



Depression among entrepreneurs: a scoping review

Lauren Cubbon · Kristin Darga · Uira Duarte
Wisnesky · Liz Dennett · Christine Guptill

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Abstract Entrepreneurial work can be challenging, including financial dependence on both the success of the venture and the continued work ability and well-being of the founder. Popular media suggests that entrepreneurs are at increased risk of depression and suicide; however, the research literature addressing this risk is unclear. Accordingly, this study aimed to explore what is known about depression among entrepreneurs. Scoping review and thematic synthesis of the findings. Thirty-four articles fit the criteria and corresponded to four overarching themes: Social relations, Personal factors, Work characteristics, and Mental health. Each theme contains sub-themes regarding the psychological impact of entrepreneurial work. These include personal factors such as gender, personality traits, and routine. Other factors include

significant time demands, putting entrepreneurs at risk for social isolation and relationship strain. These may result in feelings of failure and shame, while stigma and a need to project a positive brand identity may prevent entrepreneurs from seeking the help that they need. This review demonstrates the variety of factors that impact entrepreneurs' mental health. The themes that emerged from this work are congruent with a diathesis-stress model of depression. Together, these factors may contribute to a risk of depression and suicide among entrepreneurs that is, as yet, relatively unexplored in peer-reviewed research literature.

Keywords Entrepreneur · Mental health · Depression · Suicide

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L. Cubbon
Jordan's Principle Occupational Therapist, Mi'kmaq Family
Support, New, Brunswick, Bathurst, Canada

K. Darga
Impact Founder, Denver, CO, USA

U. D. Wisnesky
Faculty of Nursing, University of Alberta, Edmonton, Canada

L. Dennett
JW Scott Health Sciences Library, University of Alberta,
Edmonton, Canada

C. Guptill (✉)
Department of Occupational Therapy, Faculty of Rehabilitation
Medicine, University of Alberta, Edmonton, Canada
e-mail: guptill@ualberta.ca

1 Background

Entrepreneurs are typically defined as self-employed or the owner/manager of businesses that are less than 7 years old, employ less than 100 staff, and are new to the market (van Praag and Versloot 2007). There are many positive aspects to an entrepreneurial career. Some entrepreneurs derive excitement, fulfilment, and pleasure from this work (Patzelt and Shepherd 2011). Some are determined to be their own boss, while others enjoy the freedom to determine their own work hours and engage in

creativity (Stephan and Roesler 2010). Most new entrepreneurs move from a clear, stable, and secure future into a life of high risk, both financially and personally (Dahl et al. 2010). To meet the challenges of running a successful business and maintaining a satisfying personal life, entrepreneurs must maintain a positive state of mental well-being (Hessels et al. 2018). However, the benefits of entrepreneurial work may be contrasted with high levels of stress and an increased risk of insomnia, pain, fatigue (Dahl et al. 2010), somatic diseases, and mental disorders (Stephan and Roesler 2010), such as depression (Logstein 2016). Both positive and negative emotions can be experienced by entrepreneurs simultaneously and independently of one another (Patzelt and Shepherd 2011). As an example, an individual may be successful in their business, and simultaneously experience a major depressive episode (Darga 2017, p.22).

Depression is a family of disorders characterized by sadness, lack of pleasure, and psychomotor and cognitive changes that interfere with a person's ability to function (APA 2013). A conceptual model that can help explain why some individuals experience depression and others do not is the diathesis-stress model of depression (Arnau-Soler et al. 2019) (Fig. 1). Some individuals may have vulnerabilities (genetic; early childhood trauma) which predispose them to a greater likelihood of developing depression from a stressful situation or life event, while others (with different vulnerabilities) that experience the same stressful situation or life event will not develop depressive symptoms (Arnau-Soler et al. 2019). That is, to experience depression, individuals with a higher level of vulnerability require a stressful event with less magnitude than someone with a lower level of vulnerability (Monroe and Simons 1991).

Although depression is not the only reason for individuals to die by suicide, thoughts of death and suicide are symptoms of major depressive disorder (APA 2013). In recent years, an increase in the number of prominent entrepreneurs who have died by suicide or disclosed clinical depression has raised social awareness of the mental health risks of entrepreneurial work (Gourguechon 2018; Arnold 2016; Kerr 2015; Darga 2017). Currently, there are no rigorous research reviews that explore this increase in disclosure of depression and suicide. Accordingly, the aim of this scoping review was to explore what is known about depression among entrepreneurs.

