# Appendix

## Table A1. Categories, codes, and sources for dependent and independent variables.

| Variable | Category | Code | Sources | Variable | Category | Code | Source |
|---|---|---|---|---|---|---|---|
| Gender§ | Male | 0 | Statistics Netherlands | Physical activity* | Insufficient | 1 | Health Survey |
| | Female | 1 | Statistics Netherlands | | Sufficient | 0 | Health Survey |
| Migration background§ | Dutch-born | 0 | Statistics Netherlands | BMI* | Underweight (<18.5) | 1 | Health Survey |
| | Western migration background | 1 | Statistics Netherlands | | Normal (18.5-25) | 0 | Health Survey |
| | Non-western migration background | 2 | Statistics Netherlands | | Overweight (25-30) | 2 | Health Survey |
| Marital status* | Married/living together | 0 | Health Survey | | Obese (30>) | 3 | Health Survey |
| | Never married | 1 | Health Survey | Alcohol consumption* | Never | 0 | Health Survey |
| | Widowed | 2 | Health Survey | | Moderate | 1 | Health Survey |
| | Divorced | 3 | Health Survey | | Excessive | 2 | Health Survey |
| Highest attained level of education* | Primary school | 3 | Health Survey | Smoking* | Never smoked | 0 | Health Survey |
| | Lower vocational education | 2 | Health Survey | | Former smoker | 1 | Health Survey |
| | Middle vocational/secondary | 1 | Health Survey | | Current smoker | 2 | Health Survey |
| | Higher vocational/university | 0 | Health Survey | Loneliness* | Continuous score 0-11[1] | N/a | Health Survey |
| Standardized household income quartile§ | 0-25% | 3 | Statistics Netherlands | Mastery* | Continuous score 7-35[2] | n/a | Health Survey |
| | 26-50% | 2 | Statistics Netherlands | Chronic disease* | None | 0 | Health Survey |
| | 51-75% | 1 | Statistics Netherlands | | At least one | 1 | Health Survey |
| | 76-100% | 0 | Statistics Netherlands | Self-rated health* | Very (good) | 0 | Health Survey |
| Self-perceived income inadequacy* | Inadequate, major concerns | 3 | Health Survey | | Fair, (very) poor | 1 | Health Survey |
| | Inadequate, some concerns | 2 | Health Survey | Psychological distress* | No, low or moderate risk (score 10-29)[2] | 0 | Health Survey |
| | Adequate, minor concerns | 1 | Health Survey | | High (score 30-50)[2] | 1 | Health Survey |
| | Adequate, no concerns | 0 | Health Survey | | | | |

BMI: body mass index. §Registry data *Self-reported data (Health Survey). [1] The variables loneliness and mastery are continuous variables. The 11 statements for loneliness (table A2) are answered "yes", "more or less" or "no" and result in a score between 0 and 11. Respondents scoring 0,1 or 2 are considered not lonely, respondents scoring between 3 up until 8 are somewhat lonely, respondents scoring 9 or 10 are severely lonely and respondents scoring 11 are very severely lonely. The 7 statements for mastery are answered on a 5-point Likert scale (totally agree [lowest score 1], agree, neither agree or disagree, disagree or totally disagree [highest score 5]). This results to a score between 7 and 35, a score of 19 or lower is considered as insufficient mastery. [2] The variable risk for psychological distress is based on the Kessler-10 questionnaire. The 10 questions (table A2) are answered on a 5-point Likert scale (all the time, most of the time, some of the time, a little of the time, and none of the time). The K10 score varies between 10 (no risk) and maximum 50 (high risk).

