

Chronic Pain among Montana Adults, BRFSS 2010

Introduction

Chronic pain has multiple causes and it can have substantial consequences for one’s physical, psychological, and social well-being, including the ability to function in society.¹ Pain is associated with a wide range of diseases and injuries and is sometimes considered a disease itself.² Pain can be a persistent companion to injuries and diseases, but it can also exist when a defined cause is lacking or undetectable. The Institute of Medicine (IOM) report of 2011 indicates that 116 million American adults suffer from chronic pain resulting in societal costs of \$560 to \$635 billion annually (or about \$2000 per person in the US) due to increased use of health services and medications, and lost productivity at work due to sick leave and early retirement.³

Published prevalence estimates of chronic pain among adults from U.S. population-based surveys vary widely, ranging from 14% to over 64%.⁴⁻⁷ Prevalence estimates differ depending on how chronic pain is defined and measured.⁸ Chronic pain is “any pain that persists beyond the anticipated time of healing;” it may go on for years.⁹ For researchers, pain is difficult to measure since it cannot be measured directly, but rather must be judged by the individual’s subjective response.

Objectives

The purpose of this report is to provide an overview of chronic pain as experienced by adults in Montana, including the intensity, frequency, duration, and impact on activities.

Methods

Eight questions were added to the Montana Behavioral Risk Factor Surveillance System (BRFSS) 2010 survey to establish baseline state-level estimates of the prevalence of chronic pain and its relationship to health and well-being of Montana adults.¹⁰

There is no single system for classifying pain that has been universally accepted by researchers or clinicians.¹¹⁻¹⁴ The time frame is one of the most variable elements of the chronic pain definitions in the literature.¹⁵ The International Association for the Study of

1. Do you suffer from any type of chronic pain; that is, pain that occurs constantly or flares up frequently?
2. How long have you been experiencing this type of pain? (Duration)
3. About how often do you experience this pain? Would you say: Constantly, once an hour, once a day, once a week, once a month, once a year, less than once a year? (Frequency)
4. Using a 0 to 10 scale where 0 means no pain at all and 10 means the worst pain imaginable, when you experienced pain, how severe would you say it was on average over the past 3 months? (Intensity)
5. During the past 30 days, for about how many days did your pain keep you from doing your usual activities, such as self-care, work, or recreation? (Activity Limitation)
6. Which of the following type of therapy does your health care provider recommend to manage your pain? (Ask for most often or frequent if more than one) Does your health care provider recommend: over the counter medications, prescription medications, medical marijuana, complementary therapies, such as massage, physical therapy or acupuncture or other.
7. Do you feel your pain is well managed?
8. Which of the following do you believe is the biggest barrier to treating your pain? Cost of treatment, my healthcare provider is not helpful, I don’t ask for treatment for my pain, other specify, or no barrier.

