

Higher Psoriasis Skin Clearance Is Associated with Lower Annual Indirect Costs in the United States

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BACKGROUND

- Psoriasis is a chronic, immune-mediated skin disease that affects approximately 2% to 3% of the population in the United States (US).^{1,2}
- The economic burden of psoriasis in the US was estimated to be \$35.2 billion in 2013, with the costs of productivity loss accounting for 32% of this burden.³
- The Psoriasis Area Severity Index (PASI) score is a weighted measurement of the average redness, thickness, and scalliness of psoriasis lesions that is used to assess the severity of the disease. PASI 75 response, representing at least a 75% improvement in PASI score from baseline, is recognized as a clinically meaningful endpoint in clinical trials for the treatment of psoriasis, and PASI 90, at least 90% improvement, has recently been used in the development of many psoriasis treatments.⁴
- Among US patients with moderate-to-severe plaque psoriasis, there are limited data on indirect costs due to loss of work productivity (missed work time and impairment while working) by measures of treatment effect (e.g., change in PASI).
- New psoriasis treatments offer the potential for clearing psoriasis more completely than was possible with previous treatments. Whether higher degrees of clearing can translate into economic benefit, particularly in decreasing the costs of productivity loss, has not been fully determined.

OBJECTIVE

- The purpose of this study was to assess whether more complete clearing of psoriasis, quantified by higher PASI improvement, is associated with reduction in indirect costs of the disease.

METHODS

- Pooled secukinumab and ustekinumab data from the CLEAR trial, a phase 3b study comparing the efficacy and safety of secukinumab versus ustekinumab, were used for this study.⁵
 - The analyses presented here were limited to patients who reported employment.
- Psoriasis severity data and work impairment (absenteeism and presenteeism) were analyzed.
- Data were stratified by four levels of PASI score change from baseline to 16 weeks and from baseline to 52 weeks:
 - Less than 50% improvement (PASI < 50)
 - 50%-74% improvement (PASI 50-74)
 - 75%-89% improvement (PASI 75-89)
 - At least 90% improvement (PASI ≥ 90)
- The Work Productivity and Activity Impairment Questionnaire (WPAI) is a quantitative measure of health-related work productivity loss, with a 1-week recall period, that assesses work time missed (absenteeism), reduced on-the-job effectiveness (presenteeism), and daily activity impairment.⁶
 - Absenteeism and presenteeism captured by the WPAI at Week 16 and at Week 52 for all employed CLEAR trial patients were used to estimate the percentage of overall work impairment due to psoriasis over the previous 7 days.
- Employment parameter inputs, including most recent national averages for full-time and part-time employment,⁷ hours worked per week,⁸ and hourly wages,⁹ were obtained from the US Department of Labor and adjusted⁹ to 2016 costs.
- Productivity loss (average work hours lost per week by absenteeism and presenteeism) was calculated as the average part- and full-time work hours per week times the percentage of work impairment.
- Indirect costs were calculated by multiplying the weekly productivity loss by the average part- and full-time hourly wage data. These weekly costs were then annualized.

Employment and Cost Parameters

Parameter	Value
US population part-time status, work hours and hourly wages	
Percentage of part-time employment ⁷	18.4%
Average work hours per week ⁸	
Full-time	39.5
Part-time	20.7
Average hourly wage ⁹	
Full-time	\$25.33
Part-time	\$13.50

US = United States.

⁷United States Bureau of Labor Statistics. Table 8. Employed and unemployed full- and part-time workers by age, sex, race, and Hispanic or Latino ethnicity. 2015.

⁸United States Bureau of Labor Statistics. Table 1 Summary: Mean hourly earnings and weekly hours for selected worker and establishment characteristics. 2011.

⁹United States Bureau of Labor Statistics. Employment cost index. 2016.

RESULTS

- A total of 676 patients were assigned to treatment (secukinumab = 337, ustekinumab = 339). At baseline, 452 (67%) patients reported current employment.⁵ Among these, the mean age was 43 years, and the majority of the patients were male (74%), and overweight, with a mean body mass index (BMI) of 28.7.¹⁰ Seventeen percent suffered also from psoriatic arthritis.¹⁰
- Work impairment due to psoriasis decreased with greater skin clearance at Weeks 16 and 52: 22.8% and 26.3% for PASI < 50, 13.3% and 16.4% for PASI 50-74, 6.4% and 10.4% for PASI 75-89, and 4.9% and 6.9% for PASI ≥ 90, respectively, with the majority of impairment being related to presenteeism rather than absenteeism.
- The number of hours lost due to work impairment also decreased with greater skin clearance at Weeks 16 and 52: 8.2 and 9.5 hours lost/week (427 and 493 hours/year) for patients with PASI < 50, 4.8 and 5.9 hours/week (250 and 307 hours/year) for PASI 50-74, 2.3 and 3.7 hours/week (120 and 195 hours/year) for PASI 75-89, and 1.8 and 2.5 hours/week (93 and 130 hours/year) for PASI ≥ 90, respectively.
- Estimation of the annual indirect costs due to work productivity loss per worker showed that higher skin clearance resulted in lower costs at both time points (Weeks 16 and 52): \$10,318 and \$11,906 for PASI < 50, \$6,042 and \$7,405 for PASI 50-74, \$2,901 and \$4,697 for PASI 75-89, and \$2,233 and \$3,125 for PASI ≥ 90, respectively.

