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Citation

Van Lente E, Barry MM, Molcho M, Morgan K, Watson D, Harrington J, McGee H. Measuring population mental health and social well-being. International Journal of Public Health. 2012;57(2):421-30.

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Measuring Population Mental Health and Social Well-being

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Keywords:
Population mental health, social well-being

Authors' contributions

EVL, MB, MM, KM, HMcG, DW and JH contributed to the analysis and interpretation of data. MB, MM, HMcG and DW contributed to the conception and design of the study. All authors were involved in the drafting and revising of the manuscript and have read and approved the final manuscript.

Measuring Population Mental Health and Social Well-being

Abstract

Objectives: This paper examines the relationships between indicators of positive and negative dimensions of mental health, social well-being and physical health.

Methods: The paper reports on data collected in the third National Survey of Lifestyle, Attitudes and Nutrition (SLÁN 2007), a cross-sectional survey conducted with a representative sample of 10,364 Irish adults. The survey included measures of positive mental health and non-specific psychological distress from the SF-36 questionnaire, together with measures of social well-being, subjective health, and selected health behaviours.

Results: Positive mental health is predicted by lower levels of loneliness and higher levels of social support. Better self-rated health, positive health behaviours and lower GP consultation rates are associated with higher levels of positive mental health. Lower levels of social well-being, were found to be the strongest predictors of negative mental health.

Conclusions: Social well-being and health behaviours correlate with both positive and negative mental health. These findings highlight the need to endorse comprehensive approaches to population mental health promotion. The inclusion of both positive and negative mental health indicators in future population health surveys is supported by the findings.

Introduction

There is increasing recognition internationally of the need to address mental health as an integral part of improving population health and well-being (WHO 2002; WHO 2005). Despite this, relatively few population health surveys include indicators of mental health as part of their suite of measures. From a population perspective, mental health problems have a high prevalence and impose a significant burden in terms of social and economic costs (WHO 2003; Williams et al. 2005; Friedli and Parsonage 2007). In addressing the burden of mental disorder, it is recognised that treatment approaches alone are not sufficient and that a more comprehensive population-level approach is required, which includes promotion, prevention, specialist treatment and rehabilitation (WHO 2002; WHO 2003). The World Health Organization's Mental Health Declaration and Action Plan (WHO 2005) for Europe, the European Commission's Green Paper on 'Towards a strategy on mental health for the European Union' (European Commission 2005) and the UK Foresight project (Foresight Mental Capital and Wellbeing Project 2008) have all highlighted that the social and economic prosperity of Europe will depend on improving population mental health and well-being. Accurate information on population mental health status and its determinants is critical to informing mental health improvement policy and planning at a population level.

Despite the clear need for population level data, to date there is paucity of information on the relationship between different aspects of mental health, social well-being and physical health. Existing information on population mental health and its determinants is derived mainly from community epidemiological studies of psychiatric morbidity, which tend not to include the positive dimensions of mental health and social well-being (Keyes 2005). Studies by Keyes

(2005; 2002) and Huppert and Whittington (2003) present empirical support for the independence of positive and negative mental health and report that mental health and mental disorders are not opposite ends of a single continuum but rather constitute distinct, though correlated, axes. Thus the absence of mental disorder does not equal the presence of mental health and individuals without a mental disorder may experience varying degrees of positive mental health and well-being. This, combined with the growing evidence on the relationship between physical and mental health (Prince et al. 2007), underscores the need for national health surveys to include both positive and negative mental, social well-being and physical health indicators in order to obtain a more comprehensive picture of the different dimensions of population health.