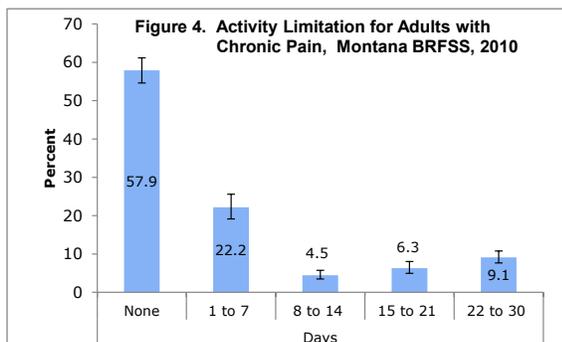
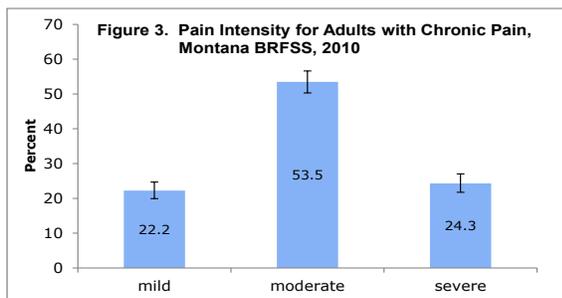
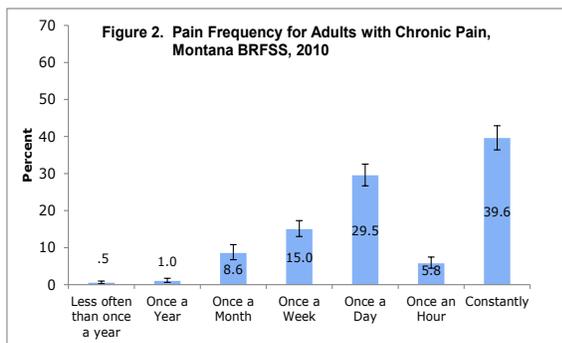
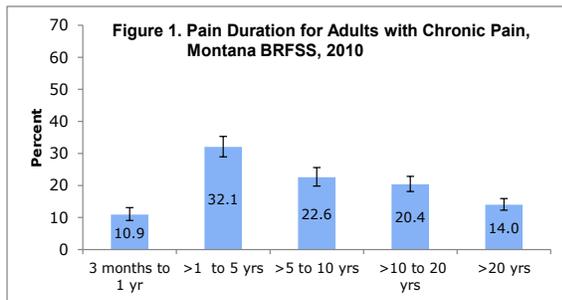
Pain (IASP) provides a widely used definition of chronic pain as “pain without apparent biological value that has persisted beyond the normal tissue healing time, usually taken to be three months.”¹⁶ Montana BRFSS respondents were classified as having chronic pain if they responded “yes” to question #1, indicated that their duration of pain was at least 3 months in response to question #2, and scored at least one on the pain intensity scale in response to question #4. Intensity scale responses were categorized into mild pain (score of 1 to 3); moderate pain (score of 4 to 6); and severe pain (score of 7 or more).¹⁷ Frequency responses were categorized from constantly to less than once per year. Respondents were asked to indicate how many days in the past 30 days their daily activities, such as self-care, work, or recreation, were limited by pain. Using the 3-month criterion for defining chronic pain and combinations of pain characteristics, respondents were classified into three grades of pain severity: Grade 1 (Mild), Grade 2 (Moderate), and Grade 3 (Severe). All respondents fell into only one of these three grade levels (Table 1).

Table 1. Characteristics of Chronic Pain – Graded Pain Severity Definitions, Montana BRFSS, 2010

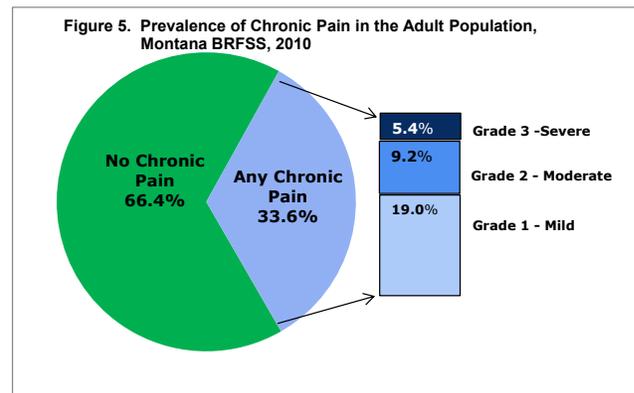
Severity Level	Grade 1 – Mild	Grade 2 – Moderate	Grade 3 – Severe
Duration	3 months to 1 year	>1 year to 5 years	>5 years
Frequency	Recurrent Pain: Once/month or less	Persistent pain: Once/week to once/hour	Constant pain
Intensity (None to 10) scale	1-3	4-6	7-10
Activity Limitation	None	1 to <14 days per month	≥14 days per month