2 Methods

This scoping review followed the methodological framework of Arksey and O'Malley (2005), which includes five stages: identifying the design and search question; searching for relevant studies; selection of studies; charting the data; and finally, collating, summarizing and reporting the results. The methods of this study were enhanced by the recommendations of Levac et al. (2010), which include connecting the research question to the purpose, ensuring that practicality does not limit the findings of the study, and identifying practical implications of the review.

2.1 Search terms and search strategies

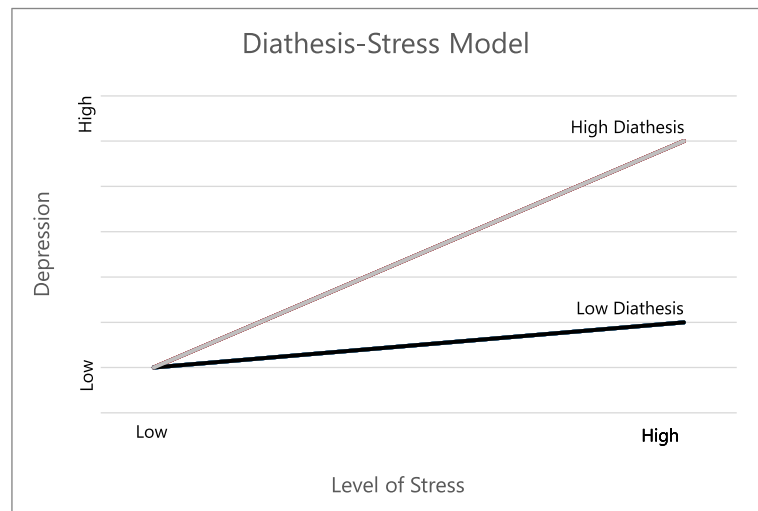
Searches were conducted electronically. An initial search was undertaken to identify articles on the topic. A health sciences librarian (LD) then expanded and updated the search. The final search included subject headings and keywords for two concepts: 1) entrepreneurs and 2) mood disorders, including depression and suicide. Searches were optimized to run in Ovid Medline (includes in-process and other non-indexed citations as well as Medline Daily), Embase (Ovid interface), PsycINFO (Ovid interface), Scopus, and Web of Science (SCI-EXPANDED, SSCI, A&HCI, ESCI, CCR-EXPANDED). The search strategy is detailed in the Appendix. Searches were completed on July 8, 2019. No date limits were applied. We also did not apply any language limits in our search, but full article review was only completed for papers that were available in English. Animal studies, conference abstracts, news articles, editorials, and historical articles were removed where possible. We included only published, peer-reviewed papers in our review.

2.2 Study screening and selection

All results from each database were imported into RefWorks (ProQuest, LLC, Ann Arbor, USA). Duplicate sources and publications were eliminated. Citations were screened by title to determine whether they fit the inclusion criteria. Papers that met the criteria, and those whose fit could not be determined by title, were imported to an Excel spreadsheet (Redmond, Washington, USA) for further screening.

Abstracts and full-texts of potentially relevant studies were retrieved, independently screened in duplicate, and assessed against the inclusion criteria by three of the

Fig. 1 Diathesis-stress model of depression (adapted from Monroe and Simons 1991)



authors (LC, UDW, and CG). Selection criteria included: (1) a focus on the relationship between entrepreneurs and depression and/or suicide; (2) published in a peer-reviewed journal; (3) available in English. We excluded articles that examined general health, mental health without depression or suicide, stress, or psychological distress either as a generalized experience or as a total score, unless the score had been validated as a sensitive and specific measure of depression and/or suicide.

Reviewers screened each paper identified in the search by (i) reading the text and applying the inclusion/exclusion criteria from the screening form to (ii) make a decision as to whether or not to include the study in the review with (iii) decisions and reasons for inclusion/exclusion recorded in the study screening spreadsheet. During abstract and full-text screening, any disagreements that arose among the reviewers were resolved through discussion. The results of the search, screening, and selection are reported in full in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Fig. 2).