This paper reports on the 2007 Survey of Lifestyle, Attitudes and Nutrition (SLÁN 2007), a national adult population survey in Ireland (Morgan et al. 2008; Barry et al. 2009), which includes a number of dimensions of mental health, both positive and negative mental health, and social well-being as part of the core suite of health survey measures. To ensure comparability, the recommended mental health indicators for Europe, developed by the STAKES Mindful Project (Lavikainen et al. 2006), were employed. The survey design builds on earlier surveys in Europe and other westernised countries by including the following components: health (e.g. European Opinion Research Group 2003), social well-being (e.g. Dalgard et al. 2006), non-specific psychological distress and positive mental health (e.g. European Opinion Research Group 2003; Lehtinen 2005; Dear et al. 2002) and health behaviours. The inclusion of these components in one comprehensive health survey permits the exploration of the relationships between the mental, physical and social dimensions of health and well-being in a community sample. This paper examines the levels of positive and negative mental health in the survey sample and explores the relationship of

the positive and negative dimensions of mental health to socio-demographic factors, indicators of social well-being and physical health.

Methods

Study design

Data collected in the third National Survey of Lifestyle, Attitudes and Nutrition (SLÁN) study conducted in 2007 in Ireland (Morgan et al. 2008; Harrington et al. 2009) are presented. This study collected detailed information on health-related behaviours and lifestyle from a nationally representative sample of 10,364 respondents (62% response rate) through face-to-face interviews. Study protocols were given ethical approval by the Research Ethics Committee of the Royal College of Surgeons in Ireland (RCSI).

Sample

The population for the survey was defined as adults aged 18 years and over living in private households in Ireland. The sample was obtained from a GeoDirectory list of all residential addresses in the Republic of Ireland, in a multi-stage probability sample, where each dwelling has a known probability of selection. The sample was weighted to closely approximate the Census 2006 figures for gender, age, marital status, education, occupation, region, household size and ethnicity (Morgan et al. 2008).

Measures

SLÁN 2007 respondents were measured on the following socio-demographic variables; gender, age, highest level of education attained, marital and employment status, residential location (urban vs. rural), annual household income (calculated as quintiles based on survey respondent's income and number and age-group of people living in the household, using the national equivalence scale (Callan et al. 1996)), and social class. The social class schema used here is based on the European Socio-economic Classification (ESeC) (Harrison and Rose 2006). This assigns individuals and households to social class groups based primarily on occupational position. This classification follows the model recommended by the ESeC User Guide (Harrison and Rose 2006), with the exception of class 7 that has been combined with ESeC classes 8 and 9 to form a single class (SC 4).

As recommended by the European Commission-funded project *Establishment of a Set of Mental Health Indicators for the European Union (1999-2001)*, a suite of measures assessing the positive aspects of mental health, non-specific psychological distress and social well-being were employed. Some of these recommended measures, marked with an '(S)' are described below. Respondents were also asked a number of other questions relating to social well-being, self-rated health, health behaviours, and quality of life.

Mental health and social well-being measures

Positive mental health (S): Positive mental health is measured using the Energy and Vitality Index (EVI) from the RAND SF-36 questionnaire (Kovess and Beaudet 2001; Lavikainen et al. 2006). Respondents were asked to respond to four questions about affective aspects of their well-being during the past four weeks on a six-category scale, going from 'All of the time' to 'None of the time' (Lavikainen et al. 2006). Their responses are presented as a sum

score ranging from 0 to 100. In the current survey, the Cronbach's alpha reliability for the EVI is 0.78. No formal cut-off is established to distinguish those with high levels of positive mental health or 'flourishing' from those with lower levels. For the purposes of this study, following Nieboer et al. (2005) and Braunholtz and Scotland Social Research (2006), a cut-off point was generated to identify a 'high energy and vitality group' (High EVI), based on EVI scores that were equal to or over one standard deviation above the mean (i.e. 87 in the current sample) indicating optimal levels of mental health or 'flourishing'.

Negative mental health (S): Negative mental health is measured in the current study using the five item Mental Health Index-5 (MHI-5) (also called 'non-specific psychological distress') from the RAND SF-36 questionnaire (Ware et al. 1993), that measures the occurrence and extent of psychological distress (usually of anxiety and depression related distress states) during the past four weeks (Lavikainen et al. 2006). Responses are presented as a sum score ranging from 0 to 100, with low scores indicating greater psychological distress. A respondent is considered to have a 'probable mental health problem' (PMHP) if they report a score equal to or below a recommend cut-off point of 56 (Lavikainen et al. 2006). In the current survey, the Cronbach's alpha reliability for the MHI-5 is 0.78.