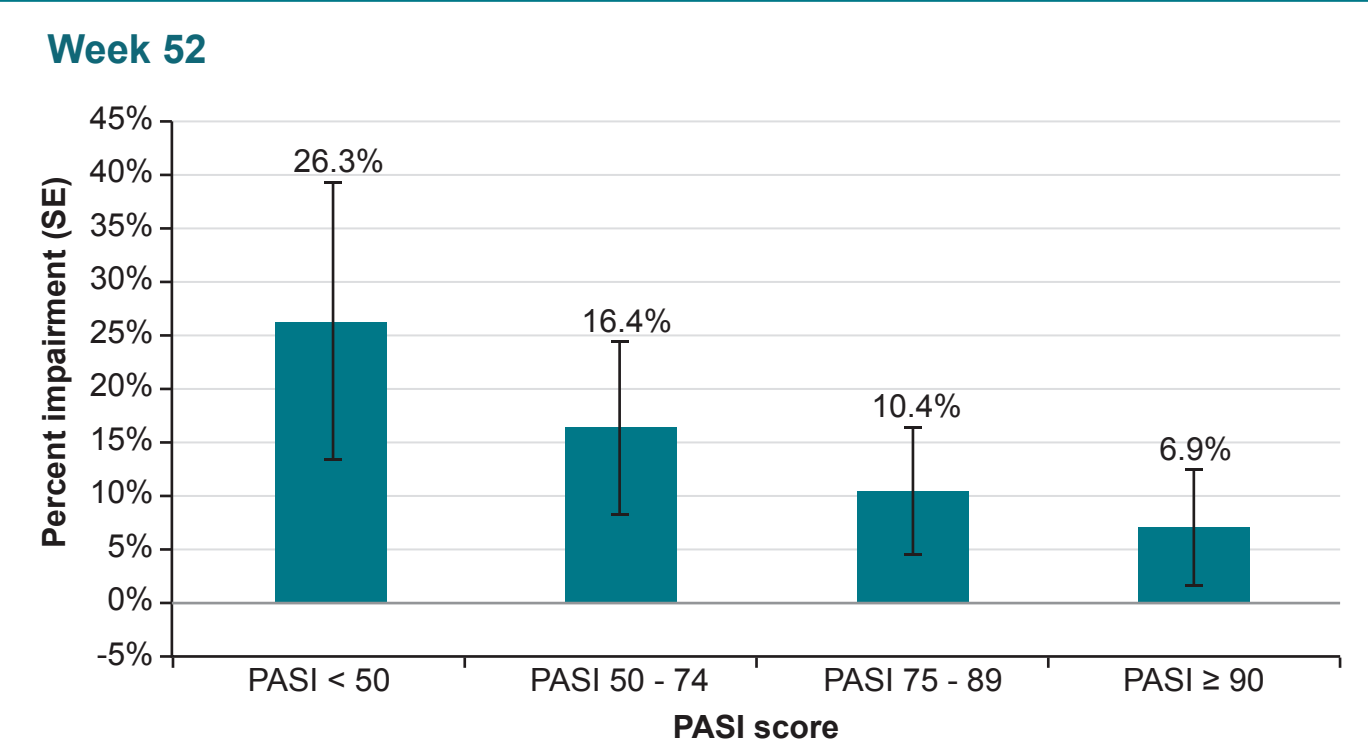
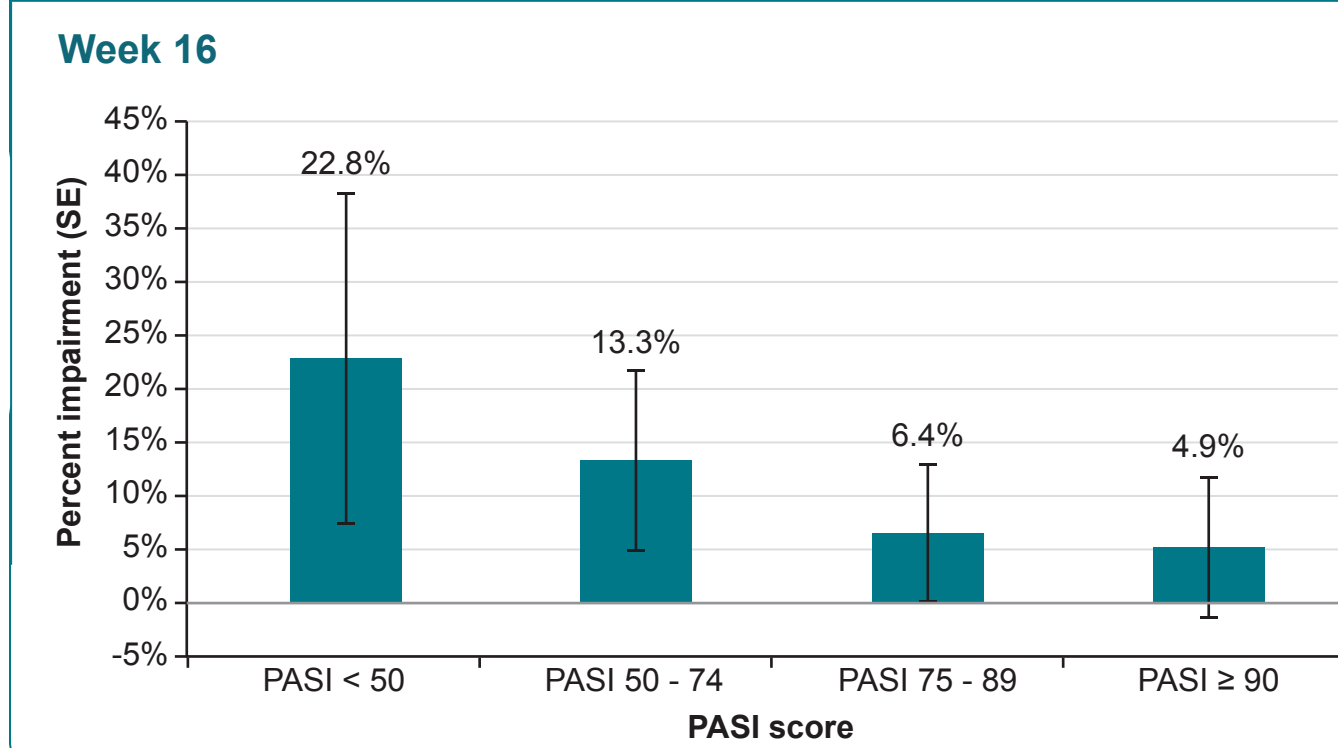
LIMITATIONS

