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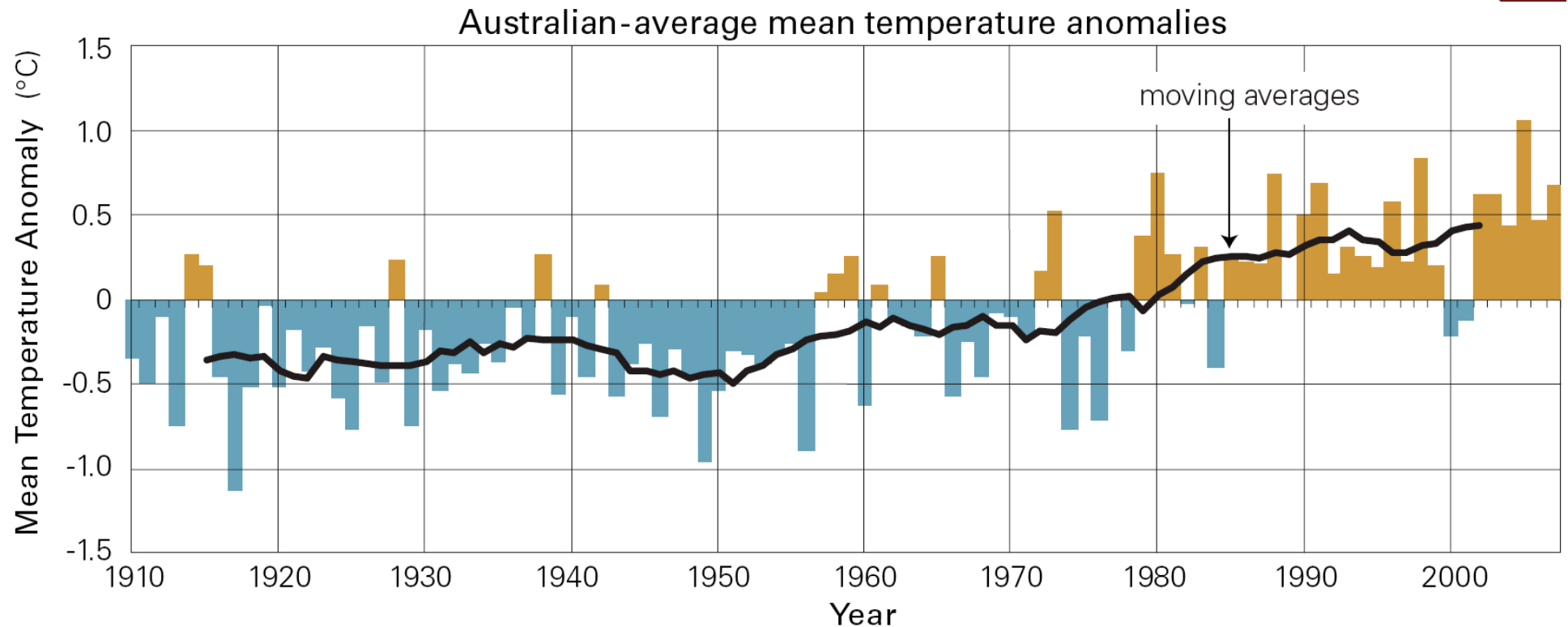
The Impact of Drought on Mental Health and Alcohol Use

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Australian Social Policy Conference
An Inclusive Society? Practicalities and Possibilities
Sydney 10 July 2009