**Table A2. Statements/questions fort he variables loneliness, mastery and psychological distress.**

| | |
|---|---|
| **Loneliness (De Jong-Gierveld 1985)[1]** | 1. There is always someone I can talk to about my day-to-day problems. |
| | 2. I miss having a really close friend. |
| | 3. I experience a general sense of emptiness. |
| | 4. There are plenty of people I can lean on when I have problems. |
| | 5. I miss the pleasure of the company of others. |
| | 6. I find my circle of friends and acquaintances too limited. |
| | 7. There are many people I can trust completely. |
| | 8. There are enough people I feel close to. |
| | 9. I miss having people around me. |
| | 10. I often feel rejected. |
| | 11. I can call on my friends whenever I need them. |
| **Mastery (Pearlin & Schooler 1978)[2]** | 1. I have little control over the things that happen to me. |
| | 2. No way I can solve some of the problems I have. |
| | 3. There is little I can do to change many of the important things of life. |
| | 4. I often feel helpless in dealing with the problems of life. |
| | 5. Sometimes I feel that I am being pushed around in life. |
| | 6. What happens in the future mostly depends on me. |
| | 7. I can do just about anything I really set my mind to. |
| **Psychological distress (Kessler 2002) [K10][3]** | 1. About how often did you feel tired out for no good reason? |
| | 2. About how often did you feel nervous? |
| In the past 4 weeks… | 3. About how often did you feel so nervous that nothing could calm you down? |
| | 4. About how often did you feel hopeless? |
| | 5. About how often did you feel restless or fidgety? |
| | 6. About how often did you feel so restless you could not sit still? |
| | 7. About how often did you feel depressed? |
| | 8. About how often did you feel that everything was an effort? |
| | 9. About how often did you feel so sad that nothing could cheer you up? |
| | 10. About how often did you feel worthless? |

[1] The 11 statements by De Jong-Gierveld are answered "yes", "more or less" or "no". [2] The 7 statements by Pearlin & Schooler are answered on a 5-point Likert scale (totally agree, agree, neither agree or disagree, disagree or totally disagree). [3] The K10 questions are answered on a 5-point Likert scale (all the time, most of the time, some of the time, a little of the time, and none of the time).

**Table A3. Missing data (n=457,150)**

| Variable | N | (%) |
|---|---|---|
| Region* | 0 | (0) |
| Age[§] | 0 | (0) |
| Gender[§] | 0 | (0) |
| Migration background[§] | 0 | (0) |
| Marital state* | 11,192 | (2.4) |
| Highest attained level of education * | 31,422 | (6.9) |
| Standardized household income quartile[§] | 737 | (0.2) |
| Income inadequacy* | 35,643 | (7.8) |
| Physical activity* | 33,488 | (7.3) |
| BMI* | 21,261 | (4.7) |
| Alcohol consumption* | 36,967 | (8.1) |
| Smoking* | 32,605 | (7.1) |
| Chronic disease* | 8,808 | (1.9) |
| Self-rated health* | 5,730 | (1.3) |
| Psychological distress* | 20,103 | (4.4) |
| Loneliness* | 36,364 | (8.0) |
| Mastery* | 36,612 | (8.0) |

BMI: body mass index. §Registry data *Self-rated data (Health Survey).

## Table A4. Descriptive weighted data

| Variable | Category | % |
|---|---|---|
| Gender[§] | Male | 50.9 |
| Migration background[§] | Dutch-born | 78.8 |
| | Western migration background | 4.9 |
| Marital status[*] | Married/living together | 66.1 |
| | Never married | 20.3 |
| | Widowed | 7.4 |
| Highest attained level of education* | Primary school | 6.2 |
| | Lower vocational education | 24.4 |
| | Middle vocational/secondary | 35.0 |
| Standardized household income quartile[§] | 0-25% | 18.7 |
| | 26-50% | 23.7 |
| | 51-75% | 27.4 |
| Self perceived income inadequacy* | Inadequate, major concerns | 4.7 |
| | Inadequate, some concerns | 13.5 |
| | Adequate, minor concerns | 35.2 |
| Physical activity* | Insufficient | 34.7 |
| Body Mass Index* | Normal (18,5-25) | 49.4 |
| | Overweight (25-30) | 35.1 |
| | Obese (30>) | 13.8 |
| Alcohol consumption* | Never | 24.4 |
| | Moderate | 75.6 |
| Smoking* | Never smoked | 45.8 |
| | Former smoker | 33.3 |
| Loneliness* | Somewhat or (very) severely (scores >2)[1] | 42.8 |
| Mastery* | Insufficient (score <20)[2] | 9.9 |
| Chronic disease* | None | 66.0 |
| Self-rated health* | Very (good) | 75.6 |
| Psychological distress* | No, low or moderate risk | 93.5 |

BMI: body mass index. §Registry data *Self-rated data (Health Survey). [1]The variables loneliness and mastery are continuous variables. The 11 statements to determine degree of loneliness (table A2) are answered "yes", "more or less" or "no" and result in a score between 0 and 11. Respondents scoring 0,1 or 2 are considered not lonely, respondents scoring between 3 and 8 are somewhat lonely, respondents scoring 9 or 10 are severely lonely and respondents scoring 11 are very severely lonely. The 7 statements for mastery are answered on a 5-point Likert scale (totally agree [lowest score 1], agree, neither agree or disagree, disagree or totally disagree [highest score 5]). This results to a score between 7 and 35, a score of 19 or lower is considered as insufficient mastery. [2]The variable risk for psychological distress is based on the Kessler-10 questionnaire. The 10 questions (table A2) are answered on a 5-point Likert scale (all the time, most of the time, some of the time, a little of the time, and none of the time). The K10 score varies between 10 (no risk) and maximum 50 (high risk).