Social support (S): Three questions comprising the 14-point Oslo Social Support Scale (Brevik and Dalgard 1996) were included, as follows: (i) 'number of close friends'; (ii) 'people are showing a friendly interest'; and (iii) 'ease of getting practical help from neighbours'. Scale scores were split into three categories – poor social support (3-8), moderate social support (9-11) and strong social support (12-14). Using the current data, the Cronbach's alpha reliability for the social support scale is 0.53.

Loneliness: To capture the experience of loneliness in the Irish population, a single question was included, asking respondents to answer 'Yes' or 'No' to the question '*Have you often felt lonely in the last 4 weeks?*' (Morgan at al. 2008).

Community involvement: Respondents were asked a series of questions about their involvement in community activities, such as joining in the activities of sports clubs or evening classes. Modified versions of questions used in the fourth sweep of the West of Scotland Twenty-07 Study (Macintyre et al. 1989) and the Lifeways Study (*see* www.ucd.ie/phps/research/lifeways.htm) were employed. In this study, community involvement is used as a dichotomous scale ('involved in one or more community activities' *versus* 'involved in none').

Indicators of Physical Health

In order to explore the relationship between mental and physical health, data on subjective health and a number of selected health behaviours were also examined.

Self-rated health: Respondents were asked to rate their health on a standard widely used single question with response categories - 'excellent'; 'very good'; 'good'; 'fair'; and 'poor'.

Health Behaviour Variables: Data on smoking were extracted from the main survey and responses were grouped into the following categories; current smoker, former smoker and never smoked. Alcohol intake was assessed using the AUDIT-C alcohol screen (Achtmeyer 2003). Scores range from 0-12 on this scale with a score of five or more (called 'positive') indicating increased risk for hazardous drinking or active alcohol abuse (using UK norms). The International Physical Activity Questionnaire (IPAQ) Short Form (Hagströmer et al.,

2007) was used to assess levels of physical activity. Categorical scoring was used as follows: Low (little or no physical activity); Moderate (five or more days of moderate intensity activity and/or walking of at least 30 minutes per day); High (vigorous-intensity activity on at least three days and accumulating at least 1,5000 MET minutes/week).

Doctor Consultations and Recent Activity Limitation: Respondents were also asked a number of questions about doctor consultations and recent activity limitation in the last 30 days based on two questions from the European Health Interview Survey (European Commission 2006) and the Behavioral Risk Factor Surveillance System (Hennessy et al. 1994).

Analyses

Weighted data were used for all analyses. Descriptive analyses were used to describe the sample. All descriptive analyses were conducted using SPSS V. 15.0. Logistic regressions were used to determine the predictors of both positive and negative mental health. These analyses were conducted in STATA V.11 and included adjustments to the standard errors for sample clustering and weighting.

Results

Socio-Demographic Correlates of Mental Health Status

The mental health status of the survey respondents broken down by socio-demographic variables is presented in Table 1. Most adults reported relatively high levels of energy and vitality in the past four weeks, with an overall mean score of 68 (SD = 19). Some 15% of

respondents reported High EVI scores i.e., scores that are equal to or over one standard deviation above the mean (>=87) indicating optimal levels of mental health or 'flourishing'. Men were more likely than women to have high scores on the EVI and respondents in the youngest age group (age 18-29) were more likely to have high scores than older adults. Those in employment and those with higher levels of education and higher incomes were more likely to have High EVI scores, but the differences by social class were not as marked. The differences by marital status – with single adults most likely and widowed adults least likely to have reported High EVI scores – are probably mainly due to age differences. Those living in urban areas were less likely to have High EVI scores than those living in rural areas.