Increase in mean temperatures



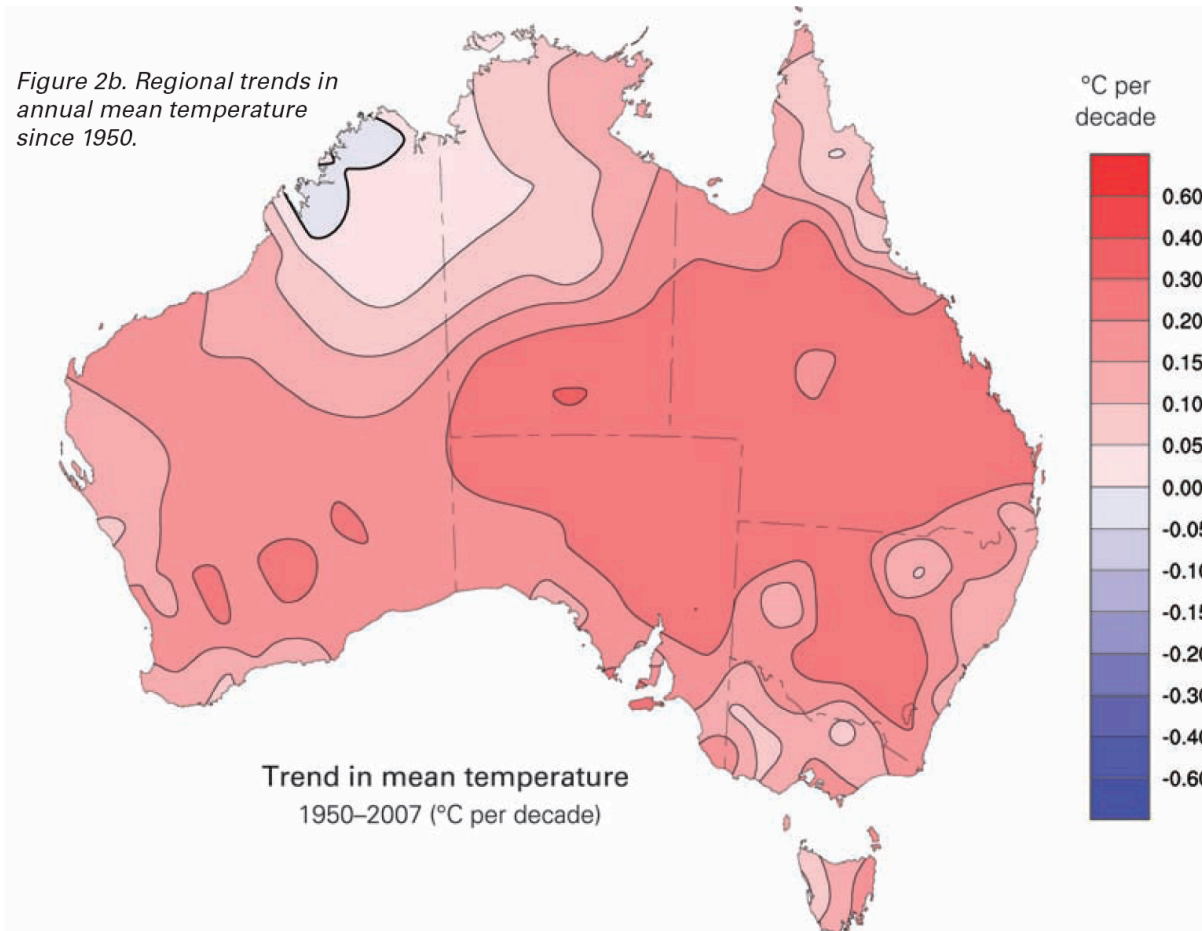
Source: CSIRO, BOM 2008



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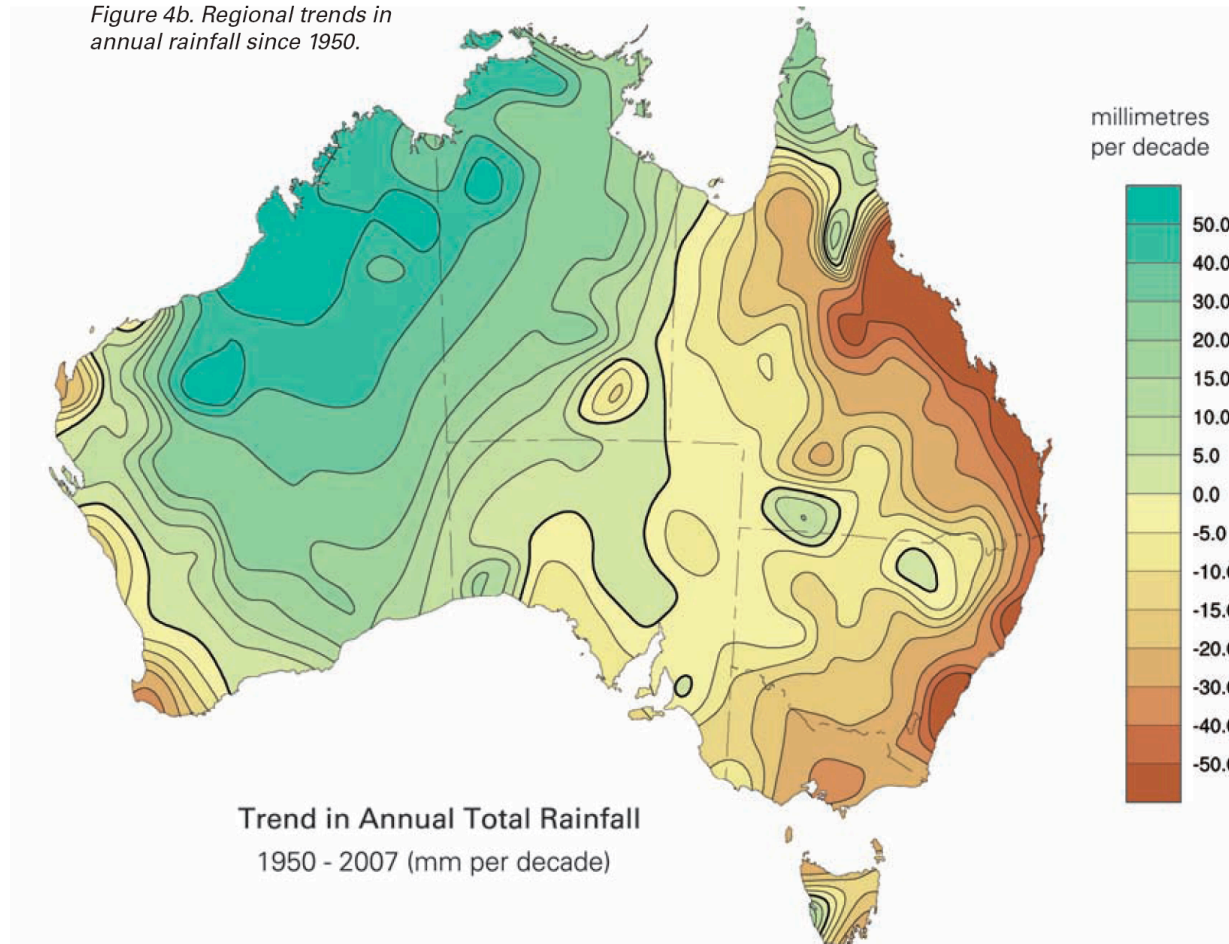
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Temperature increase has been in the central and east of Australia



Most of east & south west Australia has become drier

Figure 4b. Regional trends in annual rainfall since 1950.



Drought and families: what do we know?

No large-scale studies in Australia or internationally

In Australia, focus on in-depth studies of particular communities:

- Drought in the 1990's- 103 adults in NSW & QLD (Stehlik, Gray & Lawrence, 1999)
- Social impacts of drought -3 NSW communities, 62 interviews (Alston & Kent, 2004)
- Children & drought - 334 children in a NSW community (Dean & Stain, 2007)



What is drought?



Increasing
Impact
On
Farming

1. Meteorological –degree & duration of dryness compared to an average for the area
2. Hydrological –on water supply (stream flow, reservoir/lake water levels & ground water levels)
3. Agricultural -1 & 2 with agricultural impacts, soil moisture deficits
4. Social definitions -drought based on personal experience of the above

Many indices, no agreed measure, Bureau of Rural Sciences define drought as a 1 in 20 year event



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AIFS study design

8,000 RDD interviews stratified by rainfall in the postcode in the last 3 years compared to the last 100 in September to December 2007

BOM rainfall data with four equal groups:

- Severe drought (0-5%)
- Moderate drought (6-10%)
- Below average rainfall (11-49%)
- Above average rainfall (50-100%)



AIFS study design

Selected SLAs had at least 10% of population employed in agriculture or a related service industry (ABS Census, 2001)

Two quotas:

- At least 30% households with one person currently employed in agriculture or a service related industry or has been in the last 3 years (45% respondents)
- No more than 55% of respondents female were to be interviewed (53%)
 - ◆ Females tend to be more likely to agree to participate in CATI



Operational definitions

Percentiles for the last 3 years to last 100 years for:

- Meteorological –rainfall
 - ◆ Bureau of Meterology -BOM

- Social definition -perception of drought



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Social definition of drought

- Currently in drought -60%
- Drought in the last year but not currently -13%
- Drought in the last 3 years but not in the last year and not currently -5%
- Not in drought in the last 3 years -22%

Four mutually exclusive categories created

Agreement within postcodes is remarkably high, ICC = .57



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Interview

- Drought perceptions, other natural disasters
- Demographics
- Mobility –household members, respondent
- Employment
- Income and financial hardship
- Farming issues
- Health –physical, mental health, medication use for stress, alcohol use
- Relationships –couple, separations, whole family functioning
- Community –social cohesion, decline in key services, member of organisation(s)



Mental health and medication for stress

- **Mental Health Inventory from the SF-36 (less than 52)**
- **In the last 12 months, have you been prescribed drugs by a doctor, such as anti-depressants, to help you cope?**



Alcohol Use

High or hazardous drinking

- Men: 15 or more standard drinks per week
- Women: 8 or more standard drinks per week

Binge drinking

- Women 5 or more standard drinks once in the last month
- Men 7 or more standard drinks once in the last month



Statistical analyses

- Logistic regressions
- Covariates
 - ◆ Age
 - ◆ Gender
 - ◆ Aboriginal or Torres Strait Islander status
 - ◆ Education
 - ◆ Child in household
 - ◆ State by remoteness indicators