# Table A5. Percentages per region (n = 334,721)

| % | BMI | | Alcohol-consumption | Smoking | | Physical activty | Loneliness | Mastery | Self-rated health | Chronic disease | Psychological distress |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Over-weight | Obese | Excessive | Former smoker | Smoker | In-sufficient | Somewhat or (very) severe[1] | In-sufficient[2] | Fair or (very) poor | At least one | High risk |
| Zuid-Limburg | 35,4 | 16,3 | 7,4 | 33,7 | 22,3 | 40,6 | 46,6 | 11,4 | 28,0 | 37,1 | 7,1 |
| Zuid-Holland-Zuid | 36,3 | 15,1 | 5,3 | 32,4 | 21,1 | 38,0 | 41,2 | 9,5 | 21,1 | 30,6 | 4,9 |
| Zeeland | 36,5 | 13,7 | 6,2 | 35,5 | 17,5 | 29,9 | 45,5 | 10,0 | 25,6 | 32,7 | 5,2 |
| Zaanstreek-Waterland | 36,1 | 14,7 | 7,3 | 34,0 | 21,5 | 34,0 | 39,8 | 9,4 | 23,0 | 35,1 | 5,8 |
| West-Brabant | 36,1 | 13,5 | 6,5 | 35,1 | 17,8 | 34,8 | 42,1 | 9,3 | 24,6 | 30,1 | 5,5 |
| Utrecht | 31,2 | 11,6 | 7,6 | 31,4 | 19,6 | 33,3 | 39,5 | 7,9 | 20,3 | 30,6 | 5,0 |
| Twente | 37,4 | 14,0 | 8,1 | 33,1 | 20,5 | 29,2 | 39,3 | 8,1 | 21,1 | 33,4 | 7,0 |
| Rotterdam | 35,4 | 15,6 | 6,3 | 29,7 | 24,0 | 39,7 | 45,6 | 10,6 | 26,0 | 35,0 | 7,7 |
| Noord- en Oost-Gelderland | 37,7 | 13,8 | 6,7 | 36,3 | 18,5 | 31,0 | 36,7 | 8,5 | 20,5 | 35,5 | 5,3 |
| Limburg-Noord | 37,1 | 13,7 | 6,5 | 37,5 | 18,6 | 33,7 | 43,6 | 8,9 | 24,1 | 34,4 | 4,8 |
| Kennemerland | 34,4 | 12,3 | 8,0 | 35,3 | 19,3 | 31,6 | 39,6 | 7,7 | 19,9 | 31,3 | 4,9 |
| IJsselland | 35,5 | 12,5 | 7,2 | 35,5 | 20,1 | 31,3 | 37,8 | 8,2 | 20,1 | 33,9 | 5,3 |
| Hollands Noorden | 34,9 | 12,9 | 7,8 | 36,2 | 19,6 | 30,8 | 39,7 | 8,3 | 21,7 | 32,4 | 5,1 |
| Hollands Midden | 35,4 | 12,9 | 7,7 | 33,3 | 18,5 | 31,5 | 40,1 | 9,4 | 20,0 | 34,8 | 6,0 |
| Hart voor Brabant | 35,4 | 13,6 | 7,7 | 34,8 | 19,0 | 33,0 | 40,0 | 8,9 | 23,4 | 31,1 | 5,6 |
| Haaglanden | 33,9 | 13,7 | 6,7 | 28,2 | 21,3 | 34,5 | 46,6 | 10,9 | 24,7 | 36,2 | 8,9 |
| Groningen | 34,9 | 13,9 | 8,0 | 32,1 | 24,4 | 33,8 | 41,5 | 8,0 | 21,9 | 35,5 | 4,8 |
| Gooi en Vechtstreek | 32,9 | 9,9 | 8,6 | 37,5 | 17,8 | 37,5 | 37,5 | 7,9 | 21,1 | 31,6 | 5,2 |
| Gelderland-Zuid | 34,3 | 12,8 | 7,0 | 31,3 | 21,6 | 35,0 | 40,7 | 8,5 | 21,0 | 31,9 | 6,1 |
| Gelderland-Midden | 32,7 | 13,8 | 5,9 | 33,4 | 19,4 | 33,2 | 41,1 | 8,9 | 21,2 | 34,7 | 6,9 |
| Friesland | 36,2 | 13,2 | 7,2 | 36,2 | 21,4 | 32,6 | 41,9 | 8,8 | 20,4 | 33,3 | 4,9 |
| Flevoland | 37,7 | 14,5 | 4,4 | 32,0 | 17,5 | 40,8 | 42,5 | 9,6 | 22,8 | 34,6 | 7,0 |
| Drenthe | 37,0 | 15,1 | 8,2 | 35,3 | 22,9 | 32,5 | 40,1 | 8,2 | 21,2 | 33,2 | 4,8 |
| Brabant-Zuidoost | 35,0 | 12,0 | 7,7 | 34,5 | 18,1 | 31,4 | 42,0 | 9,9 | 24,6 | 30,9 | 6,1 |
| Amsterdam | 28,6 | 11,6 | 9,9 | 30,7 | 25,8 | 31,5 | 44,5 | 8,7 | 22,1 | 30,8 | 6,8 |