Relatively low levels of psychological distress were reported by survey respondents, with an overall mean score of 82 (SD = 16). Some 6.4% of the population were scored as having probable mental health problems (PMHP). Women, those with lower education, those living in urban areas, widowed adults and those not in employment were more likely to report high levels of psychological distress. High levels of psychological distress were also more common among those in the lower technical/service and routine social class and those in the lower income quintiles.

Socio-demographic and social well-being predictors of positive and negative mental health

Table 2 presents the findings from the logistic regression models predicting high levels of positive mental health (i.e. High EVI scores). As noted above, the analysis controls for the impact on standard errors of sample clustering and weighting.

The strongest predictors of High EVI scores were the social well-being variables of loneliness and social support. Those reporting that they feel lonely and that they experience poor levels of social support were much less likely to report High EVI, over and above the effect of the socio-demographic variables. The only socio-demographic variables significantly associated with High EVI scores, once the social well-being variables are controlled, were gender, urban/rural location and social class. Women and those living in urban areas were less likely to report high levels of energy and vitality. Somewhat paradoxically, those in the lower social classes (lower technical, lower sales and service and routine occupations) were more likely to report high levels of energy and vitality. When income (which is not significant in the model) is dropped, this association with social class is no longer statistically significant. This suggests that those in the lower technical, lower sales and service and routine occupations were more likely to report high energy and vitality than would be expected based on their incomes.

Table 3 shows the results of a logistic regression model predicting probable mental health problems (PMHP) as measured on the MHI-5 scale. Again, the strongest predictors were the social well-being measures, especially loneliness. Poor levels of social support and lack of community involvement were also associated with an increased likelihood of PMHP. Older adults (age 65 and over) showed a lower incidence of PMPH. A higher incidence of high psychological distress was found among those living in urban areas and those with lower incomes. The associations with gender, marital status, economic status (in employment or not) and social class were not significant with other characteristics controlled.

Table 4 shows the association between the two measures of mental well-being and a range of other outcomes of interest to health researchers. Clear associations were found between self-rated health, selected health behaviours and positive mental health (see Table 4). Respondents with higher levels of positive mental health (High EVI) were more likely to report better self-rated health ($p < 0.001$), to be physically active ($p<0.001$), less likely to smoke ($p= 0.001$) and less likely to consult a GP in the last 12 months and to report less activity limitation (0.33 average days lost in the last 30 days for High EVI group in contrast to 1.7 days for other adults). However, the analysis did not show any clear relationship with reported alcohol consumption patterns. In relation to negative mental health, similar patterns, though in the opposite direction, were found for those in the PMHP group who were experiencing high levels of psychological distress: they were less likely to report excellent or very good health, more likely to be current smokers and to have a low scope on the IPAQ rating of physical exercise, and more likely to have consulted a GP in the last 12 months. The PMHP group had a much higher average number of days lost due to physical or mental health problems in the past month (5.84).

Discussion

The findings on positive mental health compare favourably with those reported from other European countries (European Opinion Research Group 2003). The overall mean score of 68 reported in the present study is somewhat greater than the score of 65 reported in an earlier Irish postal survey by Blake et al. (2000) and also greater than a mean of 61 reported for 15 European countries based on the Eurobarometer 58.2 survey (European Opinion Research Group 2003). It should be noted that the current survey was undertaken during the economic

boom in Ireland. It is, therefore, open to question whether such high levels of positive mental health would be obtained if repeated in the current recessionary economic climate. In addition, in view of the methodological differences in sampling and survey administration across studies, caution is advised in making strong inferences about differences in the mean levels reported. However, in keeping with previous findings (Keyes 2002; Lehtinen et al. 2005), there was evidence of a strong association between high levels of positive mental health, gender, and social and economic factors. Being male, younger, having higher income, higher levels of education and being in paid employment were all found to be strongly predictive of high levels of positive mental health at the bivariate level. Lower levels of loneliness and higher levels of social support also emerged as being strongly associated with positive mental health, when the analysis controlled for other factors.