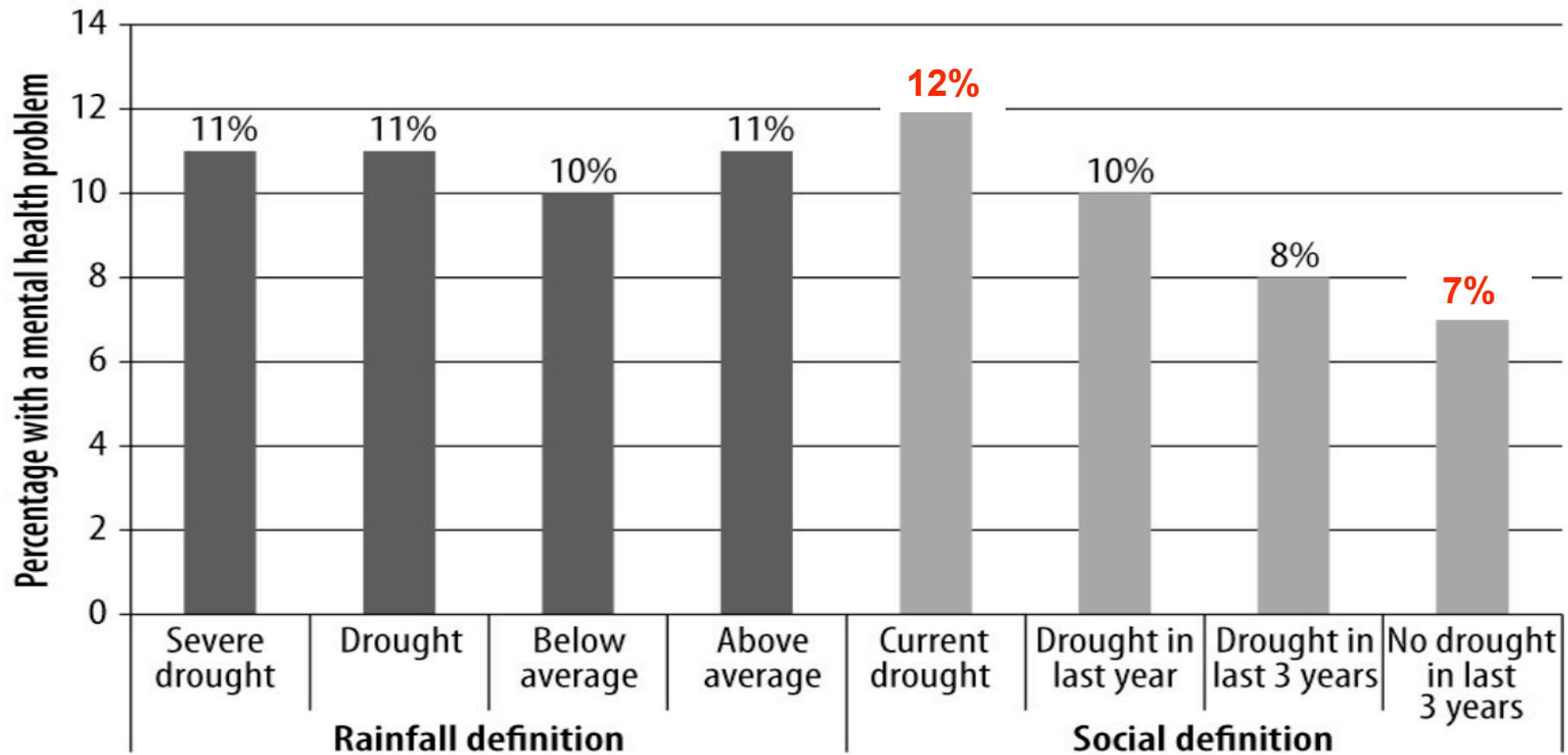
Mental Health



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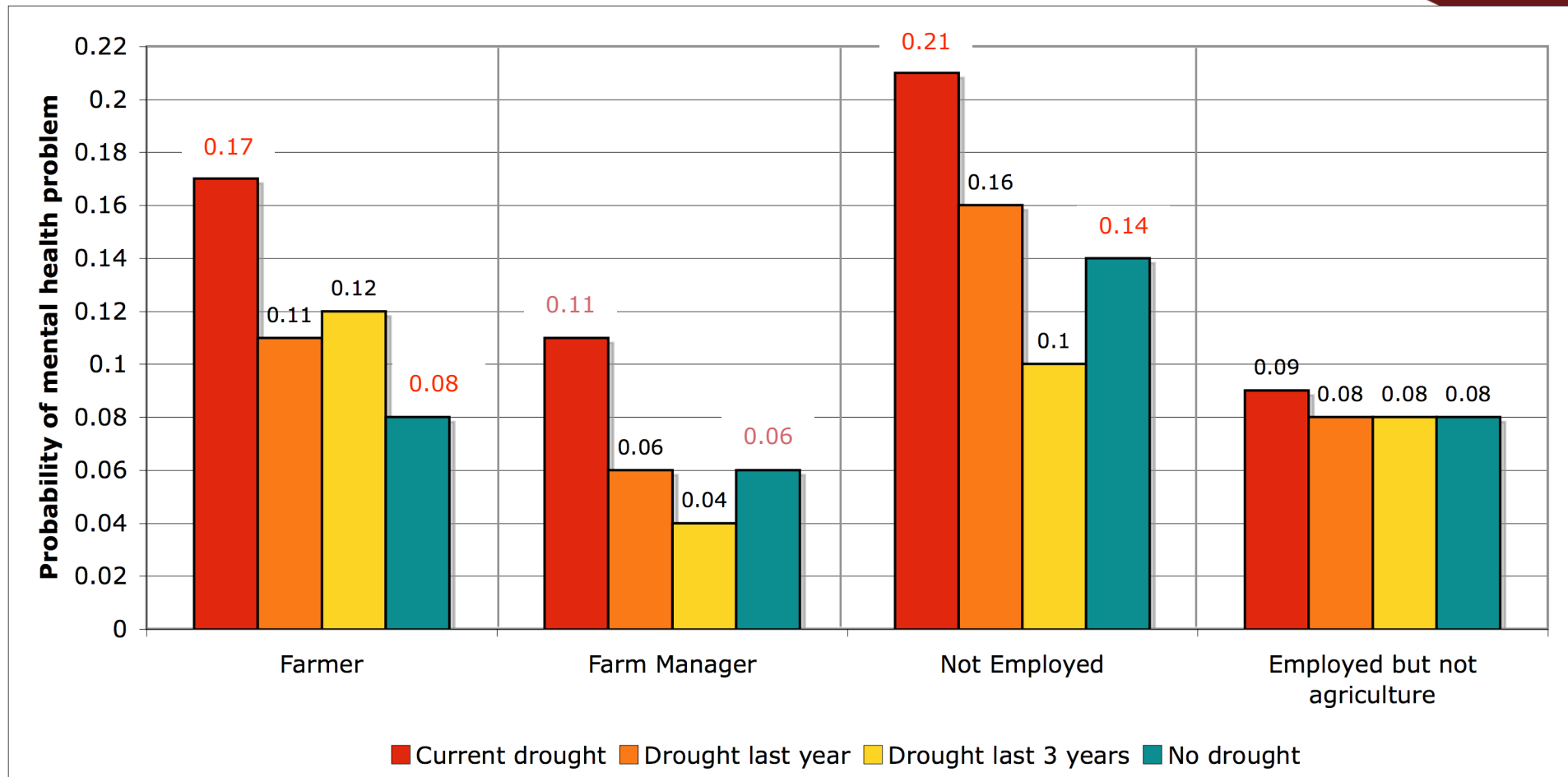
Mental health problems, by drought definition



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Mental health by Social Definition and employment status



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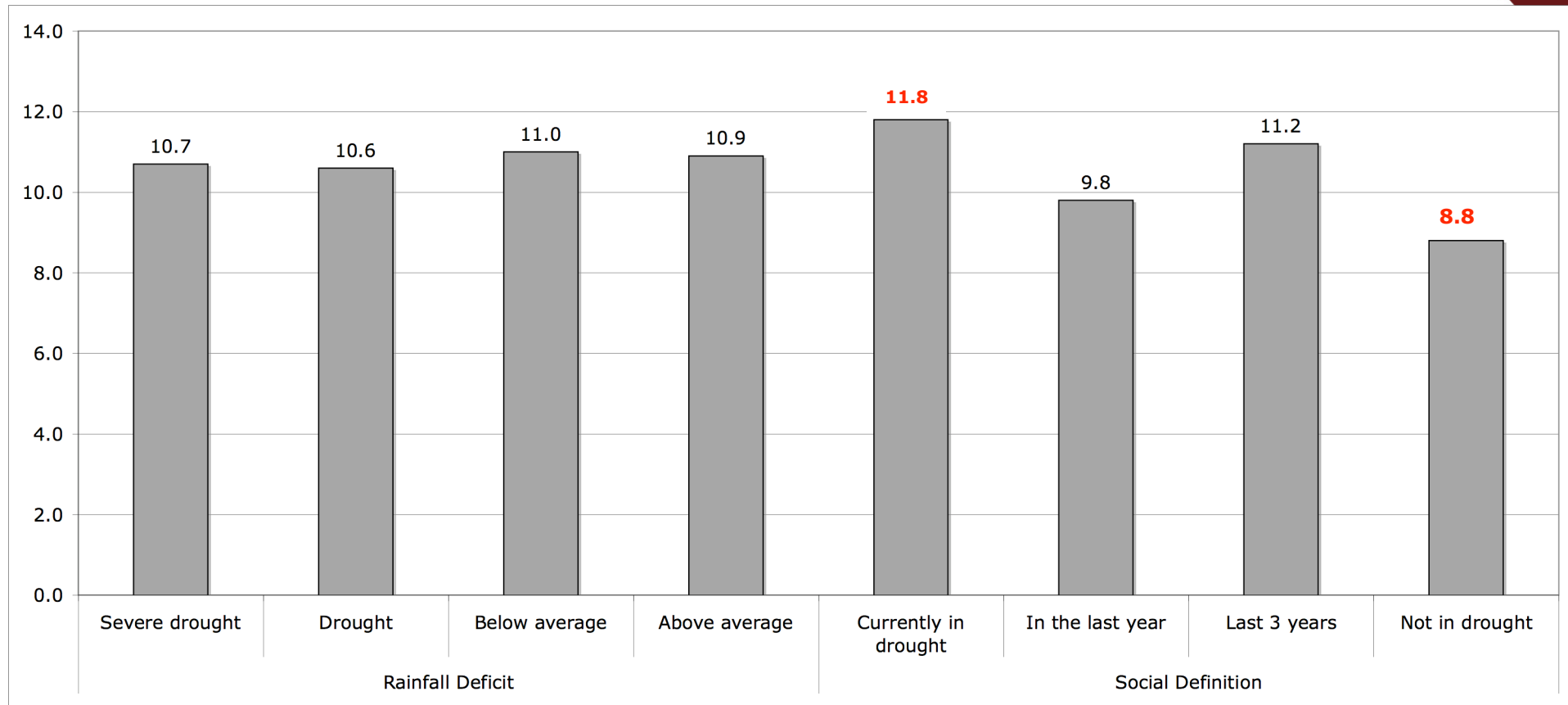
Medication use for stress



