RESEARCH ARTICLE

An investigation into the relationship between social support, stress, and psychological well-being in farmers

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Abstract

This study investigated the stress-buffering effect of social support on psychological well-being and impact of demographic factors on stress in a sample of farmers. One-hundred and ninety-six farmers completed an online questionnaire including measures of social support, stress, psychological well-being, and demographics. Overall, after controlling for stress, increased social support was associated with higher psychological well-being. Family support had a significant relationship with financial and farm-related factors of stress but not with psychological well-being, while friend and significant other support had a much greater impact on psychological well-being than family support. Membership of a farming organisation was found to be protective against social stress while working on one type of farm only (e.g., dairy) was protective against financial stress. The findings highlight the potential utility of the stress-buffering model in understanding stress among farmers. Future interventions which facilitate social support, reduce stress, and boost psychological well-being among farmers are needed.

KEYWORDS
buffering effect, farm stress, farmers, farm-related stress, psychological well-being, social support, stress

1 | INTRODUCTION

Mental health among farmers is increasingly recognised as a major issue (Hagen et al., 2019; McIntyre et al., 2009). However, while much of this study has primarily focused on environmental factors (Berry et al., 2011; Perceval et al., 2019), industrialisation (Kotter, 1962; Sundin & Willner, 2004), and changing farm practices (Bondy & Cole, 2019), only limited research has examined the effects of social support on the mental health of farmers. Similarly, there is an apparent absence of research investigating positive mental health outcomes (e.g., psychological well-being) among farmers compared to research investigating negative mental health outcomes such as depression and suicide (Hagen et al., 2019). In this context, the current study examines the relationship between social support, stress, and psychological well-being in Irish farmers.

1.1 | Social support, stress, and psychological well-being

Social support, despite being a well-known term, is often hard to define or conceptualise (Thompson, 1995). Generally, it is agreed that social support is a multidimensional construct that involves either the availability or presence of secure relationships with others (Horwitz & Scheid, 1999). Perceived social support, relates to a person's own appraisal of their social support as a coping response to stress and maintaining good psychological well-being (López & Cooper, 2011). For the purposes of this study, social support has been defined as the perceived availability of emotional and instrumental support (in line with Zimet et al., 1988), where emotional support relates to expressions of love, empathy, or trust, and instrumental support refers to tangible aid or assistance from others (Langford et al., 1997).

Social support has been consistently linked to stress (Krause, 1986) and psychological well-being (Thoits, 2011). Social support equips people with the necessary tools to manage emotions and respond to stressful situations (Brugha et al., 2005). Numerous studies have found perceived social support to have the strongest influence and connection with psychological well-being compared to received or actual social support (Barrera, 1986; Gjesfjeld et al., 2010; Procidano & Heller, 1983; Sarason et al., 1987). This is demonstrated in many studies highlighting perceived social support to be central in buffering the negative attributes of stress, such as anxiety and depression (Berkman & Glass, 2000; Gove et al., 1983; Wethington & Kessler, 1986).

As a result, Cohen and Wills (1985) put forward the theoretical framework of the stress-buffering model. According to this theoretical framework, social support buffers or cushions an individual's reaction to stressors and/or stressful situations (Cohen & Wills, 1985). In other words, the negative effects of stress on well-being can be reduced significantly by an individual's level and adequacy of social support (Hsieh & Tsai, 2019). The model has been shown to be useful in many contexts, for example, with parenting (DeGarmo et al., 2008) and smoking cessation (Creswell et al., 2014).

1.2 | Farm stress and social support

People from farming backgrounds tend to be stereotyped as having strong, well-structured social supports (Schulman & Armstrong, 1990). However, this is not always the case, with many farmers working alone for long hours, in stressful, dangerous, and remote environments, with little time to rest or socialise (Rautiainen et al., 2005; Truchot & Andela, 2018). As a result of this isolating lifestyle, many farmers suffer from mental health problems and poor psychological well-being, as well as engaging in alcohol and drug misuse (Roy et al., 2013). Consequently, high levels of suicide have been reported among the farming population compared to other groups (Alston & Kent, 2008). In this regard, it can be argued that farming is far from idealistic and sustainable living (Rautiainen et al., 2005).