2.3 Charting, collating, and reporting the results

A data-charting form was created to aid in data extraction. The following categories of information were extracted from each article: author, year, country of study, aim of the study, study design and population, and main findings (see Table 1). Findings were grouped into themes after careful reading of the final selected articles by LC and CG. These groupings were determined in relation to the research question, and in consideration of

logical presentation of the findings to a diverse audience of stakeholder readers (small business owners, policy developers, other researchers, etc). Face validity of the themes was established by KD, an entrepreneur and founder, and UDW, an academic health professional. This process resulted in themes that were derived from the intended scope of the study, and which include the reviewers' interpretation of the data (Piskur et al. 2012). The heterogeneity in study methods and reported findings required a narrative approach to synthesis. Thematic analysis was developed using the Lancaster University Guidance on the Conduct of Narrative Synthesis in Systematic Reviews (Popay et al. 2006). Variable labels included in the studies were extracted as 'themes' in the same way as conceptual themes are extracted from qualitative research (Popay et al. 2006). Development of themes was influenced by the theoretical and disciplinary lenses of occupational therapy, the profession of LC and CG, and of work disability prevention, the field of research in which CG engages. Specifically, our development of themes was influenced by the Model of Human Occupation (Taylor 2017); the Canadian Model of Occupational Performance and Engagement (Townsend and Polatajko 2013), in health more broadly (e.g. WHO 2001, Engel 1977), and in work disability prevention (Loisel et al. 2005). Taken together, we can summarize this influence as valuing the experience of individuals (i.e. client/patient centred); acknowledging the power and influence of social systems, structures, and relationships; and valuing the central role of work as an organizing structure, and its contribution to the identity and well-being of individuals and societies.

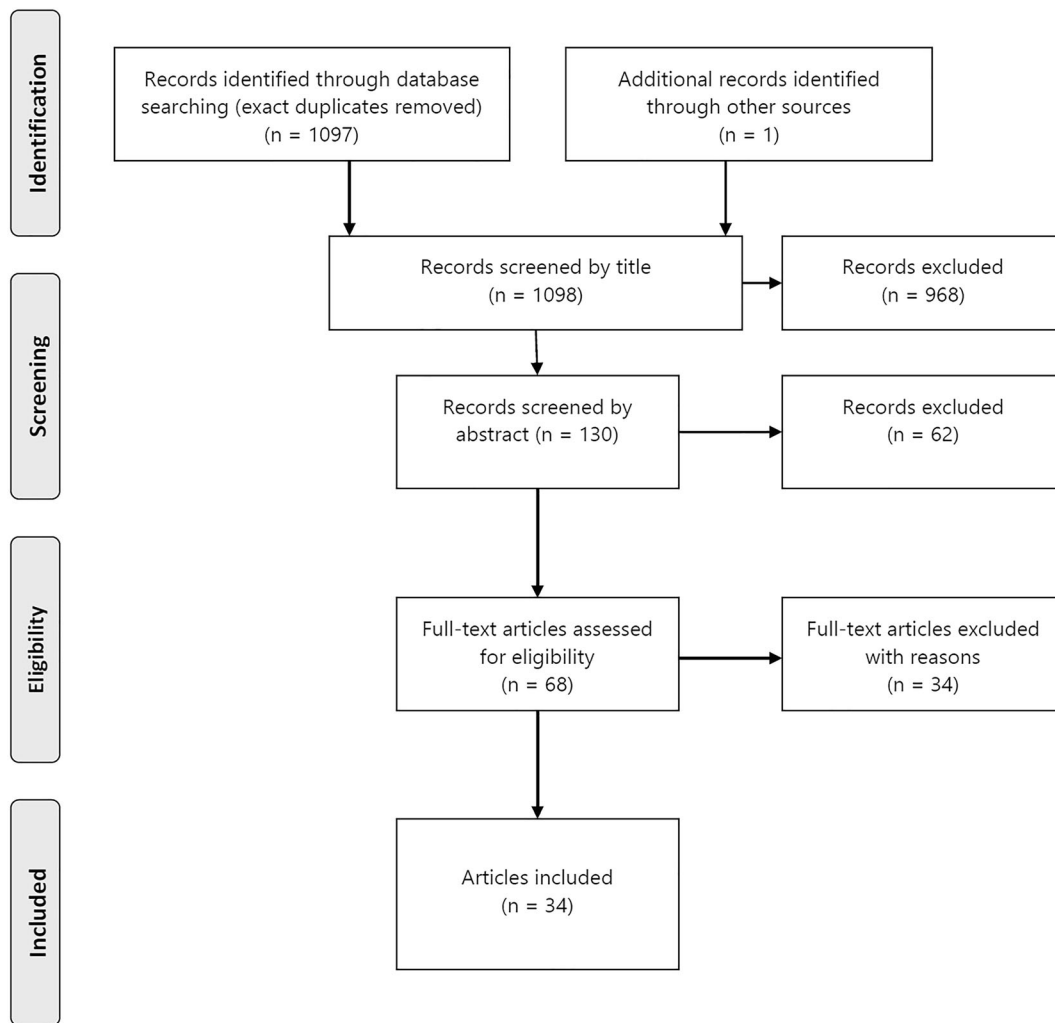


Fig. 2 PRISMA flow diagram of the study selection process (Moher et al. 2009)

