

Work related lost productivity and  
its economic impact in Canadian  
patients with moderate to severe  
psoriasis

# Thank you

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# Outline

- Background
- Methods
- Results
- Other studies

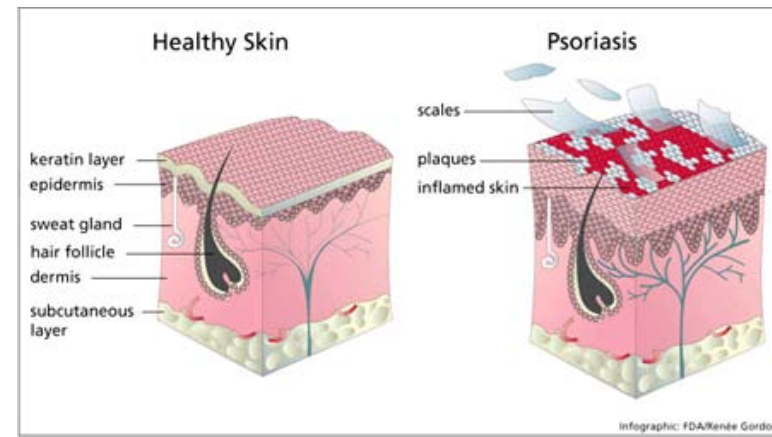
# Take home messages

- Psoriasis appears to have an impact on work productivity

# Background - Psoriasis

- “Most common autoimmune disease in the US”<sup>1</sup>
- itchy, scaly, red patches
  - chronic, autoimmune skin disease
- Affects 1 million Canadians, 80 million worldwide<sup>2</sup>

1. National Psoriasis Foundation, 2011
2. Canadian Dermatology Association, 2011



# Background – health care costs

- \$1.24 billion direct costs U.S.<sup>1</sup> (2004)
- \$114 million indirect costs U.S.<sup>1</sup> (2004)
  - \$50.8 million lost workdays
  - \$32.2 million restricted activity days
  - \$21.8 million lost caregiver work days
  - \$9.6 million loss future earnings

1. Bickers DR, et al. 2006

# Background – lost productivity

- Substantial in psoriasis – age of onset
- Mean age of onset = 33 years<sup>1</sup>
- Decline after age 70<sup>1</sup>
- 16-46 years of age<sup>2-5</sup>
- 16-22 and 57-60 years of age<sup>6</sup>

1. Green L., 2011
2. Farber EM et al. 1974
3. Yip SY et al 1984
4. Farber EM et al., 1985
5. Nevitt GJ et al., 1996
6. Henseler T et al. 1985

# Rationale

- Lost productivity likely to be substantial burden
- Lack of Canadian data on the economic burden of lost productivity in psoriasis