BMI: body mass index. Results based on weighted data.[1]Continuous variable, percentage of respondents scoring 3 or higher (of 11) for the De Jong-Gierveld scale. These respondents experience some degree of loneliness (somewhat, severe or very severe). [2]Continuous variable, percentage of respondents scoring 19 or lower (scale 7-35) for mastery, these respondents experience insufficient mastery.

**Table A6. Prevalence ratios per region for self-rated health being fair or (very) poor, compared to Zuid-Limburg.**

| PR (95%CI) | Model 1 | Model 2 | Model 3a | Model 3b | Model 3c | Model 4 |
|---|---|---|---|---|---|---|
| Zuid-Limburg | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) |
| Zuid-Holland-Zuid | **0,75 (0,70-0,80)** | **0,80 (0,75-0,85)** | **0,81 (0,76-0,86)** | **0,83 (0,78-0,88)** | **0,81 (0,77-0,86)** | **0,83 (0,79-0,88)** |
| Zeeland | **0,91 (0,85-0,96)** | **0,94 (0,89-1,00)** | 1,02 (0,96-1,07) | **0,94 (0,89-0,99)** | 0,94 (0,89-1,00) | 1,00 (0,95-1,05) |
| Zaanstreek-Waterland | **0,82 (0,78-0,86)** | **0,85 (0,81-0,89)** | **0,89 (0,85-0,93)** | **0,90 (0,86-0,95)** | **0,89 (0,85-0,94)** | **0,94 (0,90-0,98)** |
| West-Brabant | **0,88 (0,84-0,93)** | **0,95 (0,90-1,00)** | 1,00 (0,95-1,05) | 0,96 (0,91-1,01) | **0,96 (0,91-1,00)** | 1,00 (0,95-1,05) |
| Utrecht | **0,73 (0,69-0,76)** | **0,85 (0,82-0,89)** | **0,90 (0,86-0,93)** | **0,89 (0,86-0,93)** | **0,89 (0,86-0,93)** | **0,94 (0,90-0,98)** |
| Twente | **0,75 (0,71-0,80)** | **0,81 (0,77-0,86)** | **0,85 (0,81-0,90)** | **0,86 (0,81-0,90)** | **0,84 (0,80-0,89)** | **0,88 (0,83-0,93)** |
| Rotterdam | **0,93 (0,89-0,97)** | **0,85 (0,82-0,88)** | **0,87 (0,83-0,90)** | **0,89 (0,86-0,93)** | **0,90 (0,87-0,93)** | **0,93 (0,89-0,96)** |
| Noord- en Oost-Gelderland | **0,73 (0,69-0,77)** | **0,83 (0,79-0,87)** | **0,87 (0,83-0,92)** | **0,87 (0,83-0,92)** | **0,84 (0,81-0,88)** | **0,89 (0,85-0,93)** |
| Limburg-Noord | **0,86 (0,82-0,90)** | **0,90 (0,86-0,94)** | **0,95 (0,91-0,99)** | **0,91 (0,87-0,96)** | **0,94 (0,90-0,98)** | 0,97 (0,93-1,01) |
| Kennemerland | **0,72 (0,68-0,76)** | **0,78 (0,74-0,83)** | **0,83 (0,79-0,88)** | **0,82 (0,78-0,87)** | **0,85 (0,81-0,89)** | **0,90 (0,85-0,94)** |
| IJsselland | **0,72 (0,67-0,77)** | **0,84 (0,78-0,90)** | **0,89 (0,83-0,95)** | **0,88 (0,83-0,95)** | **0,86 (0,80-0,91)** | **0,91 (0,85-0,97)** |