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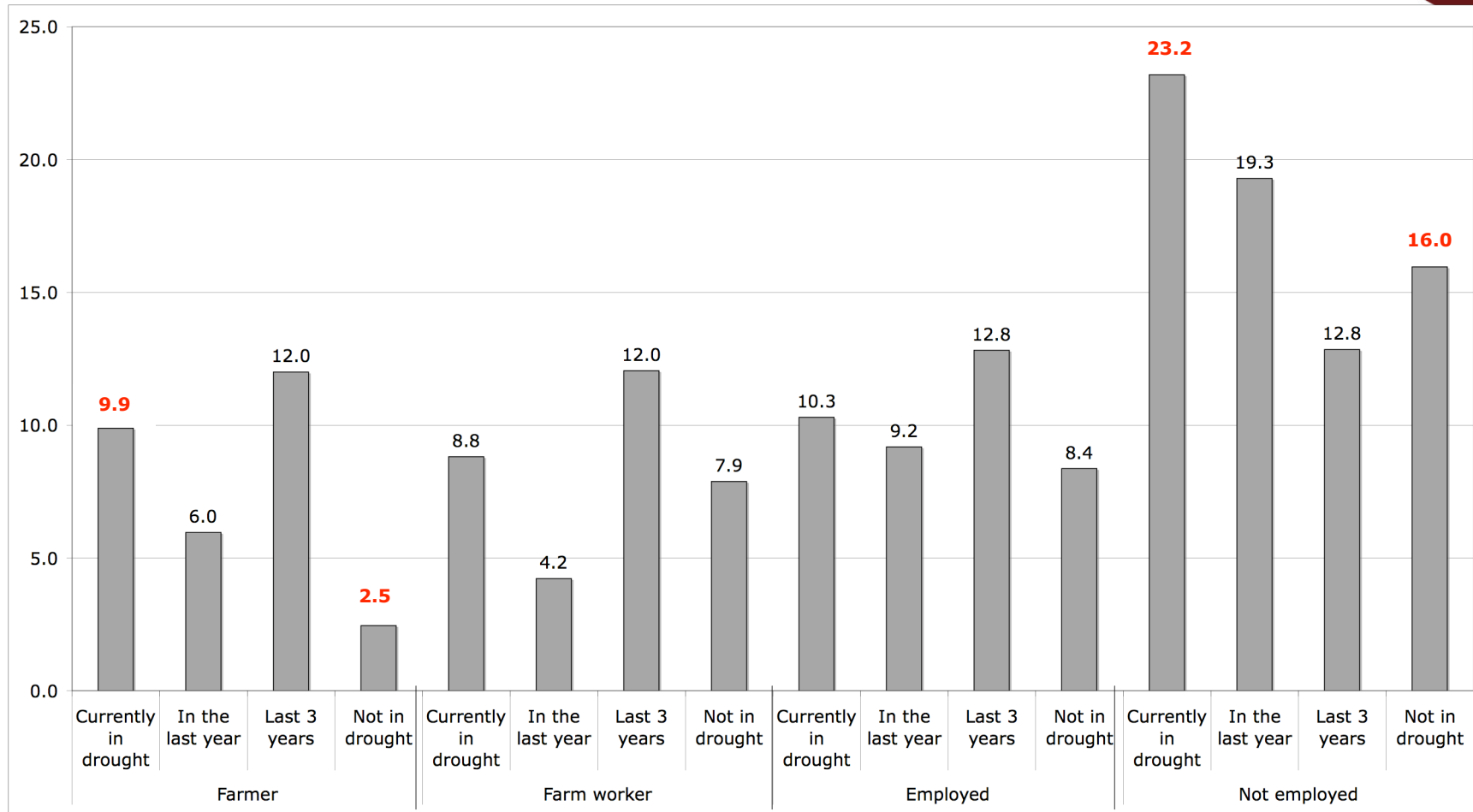
Medication use for stress, by drought definition



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Medication use for stress by Social Definition and Employment Status



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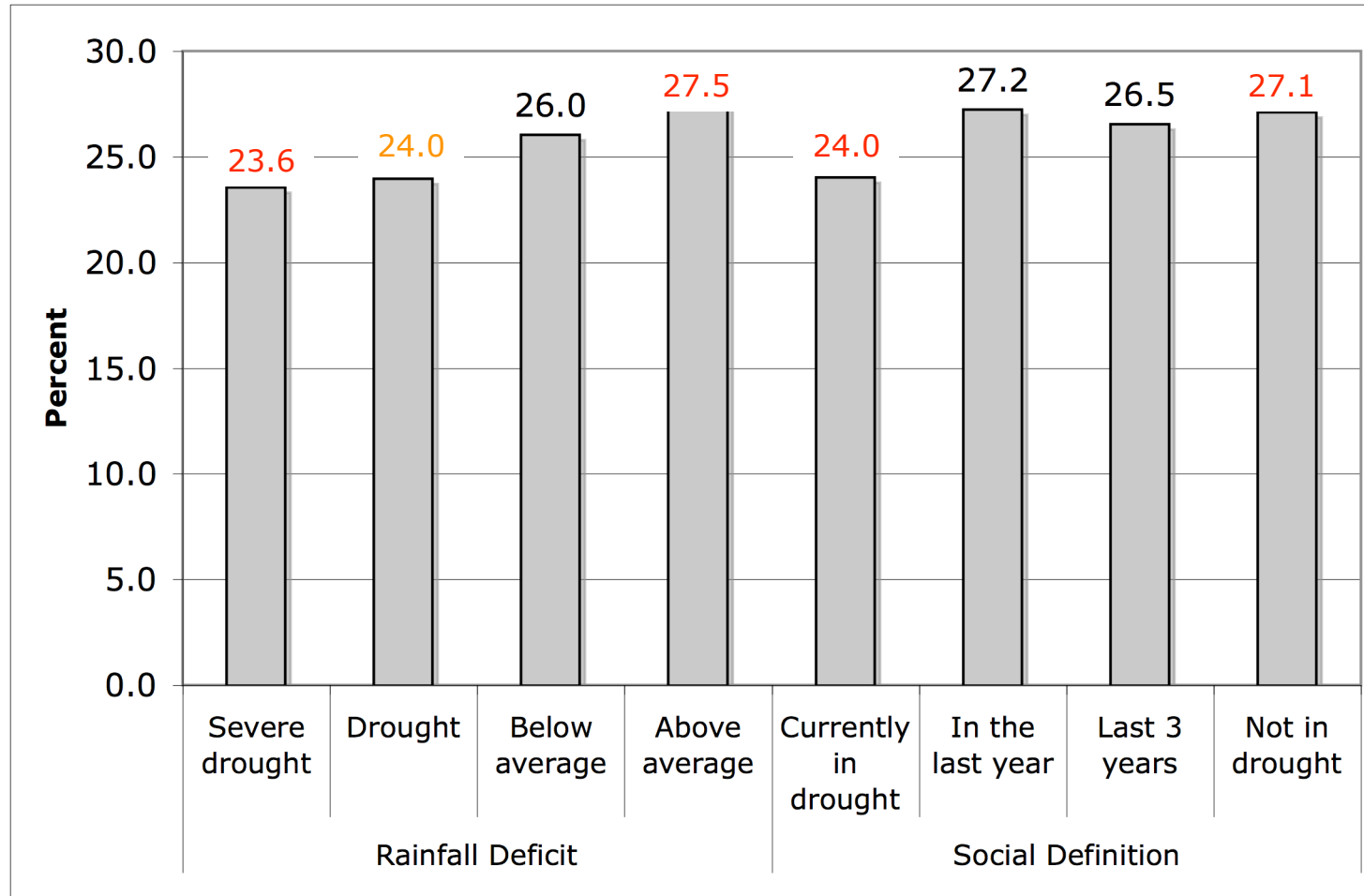
Alcohol Use