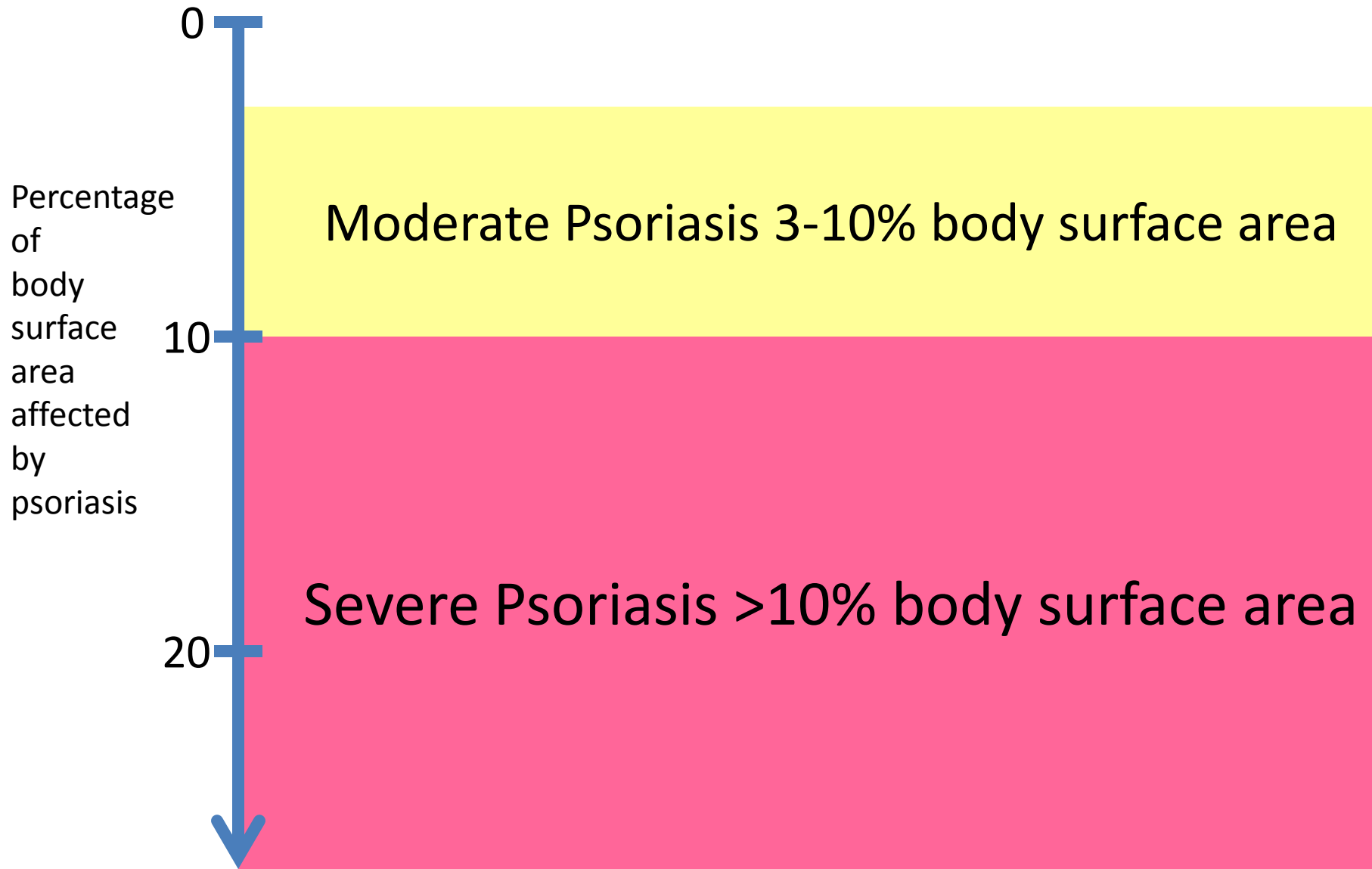
# Objective

- To determine the lost productivity and its economic impact in Canadian patients being treated for moderate to severe psoriasis

# Methods

- 4 Canadian dermatology clinics (academic centres and community offices)
- Inclusion: diagnosis of moderate to severe psoriasis, 19 years of age or older, undergoing treatment for psoriasis (biologic, phototherapy, systemic or topical)

# Methods



# Methods

- Recruitment of consecutive patients – Sept 21<sup>st</sup> to Nov 8<sup>th</sup> 2005
- Measurement = Work Productivity and Activity Impairment Questionnaire (WPAI)

# Methods

- WPAI
  - Used extensively in prior studies
  - Easy to administer and complete
  - Simple to analyze

**Work Productivity and Activity Impairment Questionnaire:  
Specific Health Problem V2.0 (WPAI:SHP)**

The following questions ask about the effect of your PROBLEM on your ability to work and perform regular activities. *Please fill in the blanks or circle a number, as indicated.*

1. Are you currently employed (working for pay)? \_\_\_\_\_ NO \_\_\_\_ YES  
*If NO, check "NO" and skip to question 6.*

The next questions are about the **past seven days**, not including today.

2. During the past seven days, how many hours did you miss from work because of problems associated with your PROBLEM? *Include hours you missed on sick days, times you went in late, left early, etc., because of your PROBLEM. Do not include time you missed to participate in this study.*

\_\_\_\_\_ HOURS

3. During the past seven days, how many hours did you miss from work because of any other reason, such as vacation, holidays, time off to participate in this study?

\_\_\_\_\_ HOURS

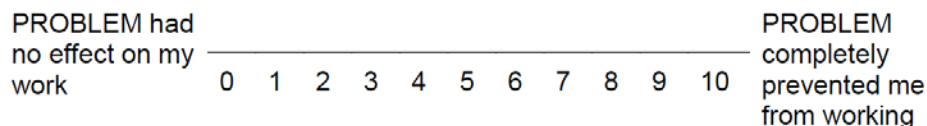
4. During the past seven days, how many hours did you actually work?

\_\_\_\_\_ HOURS *(If "0", skip to question 6.)*

5. During the past seven days, how much did your **PROBLEM** affect your productivity while you were working?

*Think about days you were limited in the amount or kind of work you could do, days you accomplished less than you would like, or days you could not do your work as carefully as usual. If **PROBLEM** affected your work only a little, choose a low number. Choose a high number if **PROBLEM** affected your work a great deal.*

Consider only how much **PROBLEM** affected productivity while you were working.

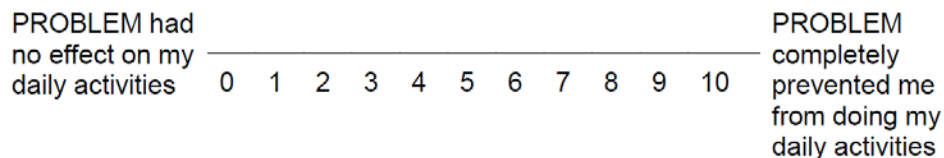


CIRCLE A NUMBER

6. During the past seven days, how much did your **PROBLEM** affect your ability to do your regular daily activities, other than work at a job?

*By regular activities, we mean the usual activities you do, such as work around the house, shopping, childcare, exercising, studying, etc. Think about times you were limited in the amount or kind of activities you could do and times you accomplished less than you would like. If **PROBLEM** affected your activities only a little, choose a low number. Choose a high number if **PROBLEM** affected your activities a great deal.*

Consider only how much **PROBLEM** affected your ability to do your regular daily activities, other than work at a job.