On the other hand, Boyd et al. (2008) suggested that when dealing with stress and adversity, people living in rural places tend to rely more on their community than those living in towns or cities who tend to rely more on their own core individual characteristics and values. A previous study by Caldwell and Boyd (2009) on a farming population, found support from family members to be very important in promoting psychological well-being. Furthermore, they found that a strong marital relationship may play an important role in promoting good psychological well-being among farmers. They also found that farmers who grew up in the area they farm in, tend to have increased social supports compared to those who did not grow up in the area. Support from communities and groups was another strong indicator of psychological well-being, decreasing feelings of isolation and promoting a sense of belonging and feelings of support from others. Organisations and groups outside of the farming context, such as local sports clubs, provide an opportunity for farmers to step away from the farm for a couple of hours and meet with other like-minded people. Similarly, local pubs and hotels tend to be popular places for local farmers to meet up with each other to relax and share their experiences.

1.3 | The current study

Following the above, our study focused on the potential buffering effects of social support on stress and psychological well-being among farmers. The negative influence of farm stressors and potential for social support in a rural community suggests the potential usefulness of the stress-buffering model of social support (Cohen & Wills, 1985) to better understand the relationship between farmers' perceived social support, appraisal of stress, and psychological well-being. However, to our knowledge, no study to date has employed this model to examine the influences of stress and social support on the well-being of farmers. As a result, this study was designed to determine the relationship between farmers perceived social support, appraisal of stress, and psychological well-being levels. Therefore, the study aims to answer three main questions; (1) How do farmers' social-related, farm-related, and financial-related stress vary by demography? (2) Do higher levels of particular forms of social support significantly predict lower social-related, farm-related, and financial-related stress levels and higher psychological well-being? Finally, in line with the stress-buffering model of social support, we hypothesised that, after controlling for stress, increased levels of social support would be associated with higher psychological well-being in farmers.

2 | METHODOLOGY

2.1 | Study design

This was a cross-sectional survey design, with a single group of participants being measured at one-time point in relation to their perception of social support, appraisal of stress, and self-perception of psychological well-being.

2.2 | Recruitment process and participants

Eligibility for this study required participants to be over the age of 18 years and work as a farmer either full-time (main source of income) or part-time (work off-farm to supplement income or work seasonally). Participation was voluntary and there was no incentive to take part in the study. Participants were recruited via a call for participation through (Organisation names removed for peer review) in Ireland. A recruitment notice containing a link to the survey was also circulated via WhatsApp, Facebook, SMS, Instagram, and email from key stakeholders from these groups and additional personal contacts from the researchers.

2.3 | Data collection

Participants were directed to an online questionnaire hosted by Qualtrics by clicking on the link. The first step for participants was to read the plain language statement and complete the consent form. If participants answered 'no' to any of the questions on the consent form, they were automatically directed to the end of the questionnaire. Those who consented to participate were automatically directed onto the questionnaire. The questionnaire took about 20 min to complete. Once completed, the participant was directed to the "thank you" page at the end of the questionnaire. There were also contact details provided for relevant national counselling services and farmer-specific services for any participant who experienced distress or was currently suffering from distress.

The questionnaire began with a set of demographic questions, including questions on gender, age, relationship status, education, type of farmer, type of farm, and whether a participant was a member of a farm organisation. Participants were asked to select what type(s) of farm they worked on; dairy, beef, tillage, sheep, and organic categories were provided. There was also an 'other' option for participants to add in other farm types, if they were not listed in the given options. The demographic questionnaire was followed by three other measures: the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988), the Farm/Ranch Stress Inventory (Kearney et al., 2014), and the Psychological Well-Being Scale (Ryff, 1989).

2.3.1 | The Multidimensional Scale of Perceived Social Support

The MSPSS (Zimet et al., 1988) is a 12-item self-administrated scale developed to assess perceived social support, specifically emotional support (empathy, trust) and instrumental support (advice, help). Participants indicated on a 7-point Likert scale the extent to which they agree with each item across three different sub-scales (a) their family, (b) their friends, and (c) a significant other or special person.