| Hollands Noorden | **0,78 (0,74-0,82)** | **0,84 (0,80-0,89)** | **0,90 (0,86-0,95)** | **0,88 (0,84-0,93)** | **0,91 (0,86-0,95)** | **0,95 (0,91-0,99)** |
| Hollands Midden | **0,72 (0,68-0,75)** | **0,82 (0,78-0,86)** | **0,87 (0,83-0,91)** | **0,85 (0,82-0,89)** | **0,81 (0,77-0,84)** | **0,86 (0,82-0,90)** |
| Hart voor Brabant | **0,88 (0,84-0,93)** | **0,93 (0,89-0,97)** | 0,98 (0,94-1,02) | **0,95 (0,91-0,99)** | 0,96 (0,92-1,00) | **0,92 (0,88-0,96)** |
| Haaglanden | **0,84 (0,80-0,88)** | **0,86 (0,82-0,90)** | **0,89 (0,85-0,93)** | **0,89 (0,85-0,93)** | **0,89 (0,85-0,93)** | 1,00 (0,96-1,05) |
| Groningen | **0,79 (0,74-0,83)** | **0,85 (0,81-0,90)** | **0,88 (0,84-0,93)** | **0,90 (0,86-0,95)** | **0,93 (0,89-0,98)** | 0,96 (0,92-1,01) |
| Gooi en Vechtstreek | **0,76 (0,70-0,81)** | **0,82 (0,77-0,88)** | **0,88 (0,82-0,94)** | **0,88 (0,83-0,94)** | **0,87 (0,82-0,93)** | **0,94 (0,88-0,99)** |
| Gelderland-Zuid | **0,75 (0,71-0,79)** | **0,85 (0,80-0,89)** | **0,88 (0,84-0,92)** | **0,88 (0,84-0,92)** | **0,87 (0,83-0,91)** | **0,90 (0,86-0,95)** |
| Gelderland-Midden | **0,76 (0,71-0,81)** | **0,84 (0,79-0,90)** | **0,88 (0,83-0,94)** | **0,86 (0,81-0,92)** | **0,85 (0,80-0,90)** | **0,89 (0,84-0,94)** |
| Friesland | **0,73 (0,69-0,77)** | **0,78 (0,74-0,82)** | **0,82 (0,78-0,87)** | **0,82 (0,78-0,86)** | **0,83 (0,79-0,87)** | **0,86 (0,82-0,91)** |
| Flevoland | **0,81 (0,71-0,92)** | **0,88 (0,78-0,99)** | 0,91 (0,81-1,02) | 0,91 (0,82-1,02) | 0,94 (0,84-1,05) | 0,96 (0,87-1,07) |
| Drenthe | **0,76 (0,70-0,82)** | **0,80 (0,74-0,86)** | **0,82 (0,76-0,88)** | **0,84 (0,78-0,90)** | **0,86 (0,80-0,92)** | **0,88 (0,82-0,94)** |
| Brabant-Zuidoost | **0,88 (0,84-0,92)** | 0,98 (0,93-1,02) | **1,05 (1,00-1,09)** | 1,00 (0,95-1,04) | 0,97 (0,93-1,02) | 1,04 (0,99-1,08) |
| Amsterdam | **0,79 (0,74-0,84)** | **0,77 (0,73-0,82)** | **0,81 (0,77-0,86)** | **0,82 (0,78-0,87)** | **0,85 (0,80-0,89)** | **0,88 (0,84-0,93)** |

PR: prevalence ratio. CI: confidence interval. PR's in bold are significant p<0.05. Model 1: region. Model 2: region, demographic factors, and SES. Model 3a: region, demographic factors, SES, and lifestyle. Model 3b: region, demographic factors, SES, and loneliness. Model 3c: region, demographic factors, SES, and mastery. Model 4: region, demographic factors, SES, lifestyle, loneliness, and mastery. Results from robust Poisson regressions (n = 334,721), based on weighted data.