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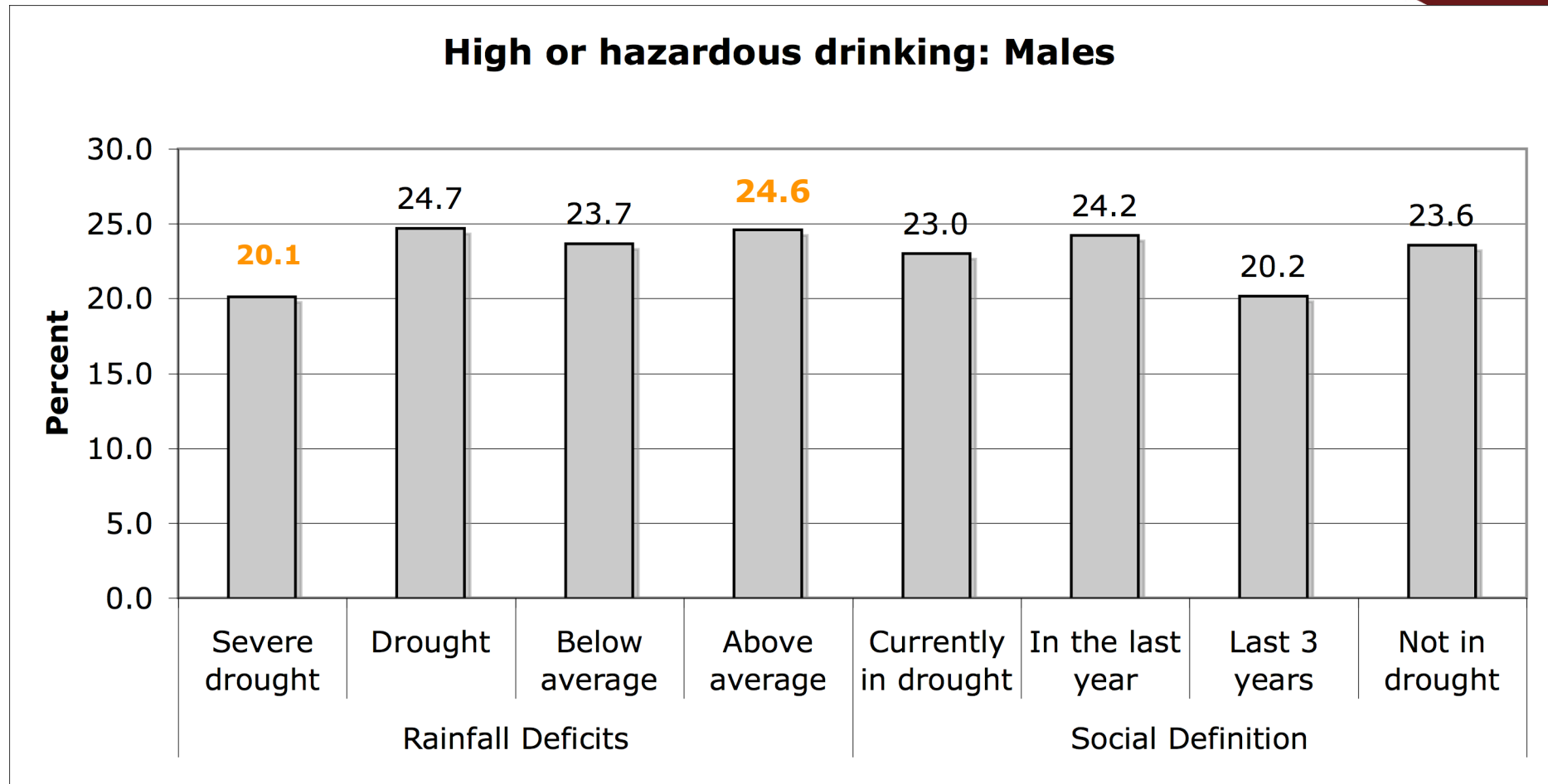
High or hazardous drinking



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High or hazardous drinking: Males