The minimum subscale score possible is 4 and the maximum subscale score possible is 28. Furthermore, the minimum total score is 12 and the maximum total score is 84 (Zimet et al., 1988). Higher scores represent higher levels of perceived social support (Landeta & Calvete, 2002). Overall, the MSPSS demonstrates high psychometric qualities (López & Cooper, 2011). Internal reliability of 0.8 or greater is highly desirable for strong internal consistency, with the MSPSS providing high values for total and subscale scores consistently across studies (Clara et al., 2003; Landeta & Calvete, 2002; Zimet et al., 1988). Test-retest reliability, or consistency over time, also provides strong results (Zimet et al., 1988). Both total scores and subscale scores demonstrated high stability over 2–3 weeks, with correlations ranging from 0.72 and 0.85, representing strong internal reliability (Zimet et al., 1988). The MSPSS is widely used across different populations and environments (Zimet et al., 1988). Studies have used factor analysis to confirm the three-subscale structure of the MSPSS (Zimet et al., 1988). Thus, demonstrating adequate validity of the MSPSS.

2.3.2 | The Farm/Ranch Stress Inventory

This is a 28-item (Kearney et al., 2014) self-reported measure used to assess participants' appraisal of farm-related stressors across three sub-scales: farm-related factors (e.g., "operating hazardous machinery"), financial factors (e.g., "market prices for your crops/livestock"), and social factors (e.g., "limited social interaction opportunities"). Previous studies have used and validated these 28 items (Welke, 2004). For each item on the inventory participants are asked to "rate each item according to how much stress it causes you." Responses are recorded on a 4-point Likert scale, ranging from (1) "no stress," to (4) "very stressful." Items ranging from 14 to 56 make up the farm-related factors, items 9–36 make up the financial factors, and items 5–20 make up the social factors. Total scores for each of the three sub-scales represent the level of stress experienced by participants in that area. Therefore, low scores

represent lower stress levels and high scores represent greater levels of stress. The farm stress inventory concludes with a qualitative question asking participants to "Please list any other items you find stressful in relation to farming and rate them."

2.3.3 | The 42-item Psychological Well-Being Scale

This is a 42-item scale (Ryff, 1989) used to measure participants' psychological well-being. Positive elements of an individual's psychological functioning were measured across six components or subscales: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance, with strong reliability and validity evident across studies (Abbott et al., 2006). Autonomy represents independence (e.g., I can voice my own opinions), environmental mastery relates to the ability to feel in control of one's life, personal growth is a willingness to explore new thought processes and experiences in life, positive relations with others represents having strong relations with others, purpose in life is the idea that one sees their life as meaningful and finally self-acceptance or being content with one's own life and past life experiences. Participants indicated on a 7-point Likert scale, ranging from 1 ("Strongly disagree") to 7 ("Strongly agree"), the extent to which they agree with each item. Average values are calculated from the six subscales, with higher scores representing greater psychological well-being (Ryff, 1989).

2.4 | Data analysis

Descriptive statistics (i.e., mean, standard deviation, and frequency distributions) were used to describe the demographic characteristics of the participants. The reliability of the MSPSS, the Farm/Ranch Stress Inventory, and the PWBS were assessed with the Cronbach's alpha coefficient for each subscale and for the overall scale, as well as the mean, standard deviation, maximum and minimum values for each. Standard multiple regression analyses were then conducted to assess the impact of farm-related/demographic factors on stress and psychological well-being, as well as the impact of social support on stress. Finally, hierarchical multiple regression was used to test the stress-buffering model in predicting psychological well-being.

3 | RESULTS

3.1 | Sample characteristics

The sample consisted of 196 participants: 155 males (79.1%), 40 females (20.4%), and one whose gender was not disclosed (0.5%). The average age of participants was 42.58 years (SD = 15.08), with the oldest participant being 81 and the youngest participant being 18. Table 1 shows the breakdown of ages, participants' relationship status, participants' highest level of education, and type of farmer.

Table 1 also shows the breakdown of farm types, with mixed representing any participant who indicated working on more than one farm type. It must be noted "other" included forestry, equine, contracting, pig, poultry, horticulture, and suckler farming. It is also worth noting that the most common mixed farm types were beef/tillage farming (11.7%), dairy/beef farming (9.7%), beef/sheep farming (5.6%), and dairy/beef/tillage farming (3.1%). Overall, 42.1% of farmers had mixed farm types and 57.9% had non-mixed farm types. 139 participants were members of a farming organisation (M = 3.22, SD = 2.55), while 57 were not members of a farming organisation (M = 4.18, SD = 2.53).

