i) Algodon j) Cuero k) Sintetico l) Otra_____? m) No Sabe n) No Responde
6.6 (SHOE) ¿Qué tipo de zapatos usa en el trabajo?	g) Zapatos para correr h) Botas i) Sandalias j) Otra_____? k) No Sabe l) No responde
6.7 (SHOE_M) ¿De qué material están hechos sus zapatos principalmente? (opción múltiple)	i) Caucho j) Lana k) Algodón l) Cuero m) Sintético n) Otra_____? o) No Sabe p) No responde
6.8 (BlOCK) ¿Se pone protector solar? ¿y dónde? Si es así, ¿qué FPS? Si no, ¿por qué no?	

6.9 (STRAPS) ¿Usa correas de soporte en el trabajo (¿si es así, qué tipo? (Espalda, muñeca, etc.).	
6.10 (STRAPS_M) ¿De qué material están hechas sus correas de soporte?	

7. Drogas y alcohol (todo lo que responda será estrictamente confidencial) (últimos 30 días)

7.1 (CAFE) ¿Bebe café? En caso afirmativo, ¿cuántas tazas de café toma al día?	d) Si e) No f) A Veces Cuanto_____ por dia?
7.2 (ALCH) ¿Toma bebidas alcohólicas?	f) Si g) No h) A Veces i) No Sabe j) No responde
7.3 (ALCH_TY) En caso afirmativo, ¿qué tipo de bebida toma con más frecuencia? (ex, cerveza, vino, ron, guarro, cacique, whisky).	
7.4 (ALCH_Q) En promedio, si bebe, ¿cuánto bebe por ocasion? (Dejar como pregunta cualitativa abierta)	
7.5 (ALCH_O) ¿Con qué frecuencia usted bebe?	f) Nunca g) Casi Nunca h) A Veces i) Muchas Veces j) Bastante Veces

7.6 (TOBA) ¿Fuma productos de tabaco?	f) Si g) No h) A Veces i) No Sabe j) No responde
7.7 (TOBA_TY) En caso afirmativo, ¿qué producto? (ej .: vape, cigarro, cigarrillo)	
7.8 (TOBA_Q) Si usa productos de tabaco, ¿cuánto por evento de fumar?	
7.9 (TOBA_O) ¿Con qué frecuencia usa (tabaco)? (Ej: todos los días, una vez al mes, solo en raras ocasiones ...)	
7.10 (DRUGS) ¿Usa algún otro tipo de drogas recreativamente? (Ej: marihuana, cocaína, heroína, crack ...)	f) Si_____ Especifique? g) No h) A veces i) No Sabe j) No Responde
7.11 (DRUGS_O) En caso afirmativo, ¿con qué frecuencia usa estos medicamentos? (por ejemplo, una vez al día, 5 veces a la semana, en raras ocasiones).	c) _____ d) No responde e) No Sabe

7.12 (DRUGS_Q) ¿Cuándo usa cuánto usa? (Abierto)	

8. Salud

8.1 (EMOT) En general, ¿cómo se siente? (Esto se refiere a un estado emocional)	h) Muy Malo i) Malo j) Ok k) Bien l) Muy Bien m) No Sabe n) No Responde
8.2 (BIOL) ¿Cómo considera su salud general? (Este es un estado biológico)	h) Muy Malo i) Malo j) Normal k) Bien l) Muy Bien m) No Sabe n) No responde
8.3 (EAT) En un día laboral normal, ¿con qué frecuencia desayuna, almuerza y / o cena? (Abierto)	f) Siempre g) Muchas veces h) A Veces i) Poca veces j) Nunca

8.4 (TOMA) Normalmente, ¿qué tipo de bebidas toma en el trabajo? (¿Café, agua, Gatorade, otro?) (taza = 250 ml) (botella = 500 ml) (botella grande = 1L).	
8.5 (TOMA_C) ¿Cuántas tazas de la bebida toma en el trabajo?	
8.6 (SLEEP) En promedio, durante los últimos 30 días, ¿cuántas horas de sueño continuo obtiene por noche?	h) 0-3 horas per noche i) 3-6 horas per noche j) 6-9 horas per noche k) 9+ horas per noche l) Otra_____ especifique? m) No Sabe n) No responde

9. Condiciones de salud en el trabajo

9.1 (THRST) ¿Con qué frecuencia se sientes deshidratado / sediento en el trabajo?	h) Bastante Veces i) Muchas Veces j) A Veces k) Casi Nunca l) Nunca m) No Sabe n) No responde

9.2 (MUSC) ¿Con qué frecuencia se siente debilidad en sus músculos mientras trabajas?	h) Siempre i) Muchas Veces j) A veces k) Casi Nunca l) Nunca m) No Sabe n) No responde
9.3 (MUSC_T) ¿En qué punto de la jornada laboral siente los músculos más débiles?	f) Comienco g) Medio h) Fin i) No Sabe j) No responde
9.4 (ILL) Mientras trabajaba o después de haber trabajado, ¿alguna vez se sintió enfermo? (Ej: débil, cansado, dolor de cabeza, calambres musculares, náuseas, visión borrosa).	h) Siempre i) Muchas Veces j) A veces k) Casi Nunca l) Nunca m) No Sabe n) No Responde
9.5 (ILL_SYM) Si respondió a), b), c) o d) pregúnteles: ¿Qué síntomas experimentan con mayor frecuencia?	(Ej: débil, cansado, dolor de cabeza, calambres musculares, náuseas, visión borrosa)