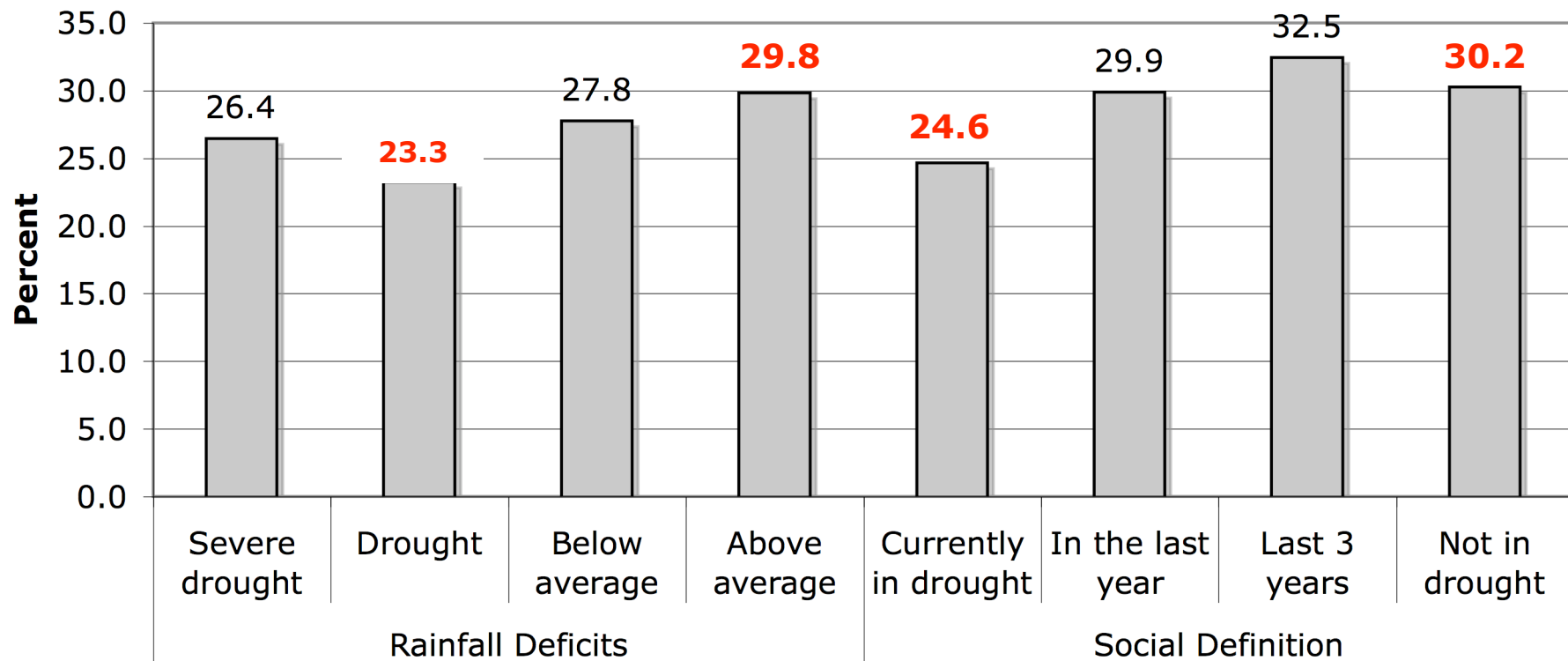


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High or hazardous drinking: Females

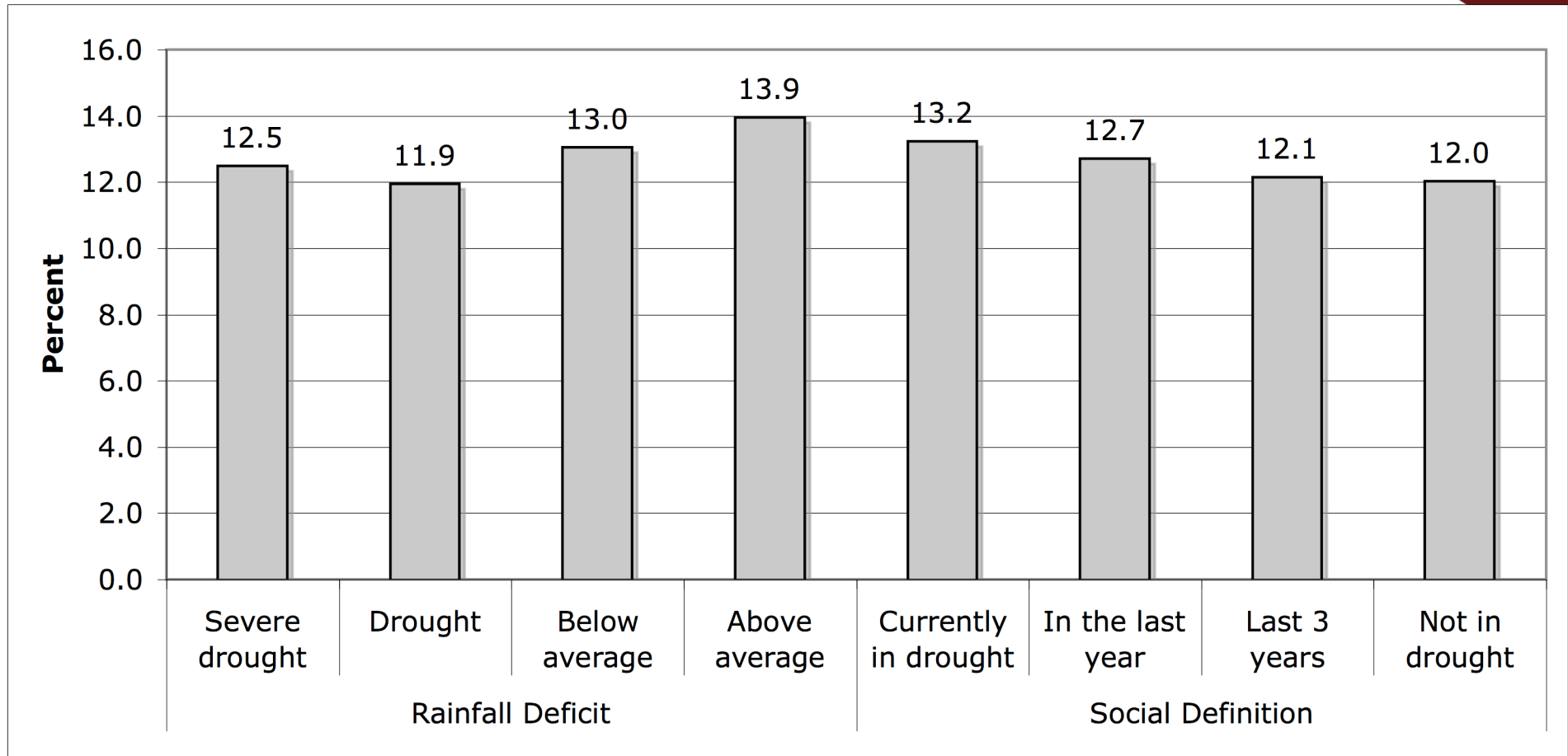
High or hazardous drinking: Females



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Binge Drinking



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Conclusions

- Significant impact of drought, socially defined, on mental health and medication use for stress, in particular farmers and the not employed
- Lower rates of high or hazardous drinking in drought areas (rainfall and social definition)
 - ◆ For females in particular
- No evidence of self-medication