- Wages for the general population were assumed to be similar to wages for the psoriasis population.
- The percentage of patients with psoriasis who were employed was obtained from the WPAI questionnaire in the CLEAR trial and may not be representative of real-world employment percentages in the entire psoriasis population.
- Overall work impairment may be underestimated, as this does not include work impairment due to other medical reasons, and is not adjusted for baseline characteristics.

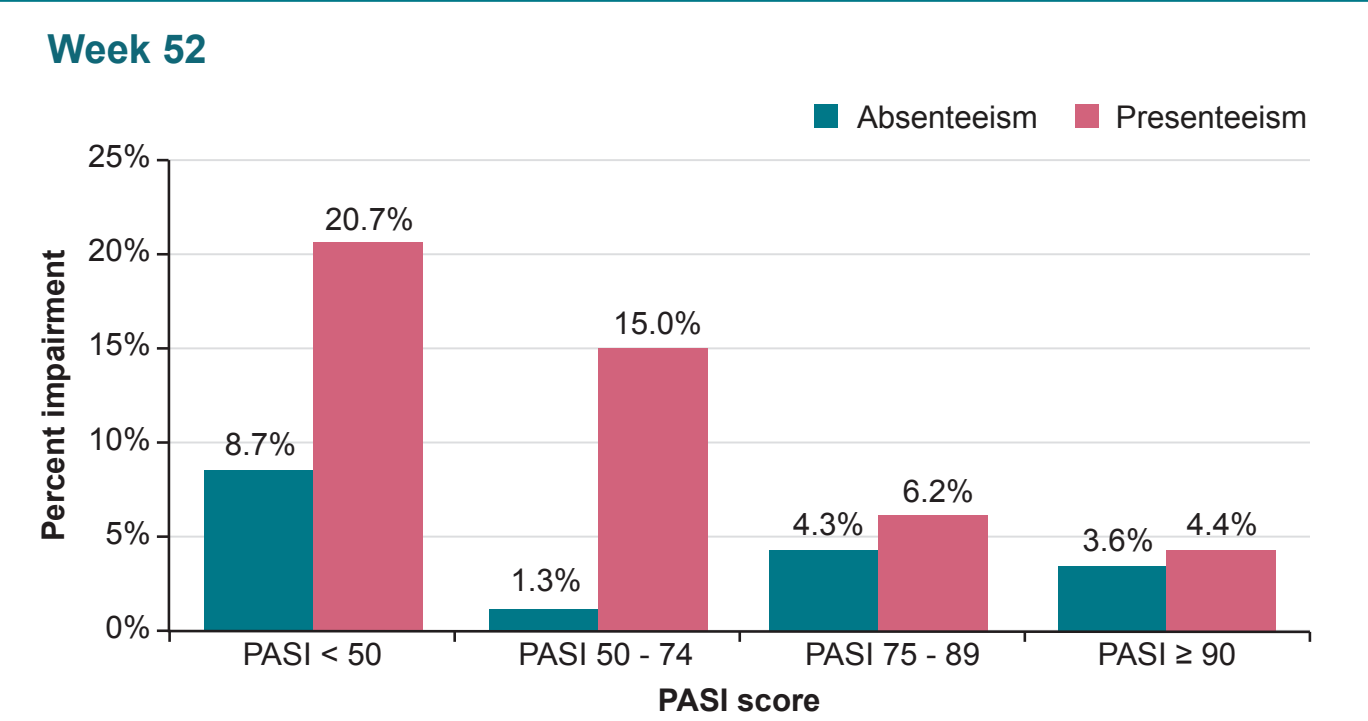
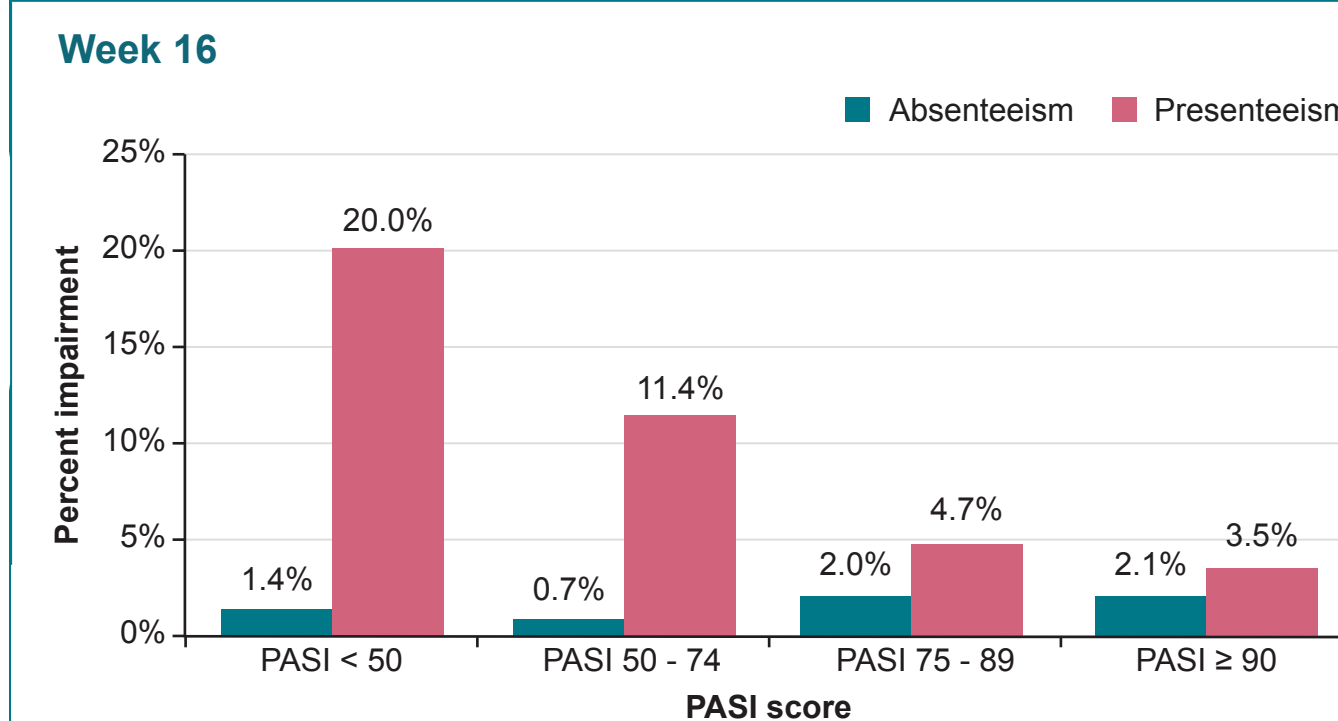
CONCLUSIONS

- Among working patients with moderate to severe psoriasis, greater skin clearance as measured by higher PASI improvement was associated with less workplace productivity loss and a decrease in annual indirect costs. These results indicate that improving skin clearance may contribute to an improvement in work productivity and a reduction of indirect costs.