With regard to the prevalence of probable mental health problems in the population, the figure of 6.4% compares favourably with a value of 10.5% reported in the British Household Panel Survey (Taylor et al. 2005), and the average of 23% reported from a Eurobarometer survey of 15 European countries (European Opinion Research Group 2003). Ireland was reported as having 16% of respondents with probable mental health problems in that 2003 Eurobarometer survey. The difference in sampling methods used between SLÁN 2007 and Eurobarometer may account for the difference in results. The socio-demographic associations with psychological distress (MHI-5) at the bivariate level are similar to those seen in earlier studies, e.g., Jenkinson et al. 1993; with men reporting lower levels of psychological distress, as did those in the oldest age group (65+ years). On the other hand, those in lower income quintiles had higher levels of psychological distress.

In keeping with previous findings from the international literature (Prince et al. 2007; Melzer et al. 2004; Kessler 2007), indicators of social and economic well-being such as loneliness, low levels of social support, lack of community involvement, and lower income levels were all associated with negative mental health in the SLÁN 2007 survey. While it is not possible to determine the direction of causality in a cross-sectional survey, there is increasing recognition that mental health is both a cause and a consequence of social and economic inequities, i.e. mental health problems both reflect deprivation and contribute to it (Melzer et al. 2004; Friedli, 2009). The WHO Commission on the Social Determinants of Health (2008) calls for action on 'the causes of the causes' of poor health in society. The impact of the experience of inequity and its consequence on people's mental health is under-researched and the extent to which poor mental health contributes to social and health inequities needs to be better understood and further researched.

While gender played an important role in influencing positive mental health status – even with other characteristics controlled – in the logistic regression model on negative mental health, the effect of gender was not significant when included with other socio- demographic variables, measures of social support, loneliness and community involvement. This finding suggests that perhaps gender in itself is not a risk factor for negative mental health but is associated with other determinants of mental health. Most martial status variables became non-significant when social well-being variables were added, suggesting that social well-being variables - especially loneliness - may explain some of the effects of marital status on mental health variables. Loneliness was by far the strongest predictor of experiencing probable mental health problems.

There were fewer socio-demographic predictors of positive mental health than negative mental health in the model. The clearest difference between predictors of positive and negative mental health emerged in relation to the influence of income levels. The logistic regression models showed a clear association between income and reported negative mental health (PMHP) but no such relationship was evident in relation to income and positive mental health (High EVI). This seems to support other findings (WHO 2005; Huppert and Whittington 2003; Prince et al. 2007) in suggesting that positive mental health and negative mental health are two discrete dimensions of mental health rather than two ends of one continuum.

The findings clearly suggest that positive social well-being contributes to positive mental health, although it is difficult to determine the direction of this effect. Better self-rated health, more positive health behaviours, lower reported levels of GP and recent activity limitation were also found to be associated with higher levels of positive mental health. Findings from other studies confirm that adults with higher levels of positive mental health are more likely to have better functioning and fewer limitations of daily living in comparison to those who are moderately mentally healthy, i.e. reporting no detectable mental health problems (Prince et al. 2007). Therefore, there is added value in determining the levels of positive mental health over and above what may be gleaned from measures of negative mental health alone (i.e. presence or absence of probable mental health problems).

The limitations of this study, in terms of the difficulty in determining the direction of effect from the cross-sectional design, need to be borne in mind when interpreting the relationships between the measures of mental health, social well-being and health behaviours included in the survey. The measures used are tailored for rapid data capture with some inevitable

compromise of detail and comprehensiveness. For example, while the EVI scale is a robust and relatively short measure of positive mental health recommended for use in population surveys, it may not be regarded as a comprehensive measure of positive mental health. The same limitation applies in relation to the brief measures of social well-being that were included in the survey. Further examination of the determinants of positive mental health and of social well-being using a more comprehensive suite of measures is warranted.