RESULTS

Characteristics of Chronic Pain: Details of the 2010 sample and sampling procedures are described fully elsewhere.¹⁸ A total of 2,607 (33.6%) respondents indicated that they suffered from chronic pain. Ninety percent of respondents with chronic pain reported their pain had lasted at least one year and one-third reported they had chronic pain for more than 10 years (Figure 1). Almost 40% of adults with chronic pain indicated they experienced their pain constantly and only 10% reported the frequency of their pain was once per month or less (Figure 2). Almost one quarter of adults with chronic pain rated the intensity of their pain as severe (Figure 3). Although the majority of adults said their chronic pain did not limit their daily activities, more than 15% of adults said their activities were limited 14 days or more in a month (Figure 4).

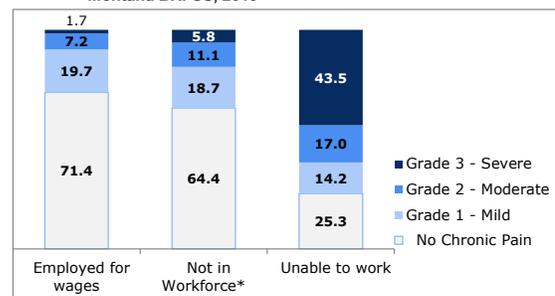


Prevalence of Chronic Pain and Graded Pain Severity by Sociodemographic Characteristics: One-third of respondents reported some degree of chronic pain (Table 2). There was no difference in prevalence by sex, race/ethnicity, region, or health care coverage. Adults older than 44 years of age had higher prevalence of chronic pain than did younger adults, yet over one-quarter of adults 18-34 reported some degree of chronic pain. Adults in the highest educational attainment and income categories reported significantly less chronic pain than did others. Adults who reported being unable to work and those who reported having a disability reported the highest prevalence of chronic pain. Table 2 also shows the prevalence of each pain severity grade. The prevalence of pain based on severity was 19.0% for Grade 1, 9.2% for Grade 2, and 5.4% for Grade 3 (Figure 5). When



chronic pain was based on a composite of duration, frequency, intensity, and activity limitations, the sociodemographic subpopulation relationships changed slightly from the individual bivariate measures. The only significant difference between younger and older age groups was for adults with mild pain (Grade 1). American Indian/Alaska Natives reported significantly higher levels of moderate and severe pain than White, non-Hispanic adults. Education and income levels were not related to mild pain, but they were inversely related to pain in the moderate and severe grades, that is, the lower the education or income levels, the higher the percentages of pain in each grade. Unlike adults with more severe pain, no significant differences were found between mild pain and employment status groupings. A high percentage of adults who were unable to work or were not part of the labor force had moderate and severe pain (Figure 6). Adults with the most severe pain were more likely to be uninsured than insured. This may be related to their inability to work, although sample size is too small to test rigorously.

Figure 6. Percentage of Graded Chronic Pain by Employment Status, Montana BRFSS, 2010



* Not in the workforce includes the subcategories of out of work, homemaker, student, and retired.

Table 2: Prevalence of Any Chronic Pain and Graded Chronic Pain by Sociodemographic Characteristics, Montana BRFSS, 2010