Future directions

- Incorporating mobility into models
- Developing an agricultural definition of drought
- Taking an epidemiological approach by generating estimates of the impact on numbers of people
- Investigating farm poverty



References from the AIFS study

Edwards, B., Gray, M., & Hunter, B. (in press). A sunburnt country. The economic and financial impact of drought on rural and regional families in Australia in an era of climate change. *Australian Journal of Labour Economics*.

Edwards, B., Gray, M., & Hunter, B. (2008). Social and economic impacts of drought on farm families and rural communities. AIFS Submission into the Productivity Commission's Inquiry into Drought Support.

Hunter, B. & Biddle, N. (2009). Migration, labour demand, housing markets and the drought in regional Australia. Report to AIFS.



Residential Mobility and Drought

- Relatively high rates of mobility between areas may be an effect of drought and threaten the validity of a cross-sectional study
- Area-level migration data from the last three Australian census linked with rainfall data (Hunter & Biddle, 2009)



Net-migration by drought (rainfall)

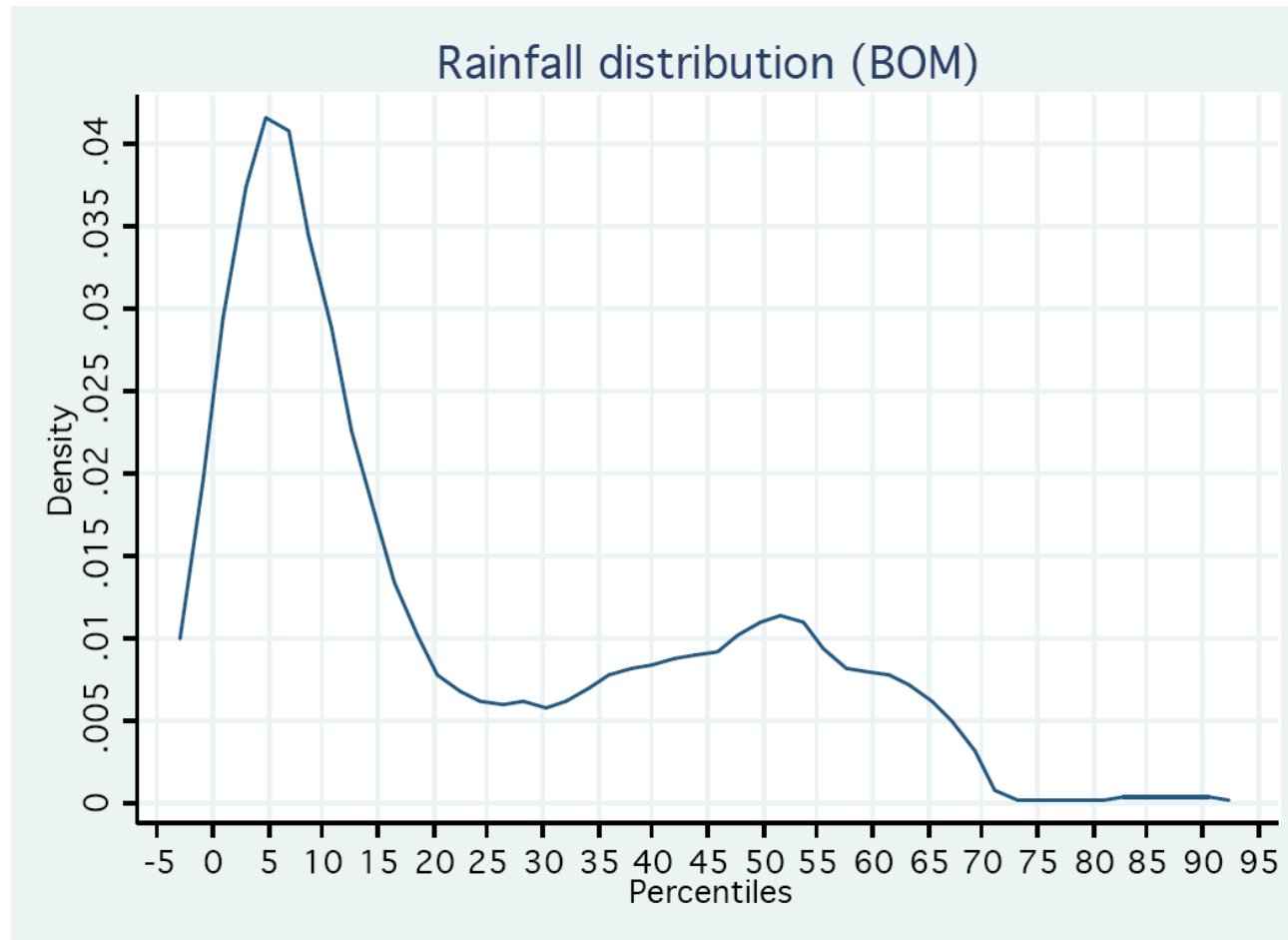
Rainfall deficits 3 years prior to the 2006 census includes (severe and drought)

OLS regression adjusted estimates:

- Drought area $-.60\%$ (1.42) less than non-drought area
- Below average 1.07% (0.93) less than non-drought area



Rainfall percentiles from BOM in the survey data



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Australian policy context -support in the context of climate change

23 April 2008 Federal Government announces a national review of drought policy.

“ The review will support the development of policies to help better prepare farmers and rural communities for a changing climate. The review will include:

- an economic assessment of drought support measures by the Productivity Commission
- an assessment by an expert panel of the social impacts of drought on farm families and rural communities
- a climatic assessment by the CSIRO and the Bureau of Meteorology of the likely future climate patterns and the current Exceptional Circumstances standard of a one-in-20-to-25-year-event.”



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