

An observational study exploring self-assessed physical activity and health in the Irish farming population

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Introduction

Although traditionally seen as a healthy and physically active profession, farmers have become the unhealthiest occupational sector of the Irish population (Smyth et al, 2012). Farmers suffer from the highest levels of non-communicable disease (NCD) related mortality in Ireland. Physical inactivity is a proven risk factor for the development of NCD (WHO, 2018). However, limited research has been conducted into the link between physical activity and NCD levels in this population.

Aims

Culminating from the previously discussed poor health trends being seen in the Irish farming population, this research aimed to:

- Determine the prevalence NCD (hypertension, cardiovascular disease, atrial fibrillation, stroke or transient ischemic attack (TIA), chronic respiratory conditions and diabetes) amongst the farming population in Ireland.
- Establish healthcare attendance and distance from health care centres in the farming population.
- Ascertain farmers willingness to make healthy lifestyle changes.
- Investigate farmers' beliefs towards the importance of physical activity, sleep and diet for health.
- Determine baseline physical activity levels of farmers in Ireland.

Methods

Participant Recruitment

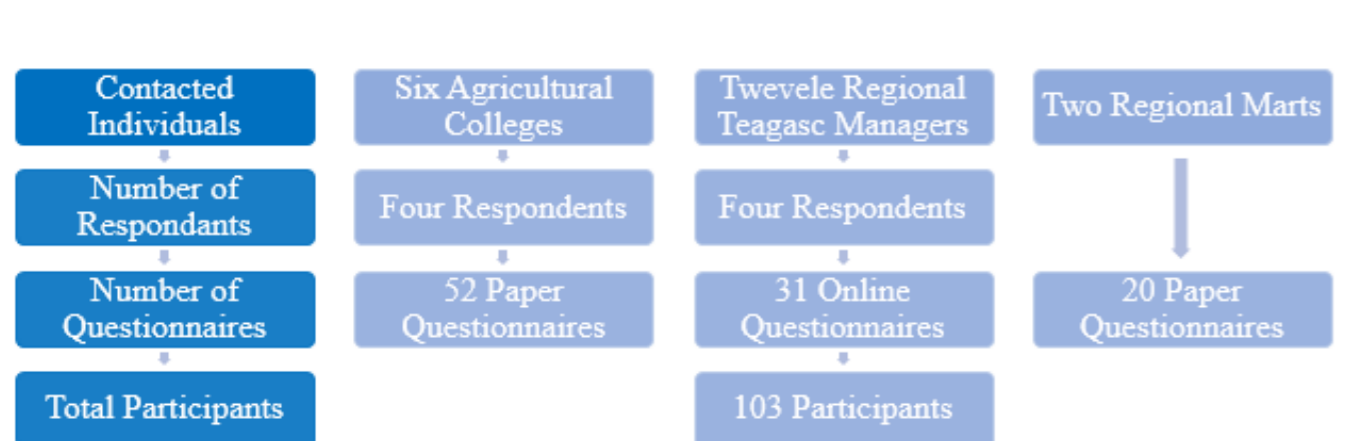
Participants were recruited through agricultural colleges, regional Teagasc managers and regional marts as outlined in Graphic 1. Participants could avail of either the paper or online version of the questionnaire. Recruitment resulted in 103 participants.

The Questionnaire

Consisted of two parts and was prefaced with a participant information sheet and a consent form.

- Part one addressed demographic information, NCD prevalence, health care attendance, GP distance, self-rated physical and mental health, willingness to make lifestyle changes and health beliefs.
- Part two consisted of the International Physical Activity Questionnaire – Short Form.

Graphic 1. Participant Recruitment Process



Data Analysis

Data was analysed using the Jamovi statistical data package. Frequency tables were employed to analyse demographic information, NCD prevalence, GP attendance and distance, motivation to make lifestyle changes and health beliefs towards physical activity, diet and sleep. Due to some participants choosing the "I don't know" option in the IPAQ-SF, some activity was not scored, therefore mean substitution was utilised to compensate for missing data (Kang, 2013). Due to the non-normal and positively skewed distribution of the IPAQ-SF METS scores, these variables were transformed using a LOG10 transformation. The data was then analysed for correlations using one-way ANOVAs.