	Have Any Chronic Pain [†]				Grade 1 - Mild [‡]				Grade 2 - Moderate [§]				Grade 3 - Severe [¶]			
	95% CI			UnWt. N	95% CI			UnWt. N	95% CI			UnWt. N	95% CI			UnWt. N
	Wt.%	LL	UL		Wt.%	LL	UL		Wt.%	LL	UL		Wt.%	LL	UL	
All Adults	33.6	31.8	35.4	2,607	19.0	17.7	20.5	1,531	9.2	7.9	10.5	614	5.4	4.7	6.2	462
Age:																
18 - 34	26.0	21.4	31.3	200	11.8	8.9	15.5	98	10.5	7.1	15.2	72	3.7	2.3	6.1	30
35 - 44	29.2	25.3	33.4	259	18.8	15.5	22.5	154	7.1	5.1	9.6	69	3.3	2.2	5.2	36
45 - 54	37.5	34.1	41.0	523	19.7	17.0	22.7	257	10.4	8.5	12.6	159	7.4	5.8	9.5	107
55 - 64	41.3	38.4	44.2	721	23.9	21.5	26.5	436	10.9	9.1	13.0	166	6.5	5.2	8.0	119
65+	37.4	35.0	39.8	892	24.7	22.7	26.9	578	6.2	5.1	7.5	148	6.5	5.4	7.8	166
Race/Ethnicity:																
White, non-Hispanic	32.9	31.0	34.9	2,210	19.4	18.0	20.9	1,363	8.7	7.4	10.2	489	4.9	4.2	5.6	358
Non-white or Hispanic**	39.0	32.9	45.6	376	16.1	12.0	21.3	160	13.4	9.8	18.2	123	9.5	6.5	13.6	93
- AI/AN*	39.6	32.4	47.3	258	15.5	10.6	22.0	100	14.2	10.7	18.6	88	10.0	7.0	14.1	70
Education:																
High School or less	36.6	33.6	39.8	1,093	19.5	17.3	21.9	628	9.7	7.8	11.9	243	7.4	6.0	9.1	222
Some College	36.1	32.5	39.9	848	20.6	18.0	23.5	491	10.1	7.6	13.3	204	5.4	4.3	6.8	153
College Degree	27.2	24.6	30.0	661	16.8	14.8	19.1	409	7.6	5.8	9.8	167	2.8	2.1	3.7	85
Income:																
<\$25,000	44.5	40.3	48.8	1,002	19.5	16.8	22.6	478	12.9	10.1	16.4	260	12.1	9.9	14.6	264
\$25,000 - \$44,999	32.7	29.7	35.8	733	20.9	18.5	23.5	474	8.1	6.3	10.4	159	3.6	2.9	4.7	100
>\$50,000	27.6	24.9	30.5	682	18.3	16.1	20.7	478	7.6	5.8	9.9	147	1.7	1.3	2.4	57
Employment Status:																
Employed for wages	28.6	25.9	31.0	1,143	19.7	17.9	21.6	803	7.2	6.0	8.7	263	1.7	1.2	2.4	77
Not in Workforce	35.6	32.4	38.9	1,119	18.7	16.5	21.0	659	11.1	8.6	14.2	267	5.8	4.6	7.2	193
Unable to work	74.7	66.5	81.6	337	14.2	9.3	21.0	66	17.0	12.5	22.8	82	43.5	36.2	51.2	189
Disability:																
Yes	66.3	62.9	69.6	1,436	27.5	24.6	30.6	626	20.0	16.7	23.7	396	18.9	16.4	21.7	414
No	22.0	20.2	24.0	1,159	16.0	14.5	17.6	899	5.4	4.3	6.7	215	0.7	0.4	1.0	45
Health Care Coverage:																
Yes	32.6	30.7	34.5	2,195	19.0	17.6	20.4	1,314	8.8	7.5	10.3	502	4.8	4.2	5.6	379
No	37.8	32.5	43.4	405	18.9	15.1	23.4	214	10.9	7.7	15.3	110	8.0	5.7	11.2	81

[†] Reported suffering from chronic pain for at least 3 months with an average pain intensity of 1 or more during the past 3 months.

[‡] Grade 1 - Reported suffering from chronic pain for 3 months to 1 year with recurrent pain as often as once/month or less and a pain intensity score of 1 to 3 and no activity limitation days.

[§] Grade 2 - Reported suffering from chronic pain for more than 1 year to 5 years, with persistent pain at least once/week to once/hour and a pain intensity score of 4 to 6 and activity limitations of 1 to less than 14 days per month.

[¶] Grade 3 - Reported suffering from chronic pain for more than 5 years, with constant pain and a pain intensity score of 7 to 10 and activity limitations of 14 or more days per month.