CIRCLE A NUMBER

# Methods

- Analysis exclusion: Reported retirees, unemployed, 0 hours worked in last week, or did not complete questionnaire completely.
- Lost productivity = absenteeism




# Methods

$$\text{overall economic burden} = \text{total absenteeism} \times \text{average wage} \times \text{estimated psoriasis population}$$

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study results (WPAI)



# Methods

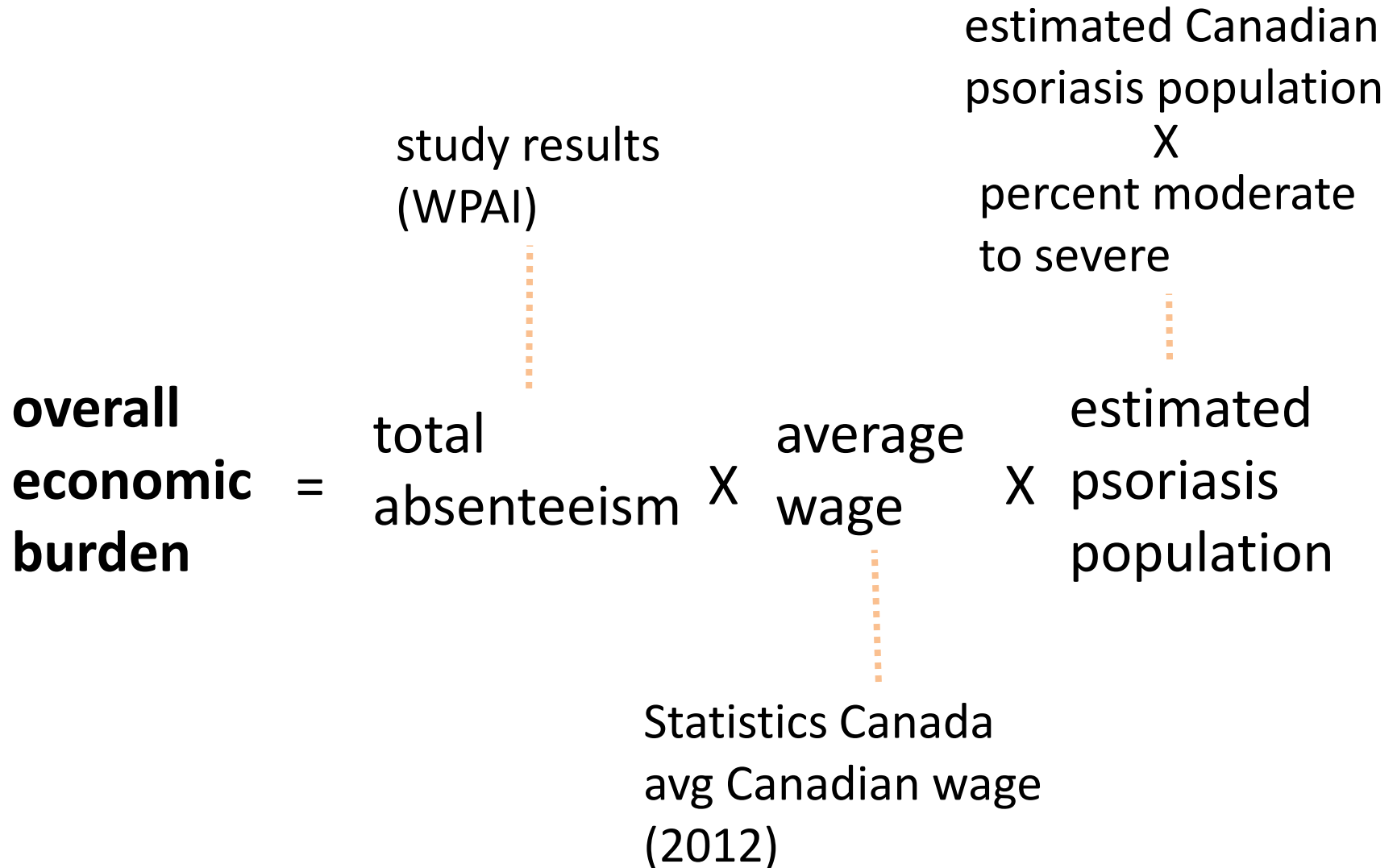
$$\text{overall economic burden} = \text{total absenteeism} \times \text{average wage} \times \text{estimated psoriasis population}$$

study results (WPAI)

Statistics Canada  
avg Canadian wage (2012)