TABLE 1 Demographic distribution of participants

Variable	N
Age	
18–24 years	44
25–34 years	20
35–44 years	32
45–54 years	54
55–64 years	11
65 years +	
Relationship status	
Married	120
Single/never married	54
Single but cohabiting with a significant other	20
Divorced/separated	2
Highest level of education	
Primary education	4
Lower secondary	29
Higher secondary	47
Trade/technical/vocational	47
Bachelor's degree	59
Master's degree	9
Doctorate degree	1
Type of farmer	
Full-time	101
Part-time (work off-farm to supplement income)	67
Part-time (seasonal i.e., still in education)	28
Farm type	
Dairy	52
Beef	42
Tillage	8
Sheep	5
Organic	1
Other	5
Mixed	83

TABLE 2 Means, standard deviations, maximum, minimum, and Cronbach's alpha scores

Variable	Mean	SD	Minimum	Maximum	α
Family Support	5.49	1.21	1	7	0.90
Friend Support	5.27	1.24	1	7	0.94
Significant Other Support	5.56	1.31	1	7	0.90
Total Social Support	5.44	1.07	1	7	0.85
Farm Related Factors	17.65	7.70	0	42	0.72
Financial Factors	11.97	6.68	0	27	0.76
Social Factors	3.51	2.58	0	12	0.88
Total Stress	33.13	15.19	0	80	0.78
Autonomy	35.30	7.17	18	61	0.78
Environmental Mastery	34.65	7.49	11	49	0.76
Personal Growth	37.27	6.35	22	49	0.76
Positive Relations	38.34	7.03	15	49	0.76
Purpose in Life	37.57	6.47	21	49	0.77
Self-Acceptance	35.03	7.66	12	49	0.75
Total Well-Being	218.15	33.31	127	285	0.88

Abbreviation: SD, standard deviation.

Table 2 gives an overview of the descriptive statistics for social support, stress, and psychological well-being, as well as the minimum and maximum values for each. The Cronbach's alpha (α) for each subscale is also included to indicate internal consistency (all of which were at an acceptable level).

3.2 | Inferential analyses

For the purpose of this study, case number 39 who identified as "prefer not to say" in the demographic gender question was excluded from the multiple regression analysis as there was not enough data for this group of individuals to make an accurate comparison to others based on their gender. The following demographic/farm related variables were dummy-coded in preparation for regression analyses: gender (female 0 and male 1), age, relationship status (not in relationship 0 and in relationship 1), type of farmer (part-time 0 and full-time 1), farm type (non-mixed 0 and mixed 1), and membership of farming organisation (no 0 and yes 1). Table 3 gives an overview of the standard multiple regression models predicting stress and psychological well-being.

3.2.1 | Relationship between demographic variables, farm-related factors and dimensions of stress

Social-related factors of stress
Standard multiple regression was conducted to predict social factors of stress among Irish farmers based on demographics. Preliminary analysis confirmed the data did not violate the assumptions of normality, linearity,

TABLE 3 Summary of standard multiple regression, models predicting stress, and psychological well-being