* American Indian or Alaska Native only

** All non-White (including multiracial) or Hispanic, including American Indian/Alaska Natives.

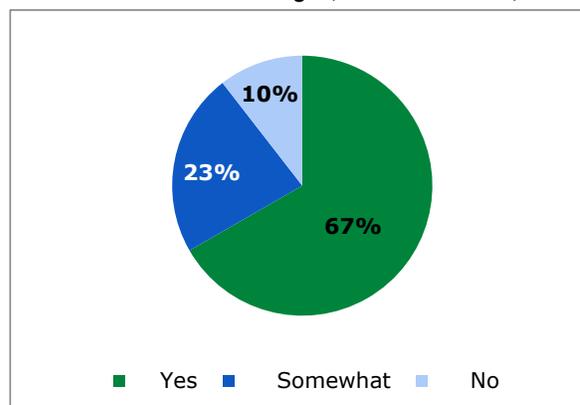
Table 3. Proportion of Adults with Chronic Pain by Presence or Absence of Related Health Indicator and Associated Odds Ratios, Montana BRFSS, 2010

	Wt%	95% CI	OR	(95% CI)
Health Risk Behaviors:				
Obese				
Yes	43.9	40.0-47.6	1.82	(1.51-2.18)
No	30.2	28.1-32.4		
Current Smoker				
Yes	48.6	43.3-53.8	2.22	(1.75-2.82)
No	30.2	28.3-32.1		
Chronic Health Conditions:				
Diabetes				
Yes	47.1	41.3-52.9	1.86	(1.45-2.39)
No	32.4	30.5-34.3		
Current Asthma				
Yes	52.5	46.0-58.9	2.38	(1.81-3.13)
No	31.7	29.8-33.7		
Heart Attack				
Yes	49.0	43.0-55.0	1.96	(1.52-2.53)
No	32.9	31.0-34.8		
Coronary Heart Disease				
Yes	52.6	46.5-58.7	2.29	(1.76-2.97)
No	32.7	30.8-34.6		
Stroke				
Yes	47.6	39.7-55.6	1.84	(1.32-2.56)
No	33.1	31.3-35.0		
Mental Health Indicators:				
Fair/Poor Genl. Health				
Yes	63.6	58.9-68.1	4.40	(3.52-5.49)
No	28.4	26.5-30.4		
Lack of Emotional Support				
Yes	44.9	38.4-51.5	1.67	(1.26-2.21)
No	32.8	30.9-34.7		
Dissatisfaction with Life				
Yes	62.3	54.2-69.8	3.50	(2.48-4.94)
No	32.1	30.2-34.0		
14+ Days/Mnth Poor MH				
Yes	60.8	54.7-66.6	3.54	(2.71-4.62)
No	30.5	28.7-32.4		
Considered Suicide				
Yes	57.1	47.6-66.0	2.78	(1.89-4.11)
No	32.3	30.5-34.2		

Correlates of Chronic Pain: Chronic pain was more prevalent among respondents who also reported chronic health conditions or poor mental health (Table 3). Chronic pain was also more prevalent among smokers and respondents who were obese, but not among heavy drinkers or binge drinkers.

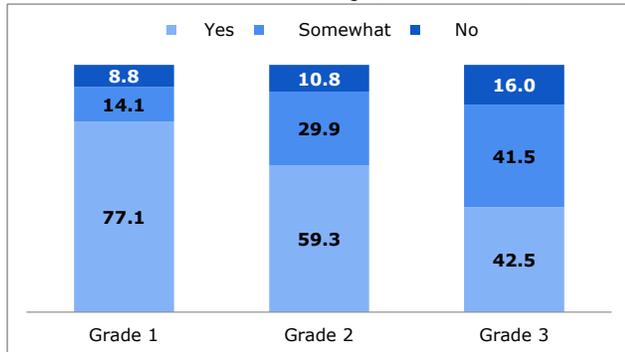
Pain Management: Two-thirds of respondents with chronic pain indicated their pain was well-managed (Figure 7). There was an inverse relationship between the grade of pain severity and the feeling that the respondent's pain was well-managed (Figure 8). For adults with mild pain (Grade 1), more than three-quarters reported that their pain was well