3 Results

In total, 1098 articles were identified from the search after removing duplicates. After screening the titles, 130 articles appeared to have potentially applicable information. Abstract screening resulted in 68 remaining articles, which were then evaluated in full-text. The final list of selected studies included 34 articles (see Fig. 2).

3.1 Descriptive summary of the studies

The 34 included articles were published between the years 1987 and 2019, with the majority of papers published in recent years (see Fig. 3). Studies were conducted in various countries, but primarily in developed countries (See Table 1). Articles consisted of twenty cross-sectional

studies, two repeated cross-sectional studies, five retrospective cohort studies, three theoretical papers, one longitudinal study, one systematic review, one review (method not specified), one narrative analysis, and one qualitative study with semi-structured interviews. This review included 7 papers that focused on farm entrepreneurs. Although not seen as ‘typical’ entrepreneurs, many farmers are self-employed, and may still meet established criteria of entrepreneurship, as defined in the introduction (van Praag and Versloot 2007).

3.2 Narrative summary of the studies

A thematic synthesis was performed, and the results were derived and organized into four overarching themes: (1) Mental health, (2) Social relations, (3) Work

Table 1 Descriptive summary of the studies included in this review

Author, year and country	Aim of the study	Study design	Description of population	Key finding(s)
Alt, S. 2019 India	Demonstrate the political implications of farmer suicide in India	Theoretical paper	Farmer entrepreneurs in India	Lack of financial success is equivalent to 'failure', and stigma contributes to death by suicide.
Beutell, N. J. 2007 USA	Examine self-employment in relation to indices of work-family conflict, work-family synergy, autonomy, work pressure, mental health, physical health, and satisfaction	Cross-sectional secondary data analysis	708 Self-employed adults in the USA, who participated in the 2002 National Study of the Changing Workforce	Mental health symptoms predicted work-family conflict; self-employed workers had better overall adjustment.
Bradley, D.E. & Roberts, J.A. 2004 USA	Determine whether self-employed workers are more satisfied with their jobs	Repeated cross-sectional secondary data analysis	7176 People who typically worked at least 35 h a week, and participated in the National Survey of Families and Households: Wave I, 1987–1988, and Wave II 1992–1994 (NSFH)	Self-employed workers have higher job satisfaction, which is partly explained by lower levels of depression.
DeJong, R.D. & Verhage, J. 1987 Netherlands	Investigate relationships between QOL, depression, anxiety & social support among entrepreneurs and managers	Cross-sectional self-report	40 male Dutch entrepreneurs and managers	Perceived quality of work situation and social contacts were significantly negatively related to depression. Subjects with high workload and facilitating anxiety had the lowest levels of depression.
Freeman, M.A., Staudenmaier, P.J., Zisser, M.R. & Andresen, L.A. 2018 USA	Examine five psychiatric conditions in entrepreneurs and control participants	Cross-sectional self-report	76 MBA student and faculty pool participants, 149 psychology students, and 110 entrepreneurs.	Mental health conditions directly or indirectly impacted 72% of the entrepreneurs. 30% experienced more depression.
Gevaert, J., Moortel, D., Wilkens, M., & Vanroelen, C. 2018 Europe (EU28 countries)	Investigate whether differences in mental well-being in the self-employed are explained by work characteristics of the "successful entrepreneur"	Cross-sectional secondary data analysis	5448 self-employed residents of the EU28 countries, aged 15 or 16 and over, who were respondents to the 6th wave (2015) of the European Working Conditions Survey.	Motivation, ability to recognize opportunity, and "not finding it hard" positively influences mental well-being. These characteristics are found more often in medium-large employers, while farmers, dependent freelancers and own-account workers have less, and lower mental well-being.
Gorgievski, M. J., Bakker, A. B., Schaufeli, W. B., van, d. V., & Giesen, C. W. 2010 Netherlands	Investigate the relationship between financial situation of the business and psychological distress	Repeated cross-sectional study	688 Dutch farmers and horticulturalists participating in the Farm Accountancy Data Network in spring 1998–2000.	Financial problems predict psychological distress, strengthening intention to quit and deterioration of the financial situation of the business. Long-term psychological distress encountered more financial problems.
Gunia, B. 2018 USA	Examine the effects of sleep on entrepreneurship and other managerial factors	Theoretical paper	Entrepreneurs	Entrepreneurs are encouraged to pay attention to their sleep patterns while developing entrepreneurial motives and means; watch for positive and negative