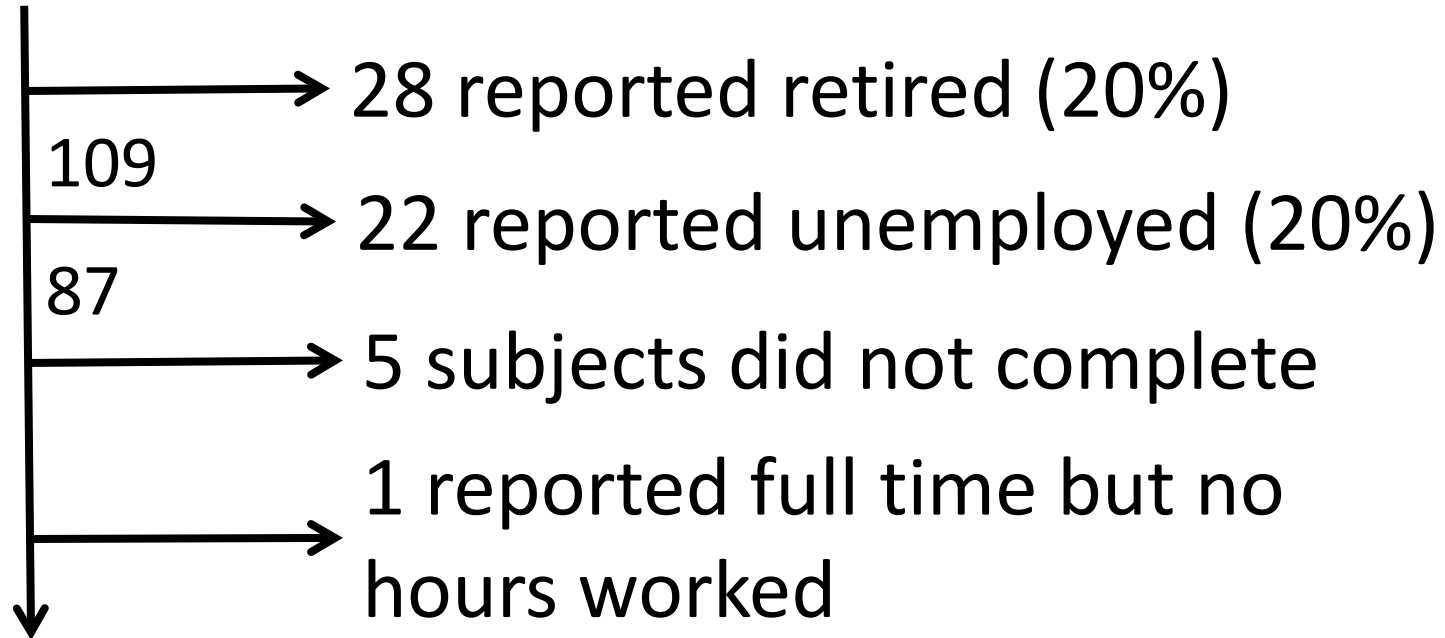
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graph TD; A[study results (WPAI)] -.-> B[total absenteeism]; C[Statistics Canada avg Canadian wage (2012)] -.-> D[average wage]; B --> E[overall economic burden = B x D x F]; D --> E; F[estimated psoriasis population] --> E;
```

# Methods



# Results

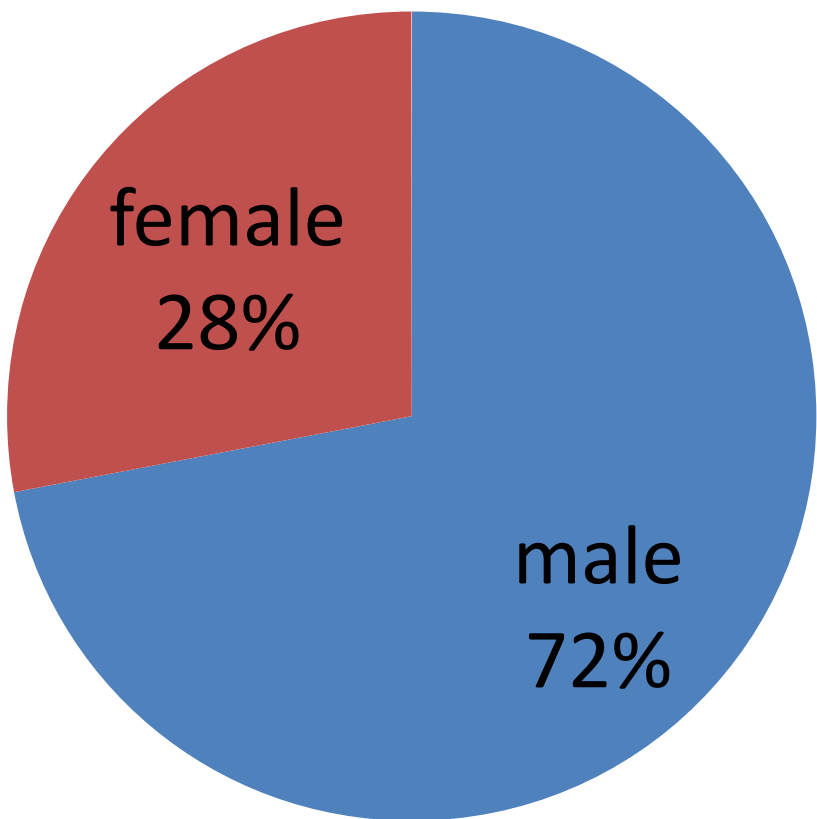
137 subjects included



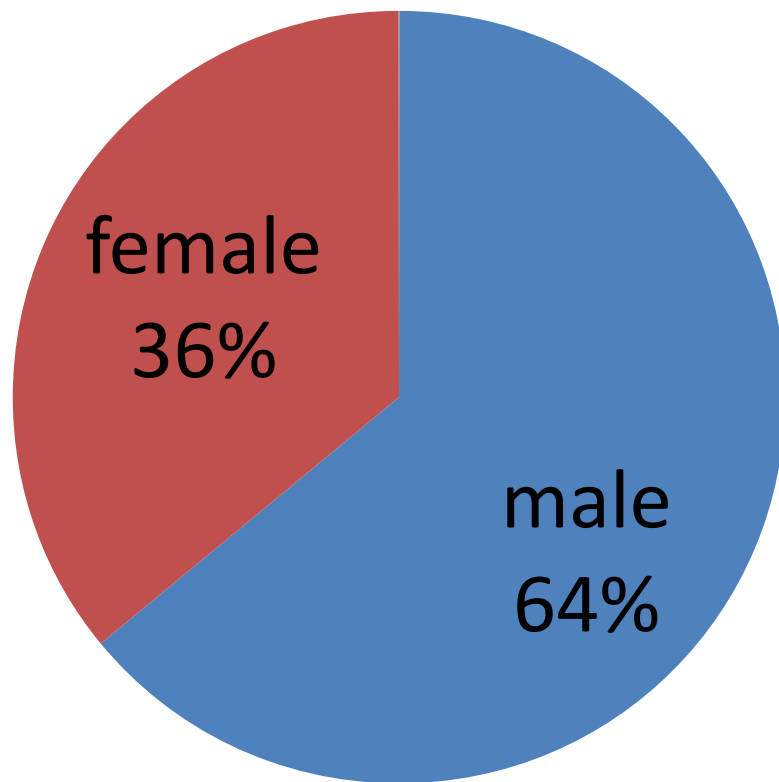
81 subjects included

# Results

## Currently employed

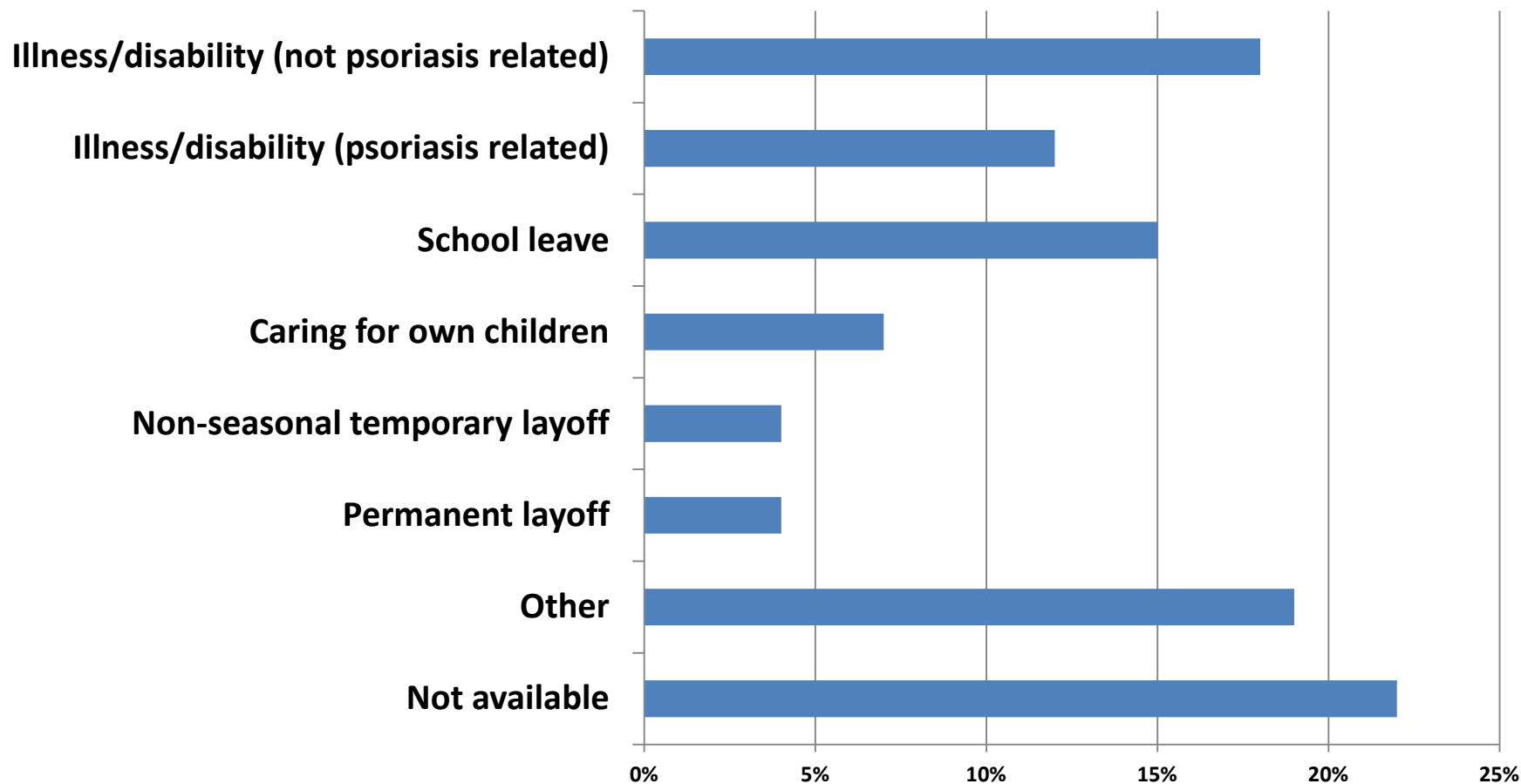


## Currently unemployed

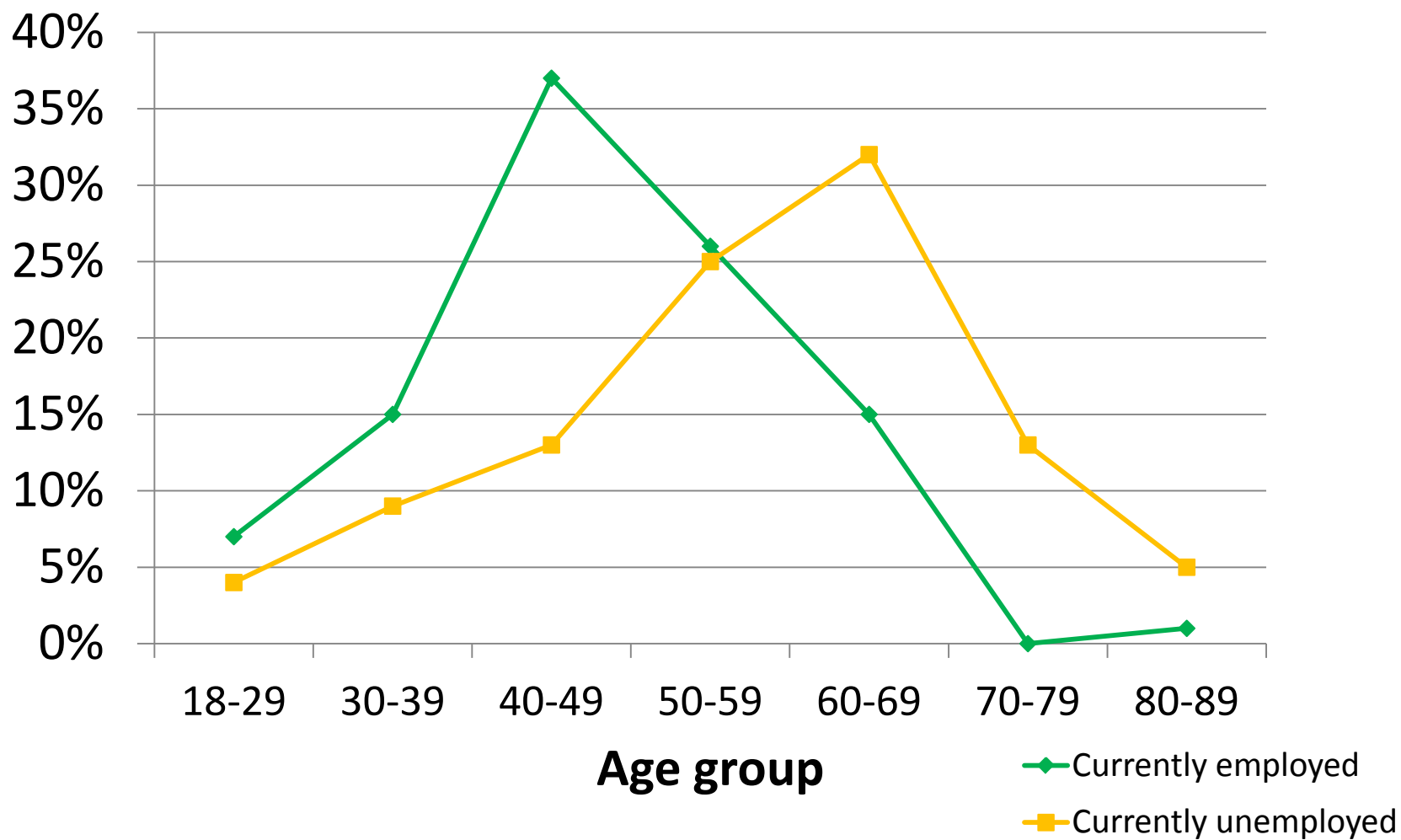