10. K6 Psych Test

Margen de encuadernación - no escribir

SALUD MENTAL

Fecha de aplicación: __ __ / __ __ / __ __ __ __

K6+

Administrador : _____

No. de identificación del administrador:

|_|_|_|_|_|_|_|_|_|_|

Por favor use etiqueta autoadhesiva si está disponible

No. Identificación del paciente: |_|_|_|_|_|_|_|_|_|_|

Apellido:

Nombre:

Fecha de Nacimiento: __ __ / __ __ / __ __ __ __

Sexo: Masculino ☐₁ Femenino ☐₂

Domicilio:

Las siguientes preguntas se refieren a cómo se ha sentido en los **últimos 30 días**. Para cada pregunta, por favor encierre con un círculo el número que describa mejor con qué frecuencia ha tenido estos sentimientos.

Q1.	En los últimos 30 días, ¿con qué frecuencia se sintió …	Siempre	Casi siempre	A veces	Casi nunca	Nunca
a.	…nervioso(a)?	1	2	3	4	5
b.	…sin esperanza?	1	2	3	4	5
c.	…inquieto(a) o intranquilo(a)?	1	2	3	4	5
d.	… tan deprimido(a) que nada podía animarle?	1	2	3	4	5
e.	…que todo le suponía un gran esfuerzo?	1	2	3	4	5
f.	…inútil?	1	2	3	4	5

Por favor continúe en la página siguiente.

MENTAL HEALTH

K6+ SELF-REPORT MEASURE (1 of 2)

Q2. Las preguntas anteriores se referían a sentimientos que pudo haber tenido en los últimos 30 días. Tomándolos todos en cuenta, en los últimos 30 días ¿estos sentimientos fueron más frecuentes que lo que es habitual en usted, fueron casi igual de frecuentes que lo habitual, o fueron menos frecuentes que lo habitual? (Si nunca ha tenido alguno de estos sentimientos, encierre con un círculo la opción "4".)

Más frecuentes que lo habitual			Casi igual de frecuentes que lo habitual	Menos frecuentes que lo habitual		
Mucho	Algo	Poco		Poco	Algo	Mucho
1	2	3	4	5	6	7

Las siguientes preguntas se refieren a cómo estos sentimientos le han afectado en los últimos 30 días. No es necesario contestar estas preguntas si contestó "Nunca" **a todas y cada una de** las seis preguntas anteriores sobre sus sentimientos.

Q3. En los últimos 30 días, ¿cuántos días fue totalmente incapaz de trabajar o realizar sus actividades habituales debido a estos sentimientos?

_____ **(Número de días)**

Q4. **Descontando los días que apuntó en la pregunta Q3**, ¿cuántos días, de los últimos 30, pudo hacer sólo la mitad o menos de lo que normalmente podría haber hecho debido a estos sentimientos?

_____ **(Número de días)**

Q5. En los últimos 30 días, ¿cuántas veces visitó a un médico u otro profesional de la salud debido a estos sentimientos?

_____ **(Número de veces)**

	Siempre	Casi siempre	A veces	Casi nunca	Nunca
Q6. En los últimos 30 días, ¿con qué frecuencia los problemas de salud física fueron la causa principal de estos sentimientos?	1	2	3	4	5

Muchas gracias por contestar este cuestionario.

Margen de encuadernación - no escribir

K6+ SELF-REPORT MEASURE (1 of 2)

11. Salud Mental

11.1 (MENTAL) ¿Sabe qué es la salud mental? (El encuestador explica si no o algo). (Un estado de bienestar en al que el individuo se da cuenta de sus propias habilidades, puede hacer frente a las tensiones normales de la vida, puede trabajar de forma productiva y fructida, y puede hacer una contribución a su comunidad.) (sin stress, ansiedad, depresión….)	e) Si f) Un Poco g) No h) No responde
11.2 (MENTAL_S) ¿Cómo considera su estado de salud mental?	h) Muy Malo i) Malo j) Ok k) Bien l) Muy Bien m) No Sabe n) No Responde
11.3 (MENTAL_G) ¿Qué tan importante cree que es tener una buena salud mental?	h) Muy Importante i) Importante j) Neutral k) Casi no Importante l) No es Importante m) No Sabe n) No Responde

11.4 (MENTAL_H) ¿Usted o su familia tienen antecedentes de enfermedad mental? Si es así, ¿cuál?	e) Si_____Especifique? f) No g) No Sabe h) No Responde
11.5 (MENTAL_B) Si tiene un jefe / supervisor ¿Con qué frecuencia le pregunta su jefe sobre su salud mental?	h) Muchas Veces i) Bastante Veces j) Normalmente k) Casi Nunca l) Nunca m) No Sabe n) No Responde

13. ¿Comentarios o preguntas para los investigadores?

_____