Table 1 (continued)

Author, year and country	Aim of the study	Study design	Description of population	Key finding(s)
Hessels, J., Rietveld, C., Thuriik, A., Van der Zwan, P. 2018 Australia	Analyse the connection between depression and entrepreneurial exit using large-scale survey data	Retrospective cohort	Self-employed individuals who participated in the Household, Income and Labor Dynamics survey in Australia	biases on personal desires and abilities, respectively Individuals who are experiencing depression are less likely to survive in entrepreneurship due in part to the reduced self-efficacy associated with depression
Hounscome, B., Edwards, R. T., Hounscome, N., & Edwards-Jones, G. 2012 UK	Examine psychological morbidity of farmers and their partners/spouses compared with non-farmers	Cross-sectional study with face-to-face interviews	784 attendees of agricultural shows in the UK; Surveys were conducted in 2002–2004 among attendees of the Royal Welsh Agri-cultural Show, and the Anglesey County Show in 2002.	Higher psychological morbidity among farmers and their spouses. Self-employed had higher morbidity.
Kallioniemi, M., Simola, A., Kymäläinen, H., Vesala, H., Louhelainen, J. 2009 Finland	Among Finnish farm entrepreneurs, identify the prevalence of and factors associated with mental symptoms	Cross-sectional study via telephone interview	Two random samples of farmers registered with the farm register of the Finnish Ministry of Agriculture and Forestry; 928 full-time farmers in 1992, and 1192 in 2004.	Mental symptoms of weakness or fatigue and insomnia or difficulties falling asleep were higher in 2004 than in 1992. In 2004, the mental symptom of feeling overstrained or that everything was overwhelming was common. On third of farm entrepreneurs report exhaustion.
Kameyama, A., Matsumoto, T., Katsumata, Y., Akazawa, M., Kitani, M., Hirokawa, S., Takeshima, T. 2011 Japan	Compare the psychosocial and psychiatric features of 16 Japanese suicide completers with unmanageable debt and 23 suicide completers without that level of debt at the time of death	Cross-sectional secondary analysis of interview data	39 middle-aged men who died by suicide (with/without debt). Study was conducted in December 2009.	-Those with unmanageable debt were more likely to be self-employed and previously divorced; less likely to display help-seeking behaviours, despite experiencing issues with mental health.
Kolstrup, C., Kallioniemi, M., Lundqvist, P., Kymäläinen, H., Stallones, L., Brumby, S. 2013 Europe, USA & Australia	Review, from an international perspective, the psychosocial working conditions, mental health and level of stress, depression, and suicide among dairy farm operators, farm workers and farm family members	Review	Dairy farm operators, workers, and family members	Psychosocial and mental issues are common globally for dairy farmers (traditional and industrial). There is a lack of systematic studies addressing the psychosocial working conditions and mental health of dairy farmers.
Leignel, S., Schuster, J. P., Hoertel, N., Poulain, X., & Limosin, F. 2014 France	Determine the prevalence of mental health, substance use and potential influences of psychological distress among self-employed lawyers and pharmacists	Cross-sectional, self-report postal survey	1282 self-employed lawyers and pharmacists; study was completed in June 2008.	Self-employed lawyers and pharmacists had no significant finding in regard to poor mental health factors such as depression and the use of antidepressant drugs. When comparing the two groups, there was also no difference between them.
Lin, S. K., Lee, C. H., Pan, C. H., & Hu, W. H. 2003 Taiwan	Assess mental health, substance use, and stress among employed and self-employed drivers	Cross-sectional study	Self-employed and employed commercial drivers from Taipei City; 505 GED and 647 SED.	Self-employed individuals with limited social supports may contribute to mental health conditions.