# Results

## Reason for unemployment



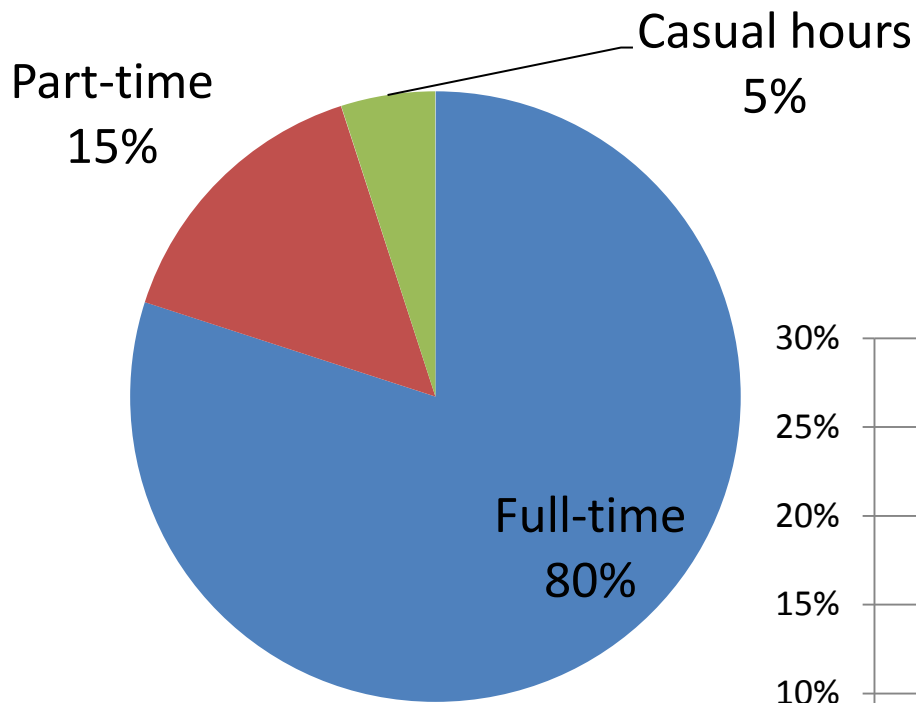
# Results



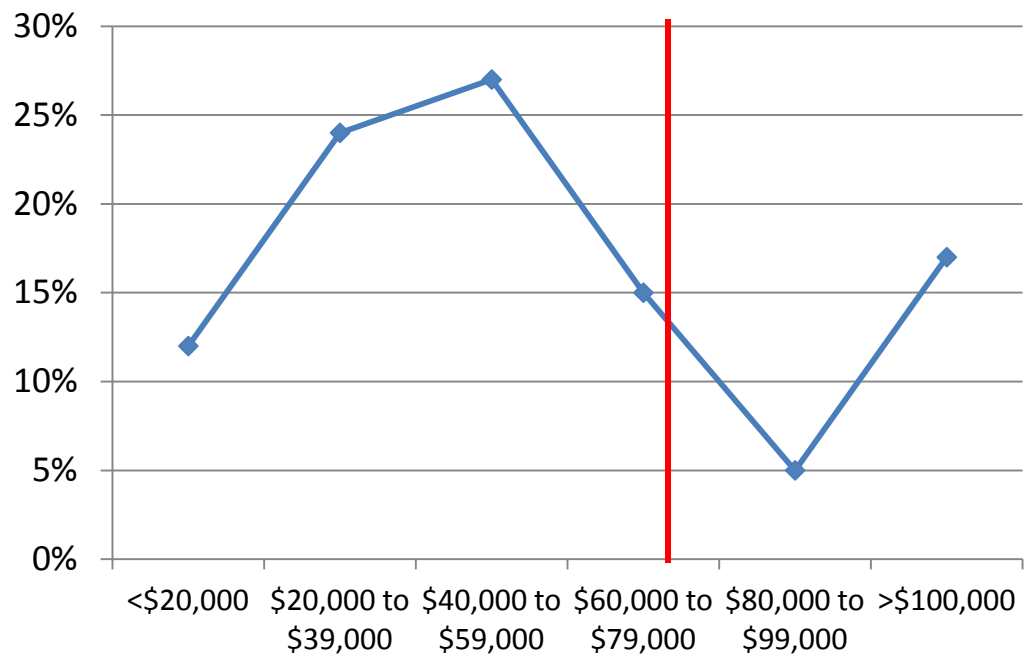


# Results

## Work status

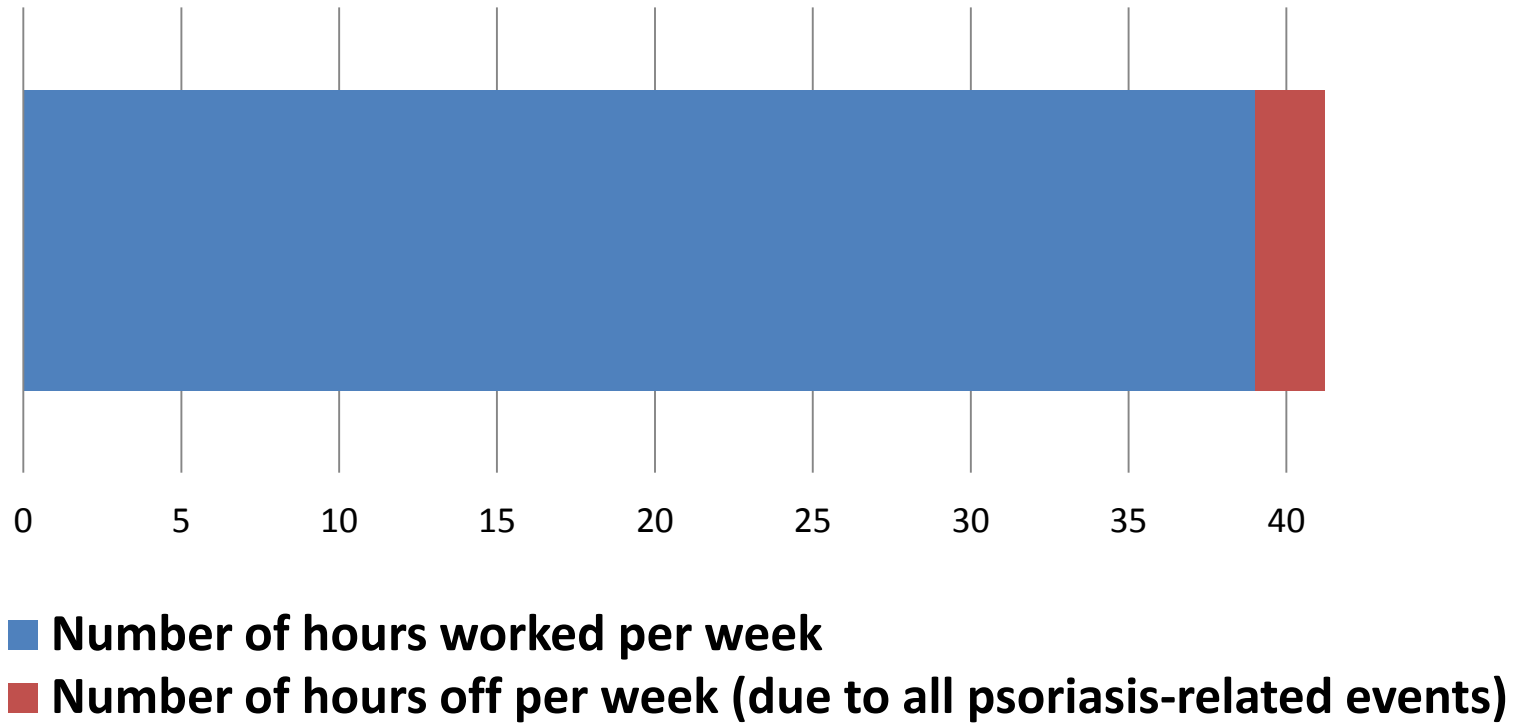


## Household income



# Results

## Psoriasis impact on work productivity



# Results

5.1% ( $\pm 12.5\%$ ) Average % of work time missed due to psoriasis

16.5% ( $\pm 2.4\%$ ) Average % impairment while working due to psoriasis

19.4% ( $\pm 26.0\%$ ) Average % overall work impairment due to psoriasis

# Results

\$23.65

Average hourly wage for  
individual aged 15+ March 2012

# Results

\$23.65