Results

Table 1 Participant Demographics

	Count	Percentage
Age		
18-35 years	78	75.7%
36-49 years	7	6.8%
50-65 years	12	11.7%
66 years +	6	5.8%
Gender		
Male	94	91.3%
Female	9	8.7%
Type of Farm^a		
Dairy	61	59.2%
Beef	53	51.5%
Sheep	13	12.6%
Tillage	4	3.9%
Contracting	5	4.9%
Equine	3	2.9%
Poultry	1	1.0%
Education	1	1.0%
Farm Role^a		
Owner	22	21.4%
Partner	11	10.7%
Farm Manager	8	7.8%
Family Member	59	57.3%
General Operative	15	15.6%

^a Multiple answers possible

Key findings

- Farmers reported lower levels of NCD than the general population (Healthy Ireland, 2016).

Table 2 Incidence of NCD in Participants^a

NCD	Incidence	Percentage
Hypertension	9	8.7%
Cardiovascular Disease	1	1.0%
Atrial Fibrillation	3	2.9%
Stroke/TIA	0	0%
COPD, Asthma, or another Lung Condition	10	9.7%
Diabetes	2	1.9%
Not Applicable	80	77.7%

^a Multiple answers possible

- GP attendance varied hugely across the participants. However, nil effect was seen by GP distance.

Table 3 General Practitioner Attendance and Distance

	Count	Percentage
Attendance to an Annual Check-up^a		
Yes	12	38.7%
No	19	61.3%
Last Visit to a General Practitioner		
Less than 3 months	33	32.7%
Between 3 and 6 months	11	10.9%
Between 6 and 12 months	23	22.8%
Greater than 12 months	34	33.7%
Distance from General Practitioner or Medical Centre		
Less than 10km	63	61.2%
Between 10 and 20km	35	34.0%
Between 21 and 30km	3	2.9%
Greater than 31km	2	1.9%

^a Only 31 respondents to this question

- Farmers are an active population, with all participants achieving the WHO physical activity guidelines (2010).

Table 4 IPAQ-SF Scoring

	Vigorous Activity METS	Moderate Activity METS	Walking METS	Total METS
N	103	103	103	103
Mean	4311	2049	3017	9377
Median	1920	1080	1485	5988
SD	6832	2693	3827	9617
Minimum	0	0	0	180
Maximum	33600	16800	22176	41862
25 th Percentile	463	240	520	3074
50 th Percentile	1920	1080	1485	5988
75 th Percentile	3892	2520	3465	11963

- There is a significant relationship between the presence of Hypertension and Atrial Fibrillation and Total Activity METS.
- There is no significant relationship between the age and gender of participants and Total METS for the week.
- There is a moderate relationship between Type of Farm, Diabetes, Role of Physical Activity, Self-rated Physical Health and Self-rated Mental Health, Motivation to Make Healthy Lifestyle Changes with Total METS per week.

Table 5 One Way ANOVA (Kruskal Wallis) Comparing Total METS and Grouping Variables

Grouping Variable	p-value	Significant
Demographic Variable		
Age	0.01	No
Gender	0.06	Yes
Type of Farm	0.362	Yes
NCD Variable		
Hypertension	0.815	Yes
Cardiovascular Disease	0.201	Yes
Atrial Fibrillation	0.583	Yes
Stroke/TIA	0	No
COPD, Asthma or other Respiratory Condition	0.127	Yes
Diabetes	0.43	Yes
Non-applicable	0.095	Yes
Other Variables		
Role of Physical Activity	0.363	Yes
Motivation to Make Healthy Lifestyle Changes	0.441	Yes
Self-rated Physical Health	0.266	Yes
Self-rated Mental Health	0.166	Yes

- There is a significant relationship between both age and the belief of how important of a role physical activity plays for health with time spent sitting per day

Table 6 One Way ANOVA (Kruskal Wallis) Comparing Total Sitting Times and Grouping Variables

Variable	p-value	Significant
Age	0.958	Yes
Role of Physical Activity	0.71	Yes
Motivation to Make Healthy Lifestyle Changes	0.462	Yes

- There is a high awareness regarding the importance of physical activity, diet and sleep for health in the farming population.