**Table A7. Prevalence ratios per region for at least one chronic disease, compared to Zuid-Limburg.**

| PR (95% CI) | Model 1 | Model 2 | Model 3a | Model 3b | Model 3c | Model 4 |
|---|---|---|---|---|---|---|
| Zuid-Limburg | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) |
| Zuid-Holland-Zuid | **0,83 (0,78-0,87)** | **0,86 (0,82-0,91)** | **0,87 (0,82-0,91)** | **0,88 (0,83-0,92)** | **0,87 (0,83-0,91)** | **0,88 (0,84-0,92)** |
| Zeeland | **0,87 (0,83-0,91)** | **0,87 (0,83-0,91)** | **0,90 (0,86-0,94)** | **0,87 (0,83-0,91)** | **0,87 (0,83-0,91)** | **0,89 (0,85-0,93)** |
| Zaanstreek-Waterland | **0,93 (0,90-0,97)** | **0,96 (0,93-1,00)** | 0,98 (0,94-1,02) | 0,99 (0,95-1,03) | 0,99 (0,95-1,02) | 1,01 (0,97-1,05) |
| West-Brabant | **0,81 (0,77-0,84)** | **0,84 (0,80-0,87)** | **0,85 (0,82-0,89)** | **0,84 (0,81-0,88)** | **0,84 (0,80-0,87)** | **0,85 (0,82-0,89)** |
| Utrecht | **0,82 (0,79-0,85)** | **0,91 (0,88-0,94)** | **0,94 (0,91-0,97)** | **0,93 (0,90-0,96)** | **0,93 (0,91-0,96)** | **0,95 (0,93-0,98)** |
| Twente | **0,89 (0,85-0,94)** | **0,94 (0,90-0,99)** | 0,97 (0,93-1,01) | 0,97 (0,93-1,01) | 0,96 (0,92-1,00) | 0,98 (0,94-1,02) |
| Rotterdam | **0,94 (0,91-0,97)** | **0,94 (0,91-0,98)** | **0,95 (0,92-0,98)** | 0,96 (0,93-1,00) | 0,97 (0,94-1,00) | 0,98 (0,95-1,01) |
| Noord- en Oost-Gelderland | **0,95 (0,92-0,99)** | 1,00 (0,97-1,04) | 1,02 (0,99-1,06) | 1,03 (0,99-1,07) | 1,01 (0,97-1,05) | 1,03 (0,99-1,07) |
| Limburg-Noord | **0,93 (0,89-0,96)** | **0,94 (0,91-0,98)** | 0,96 (0,93-1,00) | **0,95 (0,92-0,98)** | **0,96 (0,93-0,99)** | 0,97 (0,94-1,01) |
| Kennemerland | **0,84 (0,80-0,88)** | **0,88 (0,84-0,92)** | **0,90 (0,87-0,94)** | **0,90 (0,87-0,94)** | **0,92 (0,88-0,95)** | **0,94 (0,90-0,97)** |
| IJsselland | **0,91 (0,87-0,96)** | 1,00 (0,96-1,05) | 1,03 (0,98-1,08) | 1,03 (0,98-1,08) | 1,01 (0,96-1,05) | 1,03 (0,98-1,08) |
| Hollands Noorden | **0,87 (0,83-0,91)** | **0,90 (0,87-0,94)** | **0,93 (0,90-0,97)** | **0,92 (0,89-0,96)** | **0,94 (0,90-0,98)** | **0,96 (0,92-0,99)** |
| Hollands Midden | **0,93 (0,90-0,97)** | **1,01 (0,97-1,04)** | **1,03 (1,00-1,07)** | 1,03 (0,99-1,06) | 0,99 (0,96-1,02) | 1,02 (0,98-1,05) |
| Hart voor Brabant | **0,84 (0,80-0,87)** | **0,88 (0,85-0,91)** | **0,90 (0,87-0,94)** | **0,89 (0,86-0,93)** | **0,89 (0,86-0,93)** | **0,91 (0,88-0,94)** |
| Haaglanden | 0,97 (0,93-1,01) | 1,00 (0,97-1,04) | 1,02 (0,99-1,06) | 1,02 (0,98-1,06) | 1,02 (0,99-1,06) | **1,04 (1,00-1,08)** |
| Groningen | **0,95 (0,91-0,99)** | 1,01 (0,97-1,05) | 1,03 (0,99-1,07) | 1,04 (0,99-1,08) | **1,05 (1,01-1,09)** | **1,06 (1,02-1,11)** |
| Gooi en Vechtstreek | **0,85 (0,81-0,90)** | **0,87 (0,83-0,92)** | **0,90 (0,86-0,95)** | **0,90 (0,85-0,95)** | **0,90 (0,86-0,95)** | **0,93 (0,89-0,98)** |
| Gelderland-Zuid | **0,86 (0,82-0,90)** | **0,93 (0,89-0,97)** | **0,94 (0,91-0,98)** | **0,94 (0,91-0,98)** | **0,93 (0,90-0,97)** | **0,95 (0,91-0,99)** |
| Gelderland-Midden | **0,93 (0,88-0,98)** | 0,99 (0,94-1,04) | 1,01 (0,96-1,06) | 1,00 (0,96-1,05) | 0,99 (0,94-1,04) | 1,01 (0,96-1,06) |
| Friesland | **0,89 (0,86-0,93)** | **0,91 (0,88-0,95)** | **0,93 (0,90-0,97)** | **0,93 (0,89-0,97)** | **0,94 (0,90-0,97)** | **0,95 (0,92-0,99)** |
| Flevoland | 0,93 (0,85-1,02) | **1,01 (0,92-1,10)** | 1,02 (0,94-1,11) | 1,03 (0,94-1,12) | 1,03 (0,95-1,13) | 1,05 (0,96-1,14) |
| Drenthe | **0,90 (0,84-0,95)** | **0,91 (0,86-0,96)** | **0,92 (0,87-0,97)** | **0,93 (0,88-0,98)** | 0,94 (0,89-1,00) | 0,95 (0,90-1,01) |
| Brabant-Zuidoost | **0,83 (0,80-0,87)** | **0,87 (0,84-0,91)** | **0,90 (0,87-0,94)** | **0,88 (0,85-0,92)** | **0,87 (0,84-0,91)** | **0,90 (0,86-0,93)** |
| Amsterdam | **0,83 (0,79-0,87)** | **0,88 (0,84-0,92)** | **0,90 (0,86-0,94)** | **0,90 (0,86-0,94)** | **0,92 (0,88-0,96)** | **0,93 (0,89-0,98)** |