Average hourly wage for  
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\$2,700

Estimate of lost wages per  
year due to absenteeism

# Results

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Average hourly wage for individual aged 15+ March 2012

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Estimate of lost wages per year due to absenteeism

330,000

Canadians with moderate to severe psoriasis

# Results

\$23.65

Average hourly wage for individual aged 15+ March 2012

\$2,700

Estimate of lost wages per year due to absenteeism

330,000

Canadians with moderate to severe psoriasis

**\$890 million**

Estimated lost wages in Canada per year

# Other studies

	% work time missed	% impairment while working	% overall impairment
Our study	5.1%	16.5%	19.4%
Pearce DJ 2006		23.9%/15%	25%/12.1%
Meyer N 2010	10.7%		
Schmitt JM 2006	6.6%		



# Other studies

- Sohn 2006 - 14.1 days of sick leave/year
- Schmitt 2006 - Estimated total loss in US \$16 billion
- Bala 2009 - missed hours of work (1.37 OR, 1.00-1.89), productivity impairment at work (1.66 OR, 1.28-2.18), overall work impairment (1.62 OR 1.25-2.11)

# Other diseases

Disease	Absenteeism %	Presenteeism %	Overall work impairment	Author / year
<b>Psoriasis</b>	<b>5.1% (12.5%)</b>	<b>16.5% (2.4%)</b>	<b>19.4 (26.0%)</b>	
Ankylosing Spondylitis	9.0% (21.4%)	41.7% (25.3%)	43.9% (27.5%)	Reilly 2010
Asthma	10.4% (23.59%)	32.5% (26.99%)	48.8% (29.2%)	Demoly 2012
Rheumatoid Arthritis	8.7% (25.2%)	24.0% (22.7%)	33.3% (27.6%)	Bansback 2012
Diabetes	3.49% (1.18%)	13.52 (1.07%)	13.75 (1.07%)	DiBonaventura 2011

# Limitations

- WPAI and recall bias
- Accuracy of sensitive questions
- Limited to BC and Ontario
- Paid and unpaid time off unknown

# Future directions

- Link between psoriasis-lost productivity-quality of life
- Detailed investigation of income loss
- Comparison with other diseases