Variable	Stress			95% CI		
	B	SEB	β	Lower	Upper	R²
Social-related factors of stress						0.044
(Constant)	4.06	0.63		2.82	5.31	
Gender	−0.39	0.51	−0.06	−1.40	0.61	
Age	0.01	0.02	0.04	−0.03	0.04	
Relationship Status	−0.16	0.53	−0.03	−1.20	0.87	
Type of Farmer	0.06	0.41	−0.01	−0.75	0.87	
Member of Farming Organisation	−0.98	0.44	−0.17*	−1.84	−0.11	
Type of Farm	0.57	0.38	0.11	−0.18	1.31	
						0.032
Family Support	−0.19	0.24	−0.09	−0.66	0.28	
Friend Support	−0.25	0.19	−0.12	−0.63	0.13	
Significant Other Support	−0.03	0.22	0.02	−0.41	0.47	
Financial-related factors of stress						0.051
(Constant)	10.14	1.63		6.92	13.37	
Gender	0.12	1.32	0.01	−2.50	3.72	
Age	0.07	0.04	0.16	−0.01	0.15	
Relationship Status	−0.64	1.36	−0.04	−3.33	2.04	
Type of Farmer	−1.80	1.06	−0.13	−3.88	0.30	
Member of Farming Organisation	−1.15	1.13	−0.08	−3.38	1.09	
Type of Farm	2.22	0.98	0.16*	0.30	4.15	
						0.041*
Family Support	−1.24	0.62	−0.23*	−2.46	−0.02	
Friend Support	−0.67	0.50	−0.12	−1.66	0.32	
Significant Other Support	1.02	0.58	0.20	−0.12	2.16	
Farm-related factors of stress						0.035
(Constant)	19.45	1.90		15.70	23.19	
Gender	−0.81	1.54	−0.04	−3.84	2.23	
Age	−0.04	0.05	−0.08	−0.14	0.06	
Relationship Status	2.05	1.58	0.12	−1.07	5.16	
Type of Farmer	−0.64	1.23	−0.04	−3.07	1.78	
Member of Farming Organisation	−1.78	1.32	−0.11	−4.38	0.82	
Type of Farm	1.48	1.13	0.10	−0.76	3.71	

(Continues)

TABLE 3 (Continued)

| Variable | Stress | | | | 95% CI | | |
	B	SEB	β	Lower	Upper	R²
						0.068**
Family Support	−1.54	0.70	−0.24*	−2.93	−0.16	
Friend Support	−0.91	0.57	−0.15	−2.03	0.21	
Significant Other Support	0.77	0.66	0.13	−0.52	2.06	

| Variable | Psychological well-being | 95% CI | | | | |
	B	SE	β	Lower	Upper	R²
Psychological well-being						0.073*
(Constant)	196.51	8.06		180.60	212.41	
Gender	−0.85	6.52	−0.01	−13.72	12.03	
Age	0.30	0.21	0.14	−0.11	0.70	
Relationship Status	4.64	6.71	0.06	−8.60	17.87	
Type of Farmer	6.53	5.22	0.10	−3.77	16.83	
Member of Farming Organisation	−4.07	4.81	−0.06	−13.56	5.42	
Type of Farm	6.53	5.60	0.09	−4.51	17.57	

Note: including beta values, standard error beta values, significance levels, lower bound, upper bound, and R².
Abbreviations: CI, confidence interval; *SE*, standard error.
Key:
*(*p* < 0.05);
**(*p* < 0.01);
***(*p* < 0.001).

multicollinearity, homoscedasticity and independence of residuals. Gender, age, relationship status, type of farmer, farm type, and membership of farming organisation were entered in block 1 (see Table 2). The model accounted for 4.4% of the variance in scores ($F(6,188) = 1.46$, $p = 0.195$). In the final model, only one of the predictors were statistically significant. Membership of farming organisation which achieved a beta value of −0.172. One hundred and thirty-one participants were members of a farming organisation ($M = 3.22$, $SD = 2.55$), while 57 were not members of a farming organisation ($M = 4.18$, $SD = 2.53$).

Financial-related factors of stress
Standard multiple regression was conducted to predict financial factors of stress among Irish farmers based on demographics. Preliminary analysis confirmed the data did not violate the assumptions of normality, linearity, multicollinearity, homoscedasticity and independence of residuals. Gender, age, relationship status, type of farmer, farm type, and membership of farming organisation were entered in block 1 (see Table 2). The model accounted for 5.1% of the variance in scores ($F(6,188) = 1.68$, $p = 0.129$]. In the final model, only one of the predictors were statistically significant. Farm type which achieved a beta value of 0.164. Table 4 gives an overview of detailed descriptive information for both farm types; nonmixed farms and mixed farms.

TABLE 4 Farm type in relation to financial related factors of stress

Variable	N	Minimum	Maximum	Mean	SD
Non-Mixed Farm	113	0	26	11.12	6.88
Mixed Farm	82	3	27	13.10	6.273

Abbreviation: SD, standard deviation.

Farm-related stressors

Standard multiple regression was conducted to predict farm related factors of stress among Irish farmers based on demographics. Preliminary analysis confirmed the data did not violate the assumptions of normality, linearity, multicollinearity, homoscedasticity, and independence of residuals. Gender, age, relationship status, type of farmer, farm type, and membership of farming organisation were entered in block 1 (see Table 3). The model accounted for 3.5% of the variance in scores ($F(6,188) = 1.15$, $p = 0.337$). In the final model, none of the predictors were statistically significant.

