Preventive Medicine 116 (2018) 119–125

Contents lists available at ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed

Cross-sectional associations between multiple lifestyle behaviours and excellent well-being in Australian adults

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ARTICLE INFO

Keywords:
Multiple lifestyle behaviours
Wellbeing
Physical activity
Sleep
Diet
Smoking
Alcohol

ABSTRACT

Research into associations between lifestyle behaviours and health has largely focused on morbidity, mortality and disease prevention. Greater focus is needed to examine relationships between lifestyle behaviours and positive health outcomes such as well-being. This study aims to examine the associations between multiple lifestyle behaviours and excellent well-being. Participants (n = 6788) were adults in the member database of the 10,000 Steps Australia project who were asked to participate in an online survey in November–December 2016. Well-being (WHO-5) Smoking, dietary behaviour, alcohol consumption, physical activity, sitting time, sleep duration, and sleep quality were assessed by self-report. Logistic regression analyses were used to examine relationships between excellent well-being (top quintile) and the individual lifestyle behaviours and also a lifestyle behaviour index (the number of lower-risk behaviours performed). Lower-risk dietary behaviour (OR = 1.29, 95% CI: 1.10–1.51), physical activity (OR = 1.90, 95% CI: 1.48–2.42), sitting time (OR = 1.46, 95% CI: 1.26–1.69), sleep duration (OR = 1.52, 95% CI: 1.32–1.75) and higher sleep quality (OR = 2.98, 95% CI: 2.55–3.48) were positively associated with excellent well-being, after adjusting for socio-demographics, chronic disease, depression, anxiety and all other lifestyle behaviours. Engaging in a higher number of lower risk lifestyle behaviours was positively associated with excellent well-being. These results highlight the need for multiple lifestyle behaviour interventions to improve and maintain higher well-being.

1. Introduction

Health should be considered beyond absence of disease and also consider aspirational health outcomes such as well-being and quality of life (Seligman, 2008; Diener and Chan, 2011; Antonovsky, 1996; WHO, 1948). Psychological well-being is an important part of overall well-being and has been associated with reduced mortality rates in both healthy and diseased populations (Chida and Steptoe, 2008). Conversely, lower levels of positive emotion and lower life satisfaction have been associated with increased risk of all-cause mortality (Howell et al., 2007). Significant proportions of western population report sub-optimal well-being (Blanchflower and Oswald, 2004; Huppert and So, 2013) and it is increasingly recognized that there is a need to better understand factors that contribute to attaining and maintaining well-being beyond absence of disease (Seligman, 2008; Huppert and So, 2013; Prendergast et al., 2016a).

Lifestyle behaviours such as smoking, alcohol consumption, diet, physical activity, sitting time and sleep duration and quality have been associated with mortality (Loef and Walach, 2012; Ekelund et al., 2016; Buysse, 2014; Wilmot et al., 2012) and cardiovascular diseases (Sofi et al., 2010; Li and Siegrist, 2012; Ronksley et al., 2011; Hoevenaar-Blom et al., 2011; National Center for Chronic Disease, P., S. Health Promotion Office on, and Health, 2014). Lifestyle behaviours have also been associated with psychological distress (Hamer et al., 2009), depression (Teychenne et al., 2008; Jorm et al., 1999; Teychenne et al., 2010a), and anxiety (Jorm et al., 1999). However, relative to these negative health outcomes, there is considerably less evidence on the influence that lifestyle behaviours have on positive health outcomes

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https://doi.org/10.1016/j.ypmed.2018.09.003
Received 28 December 2017; Received in revised form 30 July 2018; Accepted 11 September 2018
Available online 13 September 2018

Table 1
Well-being according to socio-demographic characteristics, chronic disease, severity of depression and anxiety, and lifestyle behaviours in the 10,000 Steps cohort (November–December 2016).