Consistent with the international literature, indicators of social and economic well-being were associated with mental health status in this study, highlighting the need for comprehensive intersectoral policy approaches in improving mental health at a population level. The study findings support the call for models of population mental health promotion that will intervene at the level of strengthening individuals' social participation, strengthening communities, improving access to community services and removing the structural barriers to mental health through initiatives to reduce economic and social inequities (Foresight Mental Capital and Wellbeing Project 2008; Friedli 2009; Barry and Friedli 2008). Results from the present study also support the view that positive mental health is more than the absence of negative mental health and is associated with indicators of higher levels of social well-being, positive health behaviours, and improved health functioning.

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Tables

Table 1 - Mental health status by socio-demographic variables in the general population in Ireland (SLÁN 2007)

		SF-36 Energy and Vitality Index (EVI)		SF-36 Psychological Distress (MHI-5)	
		Mean	SD	Mean	SD
Overall mean		68.1	19.1	81.7	15.6
Social-Demographic Variables		**High EVI %**	**Un-weighted count**	**PMHP %**	**Un-weighted count**
Gender	Male	17.2%	4369	6.3%	4369
	Female	11.9%	5995	7.5%	5995
Age	18-29	16.9%	1907	6.7%	1907
	30-44	13.5%	3310	8.0%	3310
	45-64	14.1%	3178	7.2%	3178
	65+	13.3%	1969	4.3%	1969
Education	Primary	13.2%	1841	10.3%	1841
	Second level	14.8%	4670	7.3%	4670
	Third level	14.9%	3853	4.6%	3853
Location	Rural	16.5%	4340	4.6%	4340
	Urban	13.0%	5866	8.4%	5866
Marital status	Married/cohabiting	13.9%	5849	5.6%	5849
	Single	15.9%	2958	8.3%	2958
	Divorced/separated	14.1%	629	11.5%	629
	Widowed	12.2%	902	6.5%	902
Econ. Status	Not at work	12.5%	4320	9.0%	4320
	Working	15.7%	5862	5.5%	5862
Social Class	Professional/managerial	14.0%	3582	4.5%	3582
	Intermediate	15.0%	1475	5.2%	1475
	Self-employed	15.8%	1546	4.2%	1546
	Lower technical/service & routine	14.5%	2898	10.2%	2898
Equivalised	Lowest	12.4%	1721	11.1%	1721
Income	2nd quintile	12.9%	1903	8.2%	1903
Quintile	3rd quintile	14.8%	1854	6.9%	1854
	4th quintile	16.4%	1852	5.4%	1852

Top quintile	15.4%	1835	3.4%	1835	

Table 2 – Logistic regression models predicting positive mental health (High Energy and Vitality, >=87, p=15%) in the general population in Ireland (SLÁN 2007)

				95% Confid. Interval	
		Odds	P	Lower	Upper
Gender (Ref=male)	Female	**0.63**	0.00	0.54	0.73
Age (Ref=18-29)	30-44	0.86	0.25	0.66	1.12
	45-64	0.86	0.28	0.65	1.13
	65+	0.91	0.62	0.64	1.30
Education	Primary	0.82	0.19	0.61	1.10
(Ref= Third level)	Second level	0.91	0.37	0.75	1.11
Location (Ref=rural)	Urban	**0.75**	0.01	0.62	0.92
Marital stat.	Single	1.12	0.34	0.89	1.41
(Ref=married/cohabiting)	Divorced/separated	1.42	0.13	0.90	2.25
	Widowed	1.11	0.57	0.78	1.58
Econ Status (Ref: not at work)	Working	1.11	0.34	0.90	1.37
Social Class	Intermediate non-manual	1.20	0.16	0.93	1.54
(Ref=profess./manag)	Self-employed	1.07	0.55	0.85	1.36
	Lower technical/service & routine	**1.32**	0.01	1.06	1.65
Equivalised Income	Lowest	0.89	0.49	0.64	1.24
quintile	2nd quintile	0.87	0.36	0.65	1.17
(Ref = top fifth)	3rd quintile	0.93	0.52	0.73	1.17
	4th Quintile	1.09	0.46	0.86	1.38
Social support	Poor support	**0.50**	0.00	0.35	0.71
(Ref=Strong support)	Moderate support	**0.63**	0.00	0.51	0.77
Loneliness		**0.27**	0.00	0.19	0.40
Community Involvement (lack of)		0.95	0.63	0.79	1.16
N cases		8038			
F		7.55 (22,367)			

Note: Analysis conducted in STATA using 'svy:logistic' routine to adjust standard errors for weighting and sample clustering.