3.2.2 | Relationship between types of social support and dimensions of stress

Impact of type of social support on social-related factors of stress

Standard multiple regression was conducted to predict the impact of type of social support on social-related factors of stress among Irish farmers. Preliminary analysis confirmed the data did not violate the assumptions of normality, linearity, multicollinearity, homoscedasticity, and independence of residuals. Family support, friends support, and significant other support were entered in Block 1. The model accounted for 3.2% of the variance in scores ($F(3,191) = 2.08$, $p = 0.105$). In the final model, none of the predictors were statistically significant.

Impact of type of social support on financial-related factors of stress

Standard multiple regression was conducted to predict the impact of type of social support on financial-related factors of stress among Irish farmers. Preliminary analysis confirmed the data did not violate the assumptions of normality, linearity, multicollinearity, homoscedasticity, and independence of residuals. Family support, friends support, and significant other support were entered in Block 1. The model accounted for 4.1% of the variance in scores ($F(3,191) = 2.71$, $p = 0.047$). In the final model, only one of the predictors were statistically significant; Family support, which achieved a beta value of −0.225.

Impact of type of social support on farm-related factors of stress

Standard multiple regression was conducted to predict the impact of type of social support on farm-related factors of stress among Irish farmers. Preliminary analysis confirmed the data did not violate the assumptions of normality, linearity, multicollinearity, homoscedasticity, and independence of residuals. Family support, friends support, and significant other support were entered in Block 1. The model accounted for 6.8% of the variance in scores ($F(3,191) = 4.66$, $p = 0.004$). In the final model, only one of the predictors were statistically significant; Family support, which achieved a beta value of −0.243.

3.2.3 | Buffering effect of stress and social support on psychological well-being

Table 5 gives an overview of the hierarchical multiple regression used to assess the stress buffering model to predict psychological well-being. Preliminary analyses confirmed that the data did not violate the assumptions of

TABLE 5 Summary of hierarchical multiple regression; model predictor information

Variable					
	B	SE	β	R²	Adjusted R²
Step 1				0.199	0.187
(Constant)	247.11	5.42			
Social Stressors	−3.28	1.12	−0.25		
Financial Stressors	0.71	0.48	0.14		
Farm Related Stressors	−1.47	0.45	−0.34		
Step 2				0.303*-**	0.281
(Constant)	190.77	12.58			
Social Stressors	−2.93	1.01	−0.23**		
Financial Stressors	0.53	0.46	0.11		
Farm Related Stressors	−1.16	0.43	−0.27**		
Family Support	0.11	2.70	0.00		
Friend Support	4.32	2.17	0.16*		
Significant Other Support	5.11	2.50	0.20*		

Note: Including beta values, standard error beta values, significance levels, R^2, and adjusted R^2.

Abbreviation: *SE*, standard error.

*($p < 0.05$);

**($p < 0.01$);

***($p < 0.001$).

normality, linearity, multicollinearity, homoscedasticity, and independence of residuals. The Stress Buffering Model suggests that an individual's stressors are the most important predictors of their psychological well-being. Consequently, the three predictors that assessed stressors were entered into the model at block 1 (*social stressors*, *financial stressors*, and *farm-related stressors*), explaining 19.9% of the variance in scores on participants' overall *psychological well-being*; (F (3, 191) = 15.86, $p < 0.05$). The second set of predictor variables relating to social support (*family support*, *friends support*, and *significant other support*) were entered in Block 2 and accounted for 30.3% of the variance in scores on participants' overall psychological well-being; F (6, 188) = 13.64, $p < 0.05$. The second set of predictors accounted for an additional 10.4% of the variance in scores on participants' overall psychological well-being; R squared change = 0.104, F change (3, 188) = 9.344, $p < 0.05$. In the final model, only four of the predictors were deemed statistically significant; (1) social stressors, which achieved a beta value of −0.252 in Block 1 and a beta value of −0.226 in Block 2, (2) farm related stressors, which achieved a beta value of −0.340 in Block 1 and a beta value of −0.267 in Block 2, (3) friends support, which achieved a beta value of 0.161, and (4) significant other support which achieved a beta value of 0.202.