PR: prevalence ratio. CI: confidence interval. PR's in bold are significant p<0.05. Model 1: region. Model 2: region, demographic factors, and SES. Model 3a: region, demographic factors, SES, and lifestyle. Model 3b: region, demographic factors, SES, and loneliness. Model 3c: region, demographic factors, SES, and mastery. Model 4: region, demographic factors, SES, lifestyle, loneliness, and mastery. Results from robust Poisson regressions (n = 334,721), based on weighted data.

**Table A8. Odds ratios per region for high risk for psychological distress, compared to Zuid-Limburg.**

| OR (95% CI) | Model 1 | Model 2 | Model 3a | Model 3b | Model 3c | Model 4 |
|---|---|---|---|---|---|---|
| Zuid-Limburg | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) | 1,00 (ref) |
| Zuid-Holland-Zuid | **0,66 (0,54-0,79)** | **0,71 (0,58-0,86)** | **0,72 (0,59-0,88)** | **0,77 (0,63-0,95)** | **0,69 (0,54-0,88)** | **0,76 (0,60-0,96)** |
| Zeeland | **0,70 (0,58-0,84)** | **0,83 (0,68-1,00)** | 0,91 (0,75-1,11) | **0,81 (0,66-0,99)** | **0,77 (0,62-0,96)** | **0,80 (0,64-0,99)** |
| Zaanstreek-Waterland | **0,82 (0,72-0,94)** | **0,86 (0,75-1,00)** | 0,92 (0,80-1,06) | 1,06 (0,91-1,23) | 0,97 (0,82-1,15) | 1,09 (0,92-1,30) |
| West-Brabant | **0,75 (0,65-0,88)** | 0,89 (0,76-1,04) | 0,95 (0,81-1,12) | 0,92 (0,78-1,08) | 0,92 (0,76-1,12) | 0,96 (0,79-1,16) |
| Utrecht | **0,69 (0,61-0,77)** | **0,77 (0,69-0,87)** | **0,82 (0,73-0,93)** | 0,89 (0,79-1,01) | 0,87 (0,75-1,00) | 0,94 (0,81-1,09) |
| Twente | 0,96 (0,81-1,14) | **1,08 (0,91-1,28)** | 1,18 (0,98-1,40) | **1,30 (1,08-1,57)** | **1,31 (1,07-1,60)** | **1,49 (1,20-1,84)** |
| Rotterdam | 1,07 (0,96-1,19) | **0,78 (0,69-0,88)** | **0,80 (0,71-0,90)** | 0,91 (0,80-1,04) | 0,92 (0,80-1,06) | 0,99 (0,86-1,15) |
| Noord- en Oost-Gelderland | **0,71 (0,62-0,81)** | 0,94 (0,82-1,08) | 1,02 (0,88-1,17) | 1,04 (0,90-1,21) | 0,97 (0,83-1,14) | 1,05 (0,89-1,25) |
| Limburg-Noord | **0,67 (0,59-0,76)** | **0,77 (0,67-0,88)** | **0,81 (0,71-0,93)** | **0,78 (0,67-0,90)** | **0,82 (0,70-0,97)** | **0,84 (0,71-0,99)** |
| Kennemerland | **0,68 (0,58-0,79)** | **0,76 (0,65-0,89)** | **0,82 (0,70-0,96)** | 0,87 (0,74-1,03) | 0,90 (0,75-1,08) | 1,01 (0,84-1,22) |
| IJsselland | **0,70 (0,58-0,84)** | 0,86 (0,71-1,05) | 0,94 (0,77-1,14) | 1,02 (0,83-1,26) | 0,86 (0,69-1,08) | 0,99 (0,79-1,25) |