	Characteristics	Total group (n = 6788)	Well-being		
			Excellent (n = 5196)	Not excellent (n = 1592)	p[1]
Socio-demographics	Age (%)				
	18–34	10.7 (723)	15.9	84.1	< 0.001
	35–44	15.8 (1072)	16.0	84.0	
	45–54	30.2 (2050)	22.4	77.6	
	55+	43.4 (2943)	28.7	71.3	
	Gender (%)				
	Male	26.0 (1762)	26.0	74.0	0.003
	Female	74.0 (5026)	22.6	77.4	
	Education (%)				
	Secondary school or less	12.6 (854)	23.5	76.5	0.203
	Technical or further educational institution	23.4 (1586)	21.8	78.2	
	University	64.1 (4348)	24.0	76.0	
	BMI (%)				
	Under 25 kg/m^2	37.0 (2509)	28.4	71.6	< 0.001
	25 < 30 kg/m^2	33.6 (2282)	24.5	75.5	
	Above 30 kg/m^2	29.4 (1997)	16.0	84.0	
	Shift work status (%)				
	Shift work	5.7 (386)	22.0	78.0	< 0.001
	No shift work	82.8 (5618)	22.6	77.4	
	Unemployed	11.5 (784)	30.0	70.0	
	Number of days worked in a week (mean (SD))	4.1 (1.8)	3.9 (2.0)	4.1 (1.8)	0.019
	Number of chronic diseases (mean (SD))	1.3 (1.4)	1.1 (1.2)	1.3 (1.4)	< 0.001
Severity of depression and anxiety symptoms	Depression (mean (SD))	3.0 (3.7)	0.8 (1.4)	3.7 (3.8)	< 0.001
	Anxiety (mean (SD))	2.1 (2.6)	0.9 (1.4)	2.4 (2.8)	< 0.001
Lifestyle behaviours	Smoking				
	Higher-risk	4.5 (304)	17.1	82.9	0.008
	Lower-risk	95.5 (6484)	23.8	76.2	
	Diet				
	Higher-risk	31.6 (2143)	17.1	82.9	< 0.001
	Lower-risk	68.4 (4645)	26.4	73.6	
	Alcohol				
	Higher-risk	26.1 (1771)	21.6	78.4	0.030
	Lower-risk	73.9 (5017)	24.1	75.9	
	Physical activity				
	Higher-risk	13.0 (880)	11.4	88.6	< 0.001
	Lower-risk	87.0 (5908)	25.3	74.7	
	Sitting time				
	Higher-risk	70.6 (5135)	20.3	79.7	< 0.001
	Lower-risk	29.4 (2139)	31.8	68.2	
	Sleep duration				
	Higher-risk	49.4 (3354)	16.8	83.2	< 0.001
	Lower-risk	50.6 (3434)	29.9	70.1	
	Sleep quality				
	Higher-risk	82.5 (5601)	17.8	62.7	< 0.001
	Lower-risk	17.5 (1187)	50.0	50.0	
Lifestyle behaviour index	0–2	8.3 (562)	7.1	92.9	< 0.001
	3	19.3 (1313)	11.6	88.4	
	4	30.3 (2057)	19.2	80.8	
	5	27.0 (1834)	29.3	70.7	
	6–7	15.1 (1022)	45.8	54.2	

[1] p-Value for categorical variables represent differences between subgroups in well-being for each variable, and differences in excellent well-being and not excellent well-being for continuous variables. Categorical variables examined using chi-square tests, continuous variables examined using Mann-Whitney U test. Possible range of depression and anxiety symptom scores 0–21.

such as well-being and happiness (Prendergast et al., 2016a). A recent study looking at multiple lifestyle behaviours found that exercise, sedentary behaviour and quality of sleep are individually associated with excellent well-being when statistically adjusting for engagement in other lifestyle behaviours (Prendergast et al., 2016a). Being physically active and having lunch, fruits and vegetables daily have been associated with greater happiness (Piqueras et al., 2011). Other studies have found that physical activity (Richards et al., 2015; Rosenkranz et al., 2013; Engberg et al., 2015; Grant et al., 2009; Stubbe et al., 2007; Page and Suwanteerangkul, 2009; Moljord et al., 2011), sitting time (Rosenkranz et al., 2013), smoking (Grant et al., 2009), sleep duration (Page and Suwanteerangkul, 2009) and diet (Meegan et al., 2017) are associated with aspirational health outcomes, such as excellent self-rated health, excellent well-being and high quality of life.

Previous studies examining these associations have only included one or two health behaviours (Prendergast et al., 2016a; Piqueras et al., 2011; Grant et al., 2009; Page and Suwanteerangkul, 2009). Given that lifestyle behaviours frequently co-occur (Prendergast et al., 2016b), there is a need to examine the relationship between a greater number of lifestyle behaviours and well-being. Further, examining positive outcomes such as excellent well-being may enable framing health messages more positively in a way that highlight benefits of engaging in