4 | DISCUSSION

To our knowledge, this was the first study to look at the relationship between social support, stress and psychological well-being in farmers. In line with the stress-buffering model (Cohen & Wills, 1985), social support appeared to account for a substantial proportion of the variance in psychological well-being after social, financial and

farm-related stressors were entered into the model. For farmers perceiving low social support, stress was associated with an increased probability of poor psychological well-being. In other words, social support protected against the negative effects of stress on well-being. Moreover, social support had a differential impact on stress and psychological well-being, with family support having a significant relationship with financial and farm related factors of stress, but not with psychological well-being, while friend and significant other support had a greater impact on psychological well-being than family support. In general, social support had a significant relationship with psychological well-being, with friend and significant other support having the most significant effect. This study also found that membership of a farming organisation predicted social related factors of stress, while farm type predicted financial related factors of stress.

The finding that strong family support is linked to lower levels of financial and farm related stressors corroborates and expands on previous research by Berkowitz and Perkins (1985) highlighting the importance of strong family relationships in reducing or preventing stress. While Berkowitz and Perkins (1985) reported on stress in general, our findings show that family support correlates directly with financial and farm related stressors specifically. Farmers are under increasing financial strain due to continuous fluctuations in market prices and thus face financial uncertainty (Duru et al., 2015; Folke, 2006). Similarly, other farm related factors such as the weather, risk of accidents and balancing roles are undoubtedly a source of worry and stress for farmers (Berry et al., 2011; Kearney et al., 2014).

Importantly, family support did not have a significant relationship with psychological well-being, despite having a significant relationship with financial and farm related stress. Support from a friend and a significant other had a much greater influence on one's psychological well-being than family support. This finding supports research by Caldwell and Boyd (2009) who found that having a strong marital relationship and a supportive group of friends was central to psychological well-being in Australian farmers. Nonetheless, it was surprising that family support did not have as great an influence on psychological well-being as friend and significant other support had. Although family support may alleviate financial stress, the findings of our study suggest that support from a friend and/or a significant other may be most important for protecting psychological well-being; however, further research is needed to clarify this finding. Likewise, these findings highlight the importance of having a strong social support network, both within the family home and outside of the family home, in helping to alleviate stress (Caldwell & Boyd, 2009). Covid-19 may well have been a factor contributing to the reduced influence of family support at this particular time as a consequence of spending so much time with family alone due to enforced lockdowns, movement restrictions, social distancing and limited social contacts. It appears that despite families being at home together for longer periods of time, mental health issues are notably higher in all walks of life due to confinement and a lack of normal socialisation with people from outside of the family home (Gavin et al., 2020; O'Connor et al., 2020).

The study found that being a member of a farming organisation was seen as a protecting factor against social stressors. This supports research carried out by Bogue (2014) for Teagasc evaluating the impact of discussion groups on farmers, where discussion groups were shown to provide valuable support for farmers in times of stress and worry. Discussion groups provide an outlet for farmers to come together and share knowledge, as well as interact and provide support for one another (Bogue, 2014). Our study went a step further by including all farm organisations which provide support for members, not just discussion groups per se. With this in mind, it is important to connect members of the farming community with one another, in what is often seen as a socially isolating job (Truchot & Andela, 2018).

The results of this study found that mixed farmers experienced higher levels of stress surrounding finance than non-mixed farmers. This finding supports research carried out by Simkin et al. (1998) who indicated that farmers with mixed farming operations were more susceptible to stress surrounding finance compared to farmers with single farm operations. This finding could be somewhat interpreted in light of current Brexit related financial concerns which would be considerably more complicated and have a greater impact over an array of farming enterprises in a mixed farm (Murray, 2020). Our findings, therefore, demonstrate the potential impact of having a

mixed farm on one's well-being, particularly when it comes to worries surrounding finance. Having more than one farm operation may well be associated with higher costs and greater fluctuations than single farm operations (Simkin et al., 1998). More specifically, mixed farmers may have more day-to-day running costs and expenses than nonmixed farmers (e.g., combined feed and fertiliser costs) as a result of managing more than one type of farming enterprise. Further research is needed to veracity of this phenomenon and to unpack the precise impact of mixed versus nonmixed farming on a farmer's stress levels.