| Hollands Noorden | **0,71 (0,61-0,82)** | **0,78 (0,67-0,91)** | **0,85 (0,73-0,99)** | 0,90 (0,77-1,06) | 0,86 (0,72-1,03) | 0,95 (0,79-1,14) |
| Hollands Midden | **0,82 (0,72-0,92)** | 1,00 (0,88-1,14) | 1,09 (0,95-1,24) | **1,15 (1,00-1,32)** | 0,96 (0,82-1,13) | 1,11 (0,94-1,30) |
| Hart voor Brabant | **0,76 (0,67-0,86)** | 0,91 (0,80-1,04) | 0,98 (0,86-1,12) | 0,99 (0,86-1,15) | 0,99 (0,84-1,17) | 1,05 (0,89-1,24) |
| Haaglanden | **1,27 (1,12-1,44)** | 1,05 (0,92-1,19) | 1,10 (0,96-1,26) | **1,17 (1,02-1,35)** | 1,13 (0,96-1,34) | **1,22 (1,03-1,44)** |
| Groningen | **0,66 (0,57-0,78)** | **0,65 (0,55-0,77)** | **0,69 (0,59-0,82)** | **0,80 (0,67-0,95)** | **0,76 (0,62-0,92)** | 0,84 (0,69-1,03) |
| Gooi en Vechtstreek | **0,71 (0,58-0,87)** | 0,82 (0,66-1,02) | 0,88 (0,71-1,09) | 0,99 (0,79-1,25) | 0,88 (0,69-1,13) | 1,01 (0,78-1,29) |
| Gelderland-Zuid | **0,86 (0,75-0,98)** | 0,98 (0,85-1,13) | 1,04 (0,90-1,20) | 1,13 (0,97-1,32) | 1,09 (0,92-1,29) | 1,19 (0,99-1,42) |
| Gelderland-Midden | 0,95 (0,78-1,14) | **1,10 (0,91-1,32)** | 1,16 (0,97-1,40) | 1,18 (0,97-1,43) | 1,10 (0,89-1,35) | 1,19 (0,97-1,46) |
| Friesland | **0,66 (0,57-0,77)** | **0,75 (0,64-0,88)** | **0,80 (0,68-0,94)** | 0,86 (0,73-1,02) | 0,86 (0,72-1,03) | 0,95 (0,79-1,14) |
| Flevoland | 1,01 (0,74-1,37) | 0,98 (0,71-1,35) | 1,03 (0,74-1,43) | 1,12 (0,80-1,55) | 1,18 (0,84-1,67) | 1,27 (0,90-1,79) |
| Drenthe | **0,65 (0,52-0,80)** | **0,70 (0,56-0,88)** | **0,71 (0,57-0,90)** | 0,79 (0,62-1,02) | 0,80 (0,60-1,07) | 0,84 (0,63-1,13) |
| Brabant-Zuidoost | **0,83 (0,73-0,94)** | 1,01 (0,88-1,17) | 1,12 (0,97-1,29) | 1,08 (0,93-1,25) | 0,99 (0,84-1,18) | 1,04 (0,87-1,24) |
| Amsterdam | 0,96 (0,84-1,11) | **0,73 (0,62-0,85)** | **0,77 (0,66-0,90)** | 0,90 (0,76-1,06) | 0,93 (0,78-1,11) | 1,03 (0,86-1,23) |

PR: prevalence ratio. CI: confidence interval. PR's in bold are significant p<0.05. Model 1: region. Model 2: region, demographic factors, and SES. Model 3a: region, demographic factors, SES, and lifestyle. Model 3b: region, demographic factors, SES, and loneliness. Model 3c: region, demographic factors, SES, and mastery. Model 4: region, demographic factors, SES, lifestyle, loneliness, and mastery. Results from robust Poisson regressions (n = 334,721), based on weighted data.