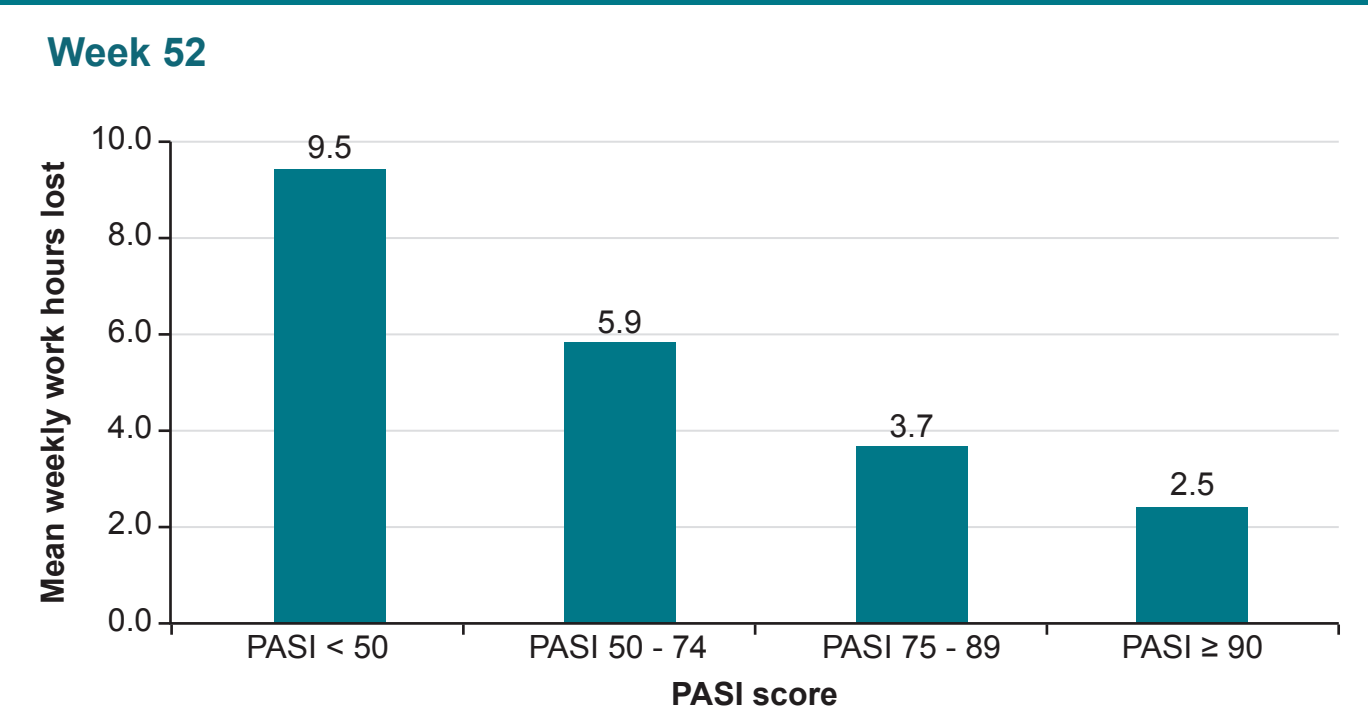
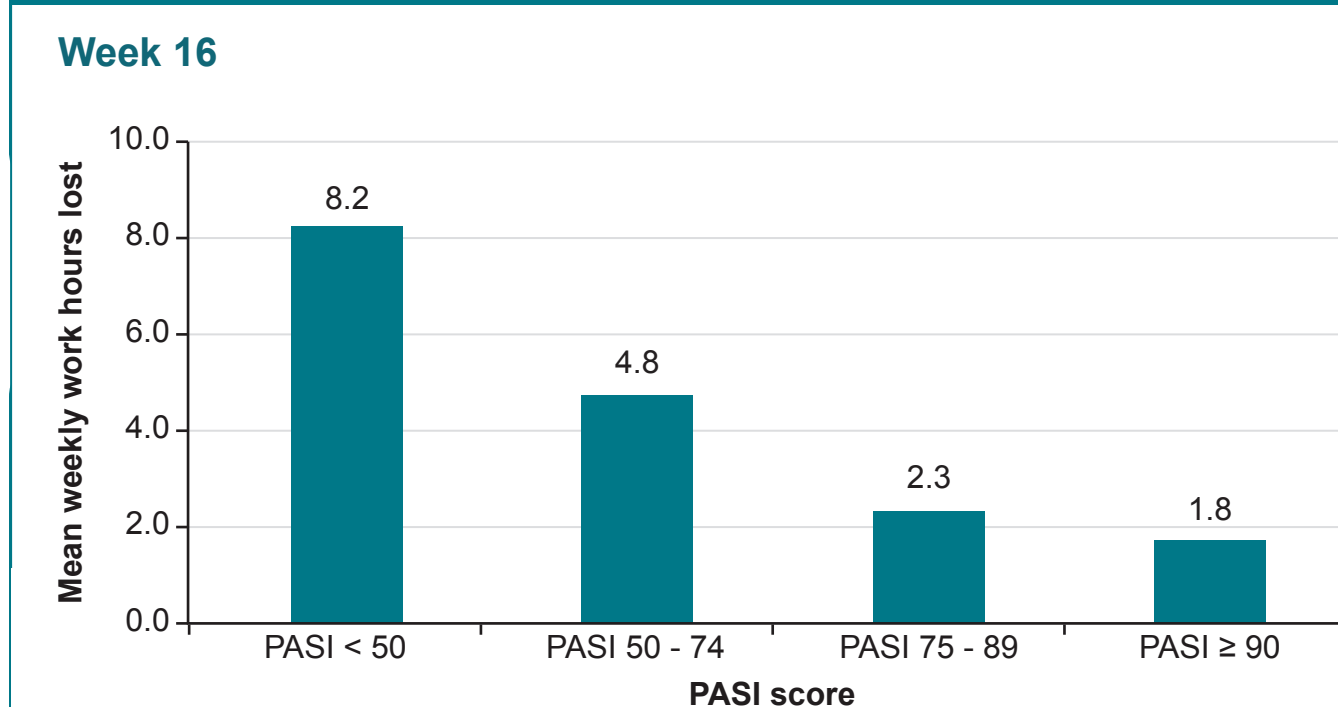
Overall Work Impairment