Table 7 Health Beliefs

	Count	Percentage
Importance of Physical Activity for Health		
Very Important	54	52.4%
Important	32	31.1%
Somewhat Important	13	12.6%
Undecided	2	1.9%
Not Important	1	1.0%
Really Not Important	1	1.0%
Role of Diet for Health^a		
Very Important	26	51.0%
Important	20	39.2%
Somewhat Important	4	7.8%
Undecided	0	0.0%
Not Important	1	2.0%
Really Not Important	0	0.0%
Role of Sleep for Health^a		
Very Important	33	64.7%
Important	13	9.8%
Somewhat Important	5	22.5%
Undecided	0	0.0%
Not Important	0	0.0%
Really Not Important	0	0.0%

^a Only 51 respondents to this question

- Farmers are highly motivated to make healthy lifestyle changes.

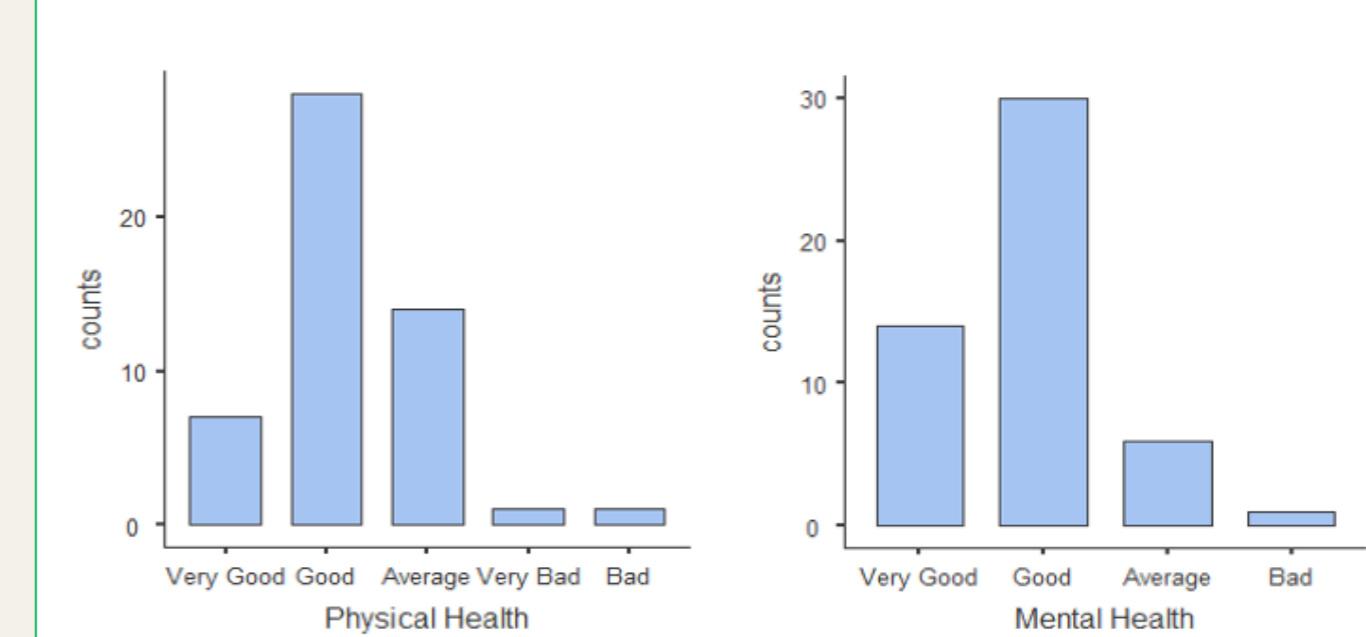
Table 8 Motivation to Make Healthy Lifestyle Changes

	Count	Percentage
Highly Motivated	17	16.5%
Motivated	37	35.9%
Somewhat Motivated	34	33.0%
Undecided	6	5.8%
Unmotivated	5	4.9%
Highly Unmotivated	3	2.9%

Note: One participant failed to answer question

- Most farmers self-report their physical and mental health to be average or better.

Graph 1 Self-rated Physical and Mental Health



Conclusion

Farmers reported lower levels of NCD than the general population, with highest incidence being of hypertension and respiratory conditions. Farmers tended to indicate very good or good levels of self-reported physical and mental health. Additionally, farmers are a highly motivated population with an awareness of the role of certain lifestyle factors for health.

In future research, an alternative to the IPAQ-SF should be considered to determine physical activity levels, as previous research has shown the IPAQ-SF scores to not correlate with objective physical activity data in the farming population (Cunningham et al, 2018). Furthermore, a large-scale objective longitudinal study to determine seasonal variation in physical activity.

References

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