Table 3 – Logistic regression models predicting negative mental health (MHI-5<=56, p=6.4%) in the general population in Ireland (SLÁN 2007)

				95% Conf. Interval	
		Odds	P	Lower	Upper
Gender	Female	1.13	0.43	0.83	1.54
Age (Ref=18-29)	30-44	1.48	0.06	0.98	2.25
	45-64	1.14	0.42	0.83	1.58
	65+	**0.48**	0.00	0.29	0.79
Education	Primary	1.48	0.07	0.97	2.25
(Ref.= Third level)	Second level	1.22	0.21	0.90	1.65
Location (Ref.=rural)	Urban	**1.51**	0.02	1.06	2.13
Marital stat.	Single	1.16	0.45	0.79	1.72
(Ref=married/cohabiting)	Divorced/separated	0.76	0.21	0.49	1.17
	Widowed	0.59	0.08	0.33	1.07
Econ Status	Working	0.80	0.16	0.59	1.09
Soc Class	Intermediate	0.81	0.27	0.55	1.18
(Ref=profess./manag)	Self-employed	0.85	0.42	0.56	1.27
	Lower technical/service & routine	1.33	0.06	0.99	1.80
Equiv. Income quintile	Lowest	**1.94**	0.01	1.21	3.12
(Ref = top fifth)	2nd quintile	**1.87**	0.02	1.12	3.11
	3rd quintile	**1.76**	0.02	1.09	2.83
	4th Quintile	1.46	0.09	0.95	2.24
Social support	Poor support	**2.19**	0.00	1.43	3.35
(Ref=Strong support)	Moderate support	1.29	0.17	0.90	1.85
Loneliness		**5.54**	0.00	4.04	7.59
Community Involvement (lack of)		**1.98**	0.00	1.49	2.64
N cases		8008			
F		15.49 (22,367)			

Note: Analysis conducted in STATA using 'svy: logistic' routine to adjust standard errors for weighting and sample clustering.

Table 4 – Association between Indicators of Physical Health and Positive and Negative Mental Health (column percentages, except for 'Average days lost') in the general population in Ireland (SLÁN 2007)

		Energy & Vitality		Psychological distress	
		Not High	High	Not High	High
Self-Rated Health***	Excellent	19%	40%	23%	13%
	Very Good	36%	36%	37%	20%
	Good	31%	20%	30%	32%
	Fair	11%	3%	9%	20%
	Poor	3%	0%	2%	15%
Smoking	Current smoker	29%	24%	27%	48%
(p=.001 for HIGHEV)	Former smoker	19%	20%	20%	10%
(p<.0000 for PMHP)	Never smoked	51%	57%	53%	42%
Exercise (IPAQ)***	Low	29%	21%	27%	41%
	Moderate	47%	47%	48%	45%
	High	23%	31%	25%	13%
Alcohol use	Not at risk	43%	45%	44%	37%
(p=.3013 for HIGHEV)	Hazardous	31%	28%	30%	32%
(p=.1211 for PMHP)	Probable dependence	26%	27%	26%	31%
GP Consultation***	In last 4 weeks	27%	15%	24%	44%
	1-12 months ago	49%	46%	49%	38%
	1-2 years ago	13%	16%	13%	9%
	More than 2 years ago	10%	19%	12%	7%
	Never	1%	3%	2%	1%
Average days lost***		1.70	0.33	1.18	5.84

*Note: Pearson Chi-Sq test (controlling for clustering) *** p<.001; ** p<.01; * p<.05. Wald test for Average days lost in last month, *** p<.001.*