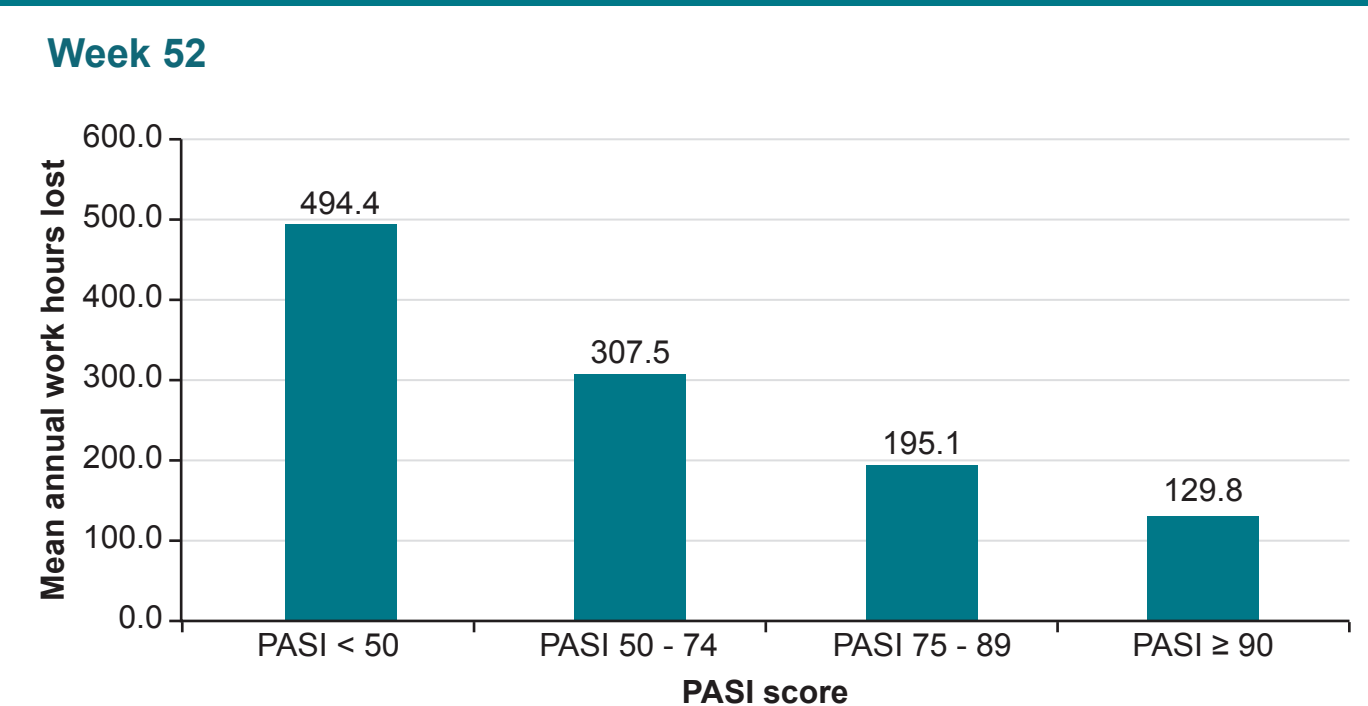
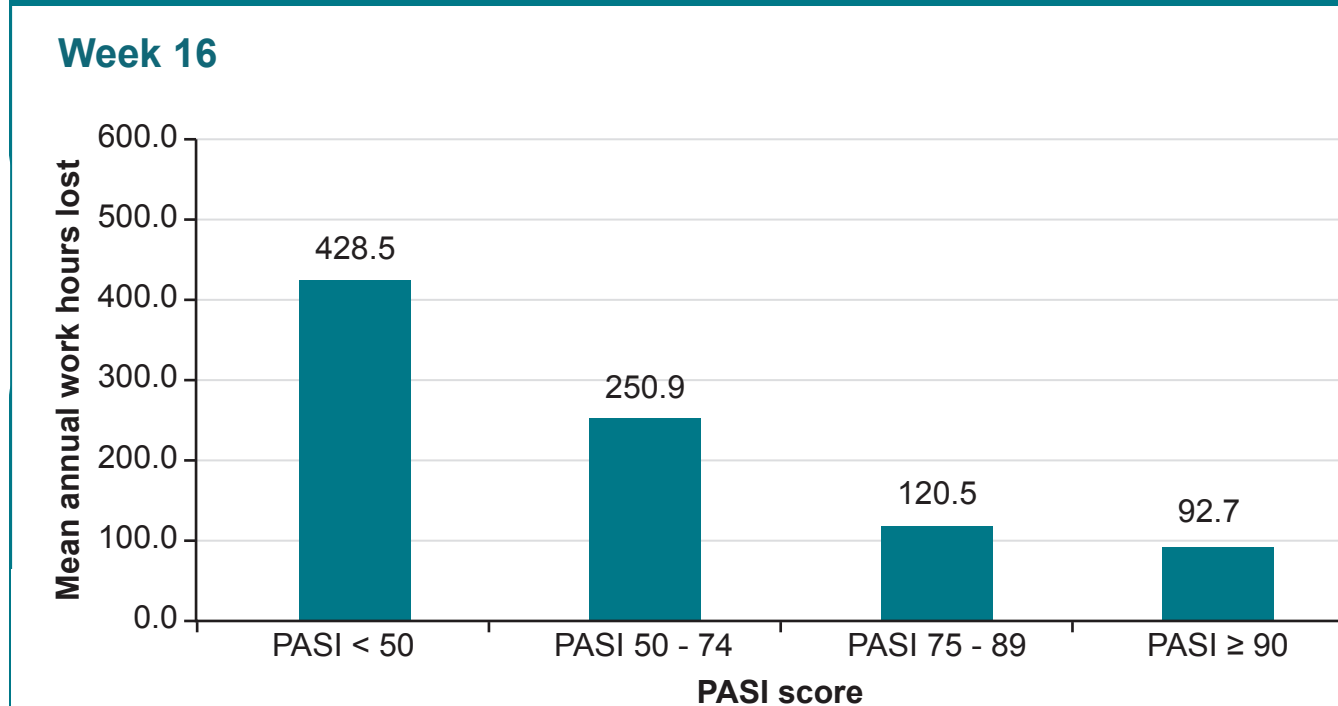
Absenteeism and Presenteeism