Figure 7. Proportion of Adults with Chronic Pain Whose Pain is Well-managed, Montana BRFSS, 2010



managed, but this percentage decreased significantly for moderate and severe pain grades. Almost twice as many adults with severe pain (Grade 3) than adults with mild pain (Grade 1) reported that their pain was not well-managed.

Figure 8. Proportion of each Chronic Pain Grade Who Indicated Whether or Not Their Pain was Well-managed, Montana BRFSS, 2010.



Discussion

This cross-sectional telephone survey found that one-third of Montana adults reported chronic pain. Twenty percent reported their pain to be mild, ten percent reported their pain to be moderate, and five percent reported their pain to be severe in terms of frequency, duration, intensity, and activity limitations. This translates to an estimated 40,000 adults with severe pain, each experiencing approximately 168 days per year of lost productivity.

Our findings are generally consistent with other surveys and suggest a considerable public health burden of chronic pain in Montana.¹⁹⁻²² Chronic pain affects one-third of the adult population, with at least three in every twenty adults indicating moderate to severe pain that limits their daily activities on one or more days a month. A consistent finding in the literature is the relation of poorer socioeconomic status indicators with chronic pain. Strong correlations have been observed between unemployment and disability, and the presence of chronic pain.²³⁻²⁵ Montanans with the most severe chronic pain were more likely to be uninsured, which may be a significant barrier to treatment and management of their pain. Chronic pain also was associated with poor health for all health conditions and mental health indicators studied. When treating individuals for chronic health conditions such as asthma, diabetes, cardiovascular diseases, or mental health conditions, healthcare providers should be aware that approximately half of the adults with these conditions reported also having chronic pain, and more than one in ten of them reported having severe and debilitating pain that may be inadequately controlled.

Suggested Citation: Oreskovich J. Chronic Pain among Montana Adults, BRFSS 2010. *Montana Fact[or]s*, No 2: 2012, DPHHS, Helena, MT.

Background: The Montana Behavioral Risk Factor Surveillance System (BRFSS) has been collecting and reporting state-specific, population-based estimates of health-related data since 1984. The purpose of this statewide telephone survey of Montana residents aged 18 and older is to gather information regarding personal health risk behaviors, selected medical conditions, and the prevalence of preventive health care practices among Montana adults. A full set

of Montana yearly questionnaires and health indicators can be found on the Department of Public Health and Human Services (DPHHS) BRFSS database query system website at www.brfss.mt.gov. The CDC website also provides national, state, and some local area prevalence estimates of health indicators, as well as access to downloadable datasets for further analyses at: www.cdc.gov/brfss.

Survey Limitations: The BRFSS relies on self-reported data. This type of survey has certain limitations: many times, respondents have the tendency to underreport some behaviors that may be considered socially unacceptable (e.g., smoking, heavy alcohol use); conversely, respondents may over report behaviors that are desirable (e.g., physical activity, nutrition). Cross-sectional design makes causal conclusions impossible. In addition, the sample sizes used to calculate the estimates in this report vary as respondents who indicated, “don’t know,” “not sure,” or “refused” were excluded from most of the calculation of prevalence estimates. BRFSS data collected through 2008 excludes households without landline telephones.