4.1 | Implications for future research and practice

The study highlights the potential utility of the stress-buffering model in future research on stress and psychological well-being among farmers. Several opportunities for future research, health promotion and practice were identified in relation to social support. Specifically, our findings highlight the benefits of joining a farming organisation or group (Bogue, 2014) and how looking for support from one's spouse, friends and family (Gregoire, 2002) can alleviate farmers' stress and improve their psychological well-being. Following this, it may be important for farming organisations to encourage membership through innovative and alternative means given that this factor may significantly reduce social related factors of stress. Furthermore, educating farmers on the importance of their relationships with their family, spouse and friends may be core to reducing stress and subsequently enhancing well-being (Caslin & Colgan, 2019). An example of a pre-existing campaign that may be effective was a recent social media initiative, known as the #agmentalhealthweek campaign, which was ran to raise awareness and initiate conversations surrounding mental health and farming through podcasts, webinars and social media posts. Such initiatives may need formal evaluation and integration into future interventions and campaigns to establish their efficacy.

4.2 | Study strengths and limitations

The study had a number of strengths and limitations. A key strength of this study is that it included a large and diverse sample; all potential age groups were represented, all farm types were represented and, both part-time and full-time farmers were well represented. Another strength of this study is that, to our knowledge, it was the first study to employ Cohen and Wills (1985) stress-buffering model of social support in a farming context and demonstrated the potential usefulness of this model for future research in this area. Nonetheless, as previously mentioned, this study was conducted during the Covid-19 pandemic, meaning that the population sample was recruited solely via technological means, which meant the sample required a good level of technological literacy which may have excluded some farmers from the sample. Furthermore, there may have been different stressors or a differential impact of social support on stress and psychological well-being due to the time of the year and seasonal implications. While the impact of Covid-19 cannot be ignored, its effect on farmers may not have been as significant as with other professions, with farming typically referred to as a lonely and isolating occupation by nature, regardless of a pandemic (Truchot & Andela, 2018). Brexit also brought about financial uncertainties to the sector which may not be generalisable to other periods, and may have impacted the results in relation to financial stress and support. Furthermore, given that Hagen et al. (2019) highlighted that there is dearth of research on factors predicting positive mental health outcomes among farmers, there may well have been additional or more influential predictors of psychological well-being in farmers than the predictors examined in this study. With this in mind, future research may benefit from looking at other potential predictors of psychological well-being such as farm sustainability, income, farm succession, attitudes, motivation and/or resilience. Likewise, it is possible that the small effect size in relation to psychological well-being in this study points towards the need to develop and validate a measure of psychological well-being that is more specifically tailored towards farmers.

5 | CONCLUSION

To our knowledge, this study is the first to provide a nuanced picture of the relationships between demographic factors, types of social support, farm-related stress and psychological well-being among farmers. Furthermore, the study supports the potential usefulness in using the social support buffering hypothesis to account for the relationship between social support, stress and psychological well-being in farmers. The current findings have the potential to impact on farmers and the communities they live in, by emphasising the importance of having strong social connections with others at protecting farmers' stress and well-being; a recommendation which, to our knowledge, has not been supported by academic literature to date. In particular, the study highlights that being a member of a farming organisation can help protect farmers against stress. Following this, it is vital that farmers are deliberately targeted by public information campaigns which encourage them to join such organisations. Farmers are at the heart of the global economy, and it is vital that their health and well-being is supported and looked after at all times, not just during times of crisis (Caslin & Colgan, 2019). The findings from this study may also help to guide future research and help facilitate the design of future interventions aimed at improving social support, reducing stress and enhancing psychological well-being among farmers.

CONFLICT OF INTERESTS
The authors declare no conflict of interest.

ETHICS STATEMENT
Ethical approval was received for the study from Dublin City University School of Psychology Ethics Committee on 14/12/2020 (Approval number: DCUPEC_2021_102). Procedures and practices carried out as part of the present research were at all times in line with the ethical standards of the pertinent institutional research ethics committees and the 1964 Helsinki declaration and its later amendments. All participants provided consent to participate and for publication of their dei-dentified data.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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