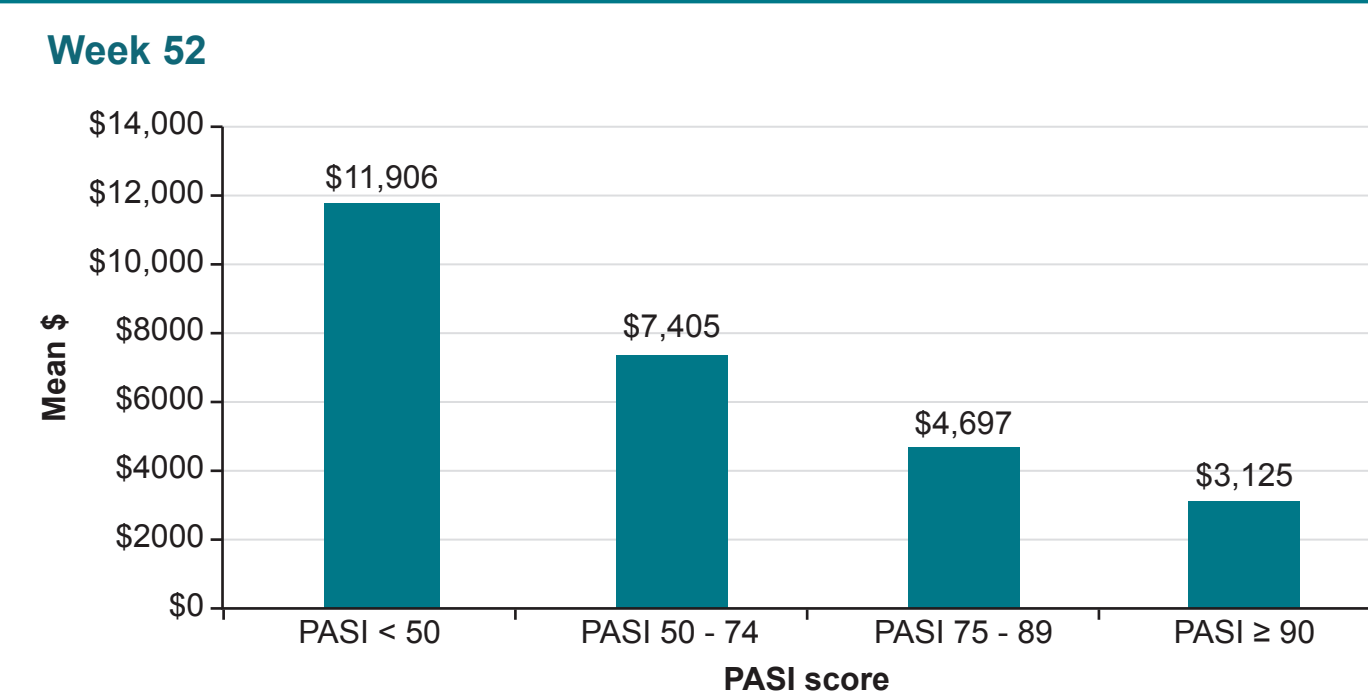
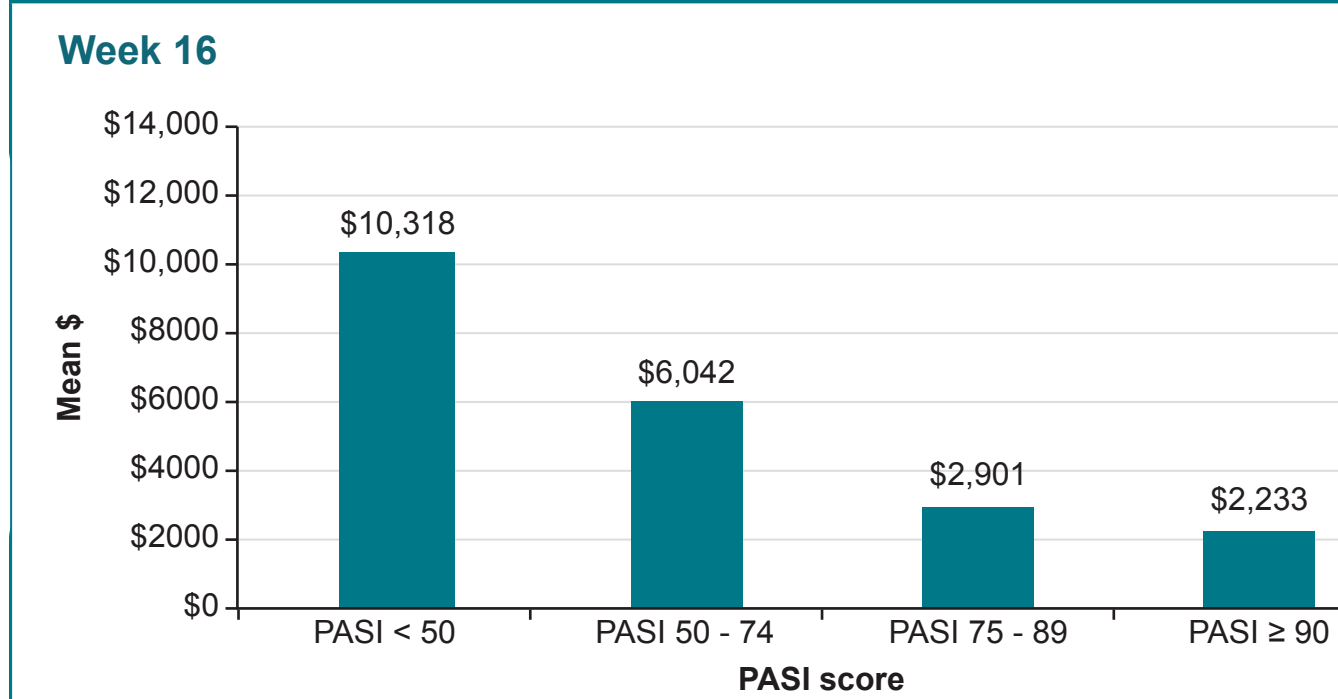
Weekly Work Hours Lost



Annual Work Hours Lost



Annualized Indirect Costs



PASI = Psoriasis Area Severity Index; SE = standard error.
Data source: employed patients in the CLEAR study. PASI < 50: n = 18; PASI 50-74: n = 29; PASI 75-89: n = 89; PASI ≥ 90: n = 168.

PASI = Psoriasis Area Severity Index; SE = standard error.
Data source: employed patients in the CLEAR study. PASI < 50: n = 14; PASI 50-74: n = 30; PASI 75-89: n = 92; PASI ≥ 90: n = 206.

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