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Endnotes:

- Ludicello LJ. *Recommendations for improving pain and symptom management in Montana: a white paper of the Montana Pain and Symptom Management Task Force*, Missoula, MT: February 2008.
- European Federation of IASP Chapters. *Declaration on chronic pain as a major healthcare problem, a disease in its own right*. The European Parliament, Brussels, Belgium, October 9, 2001 at www.efic.org.
- Institute of Medicine. *Relieving pain in America: a blueprint for transforming prevention, care, education, and research*. Committee on Advancing Pain Research, Care, and Education. National Academies Press at: http://www.nap.edu/catalog.php?record_id=13172.
- Peter D. Hart Research Associates. *Americans talk about pain: a survey among adults nationwide conducted for Research America*. August 2003, at: www.reserachamerica.org/uploads/poll-2003pain.pdf.
- National Center for Health Statistics. Special feature: Pain introduction: prevalence and duration of pain among adults in the month prior to interview in health, in *Health, United States, 2006: Chart Book on Trends in Health in Americans*. Centers for Disease Control and Prevention, Hyattsville, MD: 2006.
- Pleis JR, Ward BW, Lucas JW. Summary health statistics for U.S. adults: National Health Interview Survey, 2009. National Center for Health Statistics. *Vital Health Stat* 10(249) 2010, at: www.cdc.gov/nchs/data/series/sr_10/sr10_249.pdf.
- Johannes CB, Kim Le T, Zhou X, et al. The prevalence of chronic pain in United States Adults: Results of an internet-based study. *Journal of Pain*, 11, 11, 2010:1230-1239.
- American Pain Foundation. *Pain Facts and Figures*. Jan 2007. Former American Pain Foundation website, www.painfoundation.org, accessed April 17, 2012.
- American Chronic Pain Association, Inc. *ACPA Resource Guide to Chronic Pain Medication & Treatment*. Rocklin, CA: 2012.
- For a description of the Montana BRFSS working group and explanation of how to add questions to the BRFSS see the Montana BRFSS website at: www.brfss.mt.gov.
- Salovey P, Seiber WJ, Smith AF, et al. Reporting chronic pain episodes on health surveys. National Center for Health Statistics. *Vital Health Stat* 6(6), 1992.
- Turk DC, Melzack R. *Handbook of Pain Assessment*. Guilford Press, November 2010.
- Von Korff M, Dworkin SF, Le Resche L. Graded chronic pain status: an epidemiologic evaluation. *Pain* 40:279-291, 1990.
- Purves AM, Penny KI, Munro C. et al. Defining chronic pain for epidemiological research: assessing a subjective definition. *Pain Clin*, 10, 3: 139-147, 1998.
- Croft P, Blyth FM, van der Windt D. *Chronic pain epidemiology: from etiology to public health*. NY: Oxford University Press, 2010.
- International Association for the Study of Pain, *Pain* 1986; Suppl.3:S1-S225, at: www.iasp-pain.org.
- Croft et al, 2010, see above.
- Oreskovich J. & Zimmerman H. *Montana Behavioral Risk Factor Surveillance System (BRFSS) 2010 Data Report*. Helena, MT: DPHHS, Public Health and Safety Division, November 2011.
- Johannes et al, 2010, see above.
- Portenoy RK, Ugarte C, Fuller I, Haas G. Population-based survey of pain in the United States: Differences among White, African American, and Hispanic subjects. *J. Pain* 5:317-328, 2004.
- Blyth FM, March LM, Brnabic AJM, Jorm LR, et al. Chronic pain in Australia: a prevalence study. *Pain* 89:127-134, 2001.
- Rustoen RK, Wahl AK, Hanestad BR, et al. Prevalence and characteristics of chronic pain in the general Norwegian population. *Eur J. Pain*, 8: 555-565, 2004.
- Smith BH, Elliott AM, Chambers WA et al. The impact of chronic pain in the community. *Family Practice* 18:292-299, 2001.
- Saastamoinen P, Leino-Arjas P, Laaksonen M, Lahelma E. Socio-economic differences in prevalence of acute, chronic and disabling chronic pain among aging employees. *Pain* 114:364-371, 2005.
- Elliott AM, Smith BH, Penny KI, Cairns-Smith W, Chambers WA. The epidemiology of chronic pain in the community. *Lancet* 354:1248-1252, 1999.