Table 1 (continued)

Author, year and country	Aim of the study	Study design	Description of population	Key finding(s)
Logstein, B. 2016 Norway	Analyse how work demands, independence, close friends, and the interaction between independence and work demands of self-employed Norwegian farmers predicted mental health	Cross-sectional with postal survey	7500 self-employed Norwegian Farmers	Independence was important for the mental health of self-employed full-time male farmers. A high sense of independence correlated with the ability to manage high work demands effectively, reducing the level of mental health problems. Work demands and social relationships were associated with mental health outcomes.
Mielniczuk, E., & Laguna, M. 2018 Poland	Describe the innovative behaviour of entrepreneurs	Longitudinal	206 Polish entrepreneurs	Self-efficacy is not a negative predictor of depression. Depression is not a mediator for self-efficacy and innovative behaviour.
Park, J., Han, B., & Kim, Y. 2019 Korea	Compare the occupational health problems of employees and self-employed individuals	Cross-sectional secondary data analysis	Participants of the 2014 Korean Working Conditions Survey who worked for pay or profit for at least 1 h in the preceding week (30,658 employees; 13,608 self-employed).	Self-employed workers were more vulnerable to OSH problems, including poorer mental well-being.
Patzelt, H., Shepherd, D. 2011 USA	Develop a model of the emotions of career pursuit based on individuals' willingness and abilities to regulate these emotions	Cross-sectional with face-to-face interviews	English-speaking, adult (age 18 or over) full-time employees in the US population, who took part in the 1996 General Social Survey	-The role differences between employment and self-employment can, to some extent, explain an individual's experience of negative emotions Those who are self-employed experience fewer negative emotions than those who are employed, but are dependent on regulatory coping behaviours.
Plaisier, I., de Graaf, R., de Bruijn, J., Smit, J., van Dyck, R., Beckman, A., et al. 2012 Netherlands	Examine the impact of job characteristics on workers diagnosed with depression or anxiety disorders	Cross-sectional secondary data analysis	1726 Dutch workers who had a paid job more than 8 h/week, diagnosed with anxiety or depressive disorders, who participated in the Netherlands Study of Depression and Anxiety.	Being self-employed was associated with low odds of absenteeism, and both self-employed and high skilled manual workers had lower odds of impaired work performance. There were no interaction effects of job characteristics with diagnoses of anxiety and depressive disorders.
Pollack, J. M., Vanepps, E. M., & Hayes, A. F. 2012 USA	Assess whether having business-related social ties would help to decrease the impact of economic stress in entrepreneurs	Cross-sectional self-report online survey	262 small business owners who were members of Business Networking International (BNI) in a large city in the southeast USA	Greater economic stress is associated with higher depressed Affect and greater intentions to withdraw from entrepreneurship.
Rahim, A. 1996 USA	Demonstrate the differences and similarities of stress and strain between entrepreneurs and	Cross-sectional self-report postal survey	526 participants; managers and entrepreneurs ($n = 238$) who were members of the Chamber of Commerce, Bowling Green, Kentucky.	Managers and entrepreneurs had the same perception of strain (which included depression) For entrepreneurs, stress was positively associated with strain, and

Table 1 (continued)

Author, year and country	Aim of the study	Study design	Description of population	Key finding(s)
	managers and what can minimize these factors			internal locus of control was negatively associated with the same. The moderating effect of locus of control on the stress-strain relationship for entrepreneurs was not significant. Social support was negatively associated with strain but not stress for both entrepreneurs and managers.
Ryff, C. D. 2019 USA	Examine the relevance of eudaimonic well-being for understanding entrepreneurial experience	Theoretical paper	Entrepreneurs	Necessity vs. opportunity entrepreneurs: educational and occupational status, income, and wealth are social determinants of health, and may influence findings regarding the well-being of entrepreneurs. Realization of personal talents and potential, which are essential characteristics of entrepreneurs, may bring different perspectives and measures of well-being.
Saarni, S. I., Saarni, E. S., & Saarni, H. 2008 Finland	Compared the work ability, subjective QOL, and health-related QOL of entrepreneurs, with and without personnel; farmers; and salaried workers.	Cross-sectional secondary data analysis	5834 people aged between 30 and 64, who participated in the Health 2000 survey.	Entrepreneurs with workers had better work ability than other entrepreneurs and salaried workers. Farmers have poorer work ability, QOL, and health-related QOL than other workers, which does not appear to be related to physical factors. Farmers may benefit from psychosocial interventions to improve well-being.
Santin, G., Cohidon, C., Goldberg, M., & Imbernon, E. 2009 USA	Examine the relations between depressive symptoms and atypical jobs in the working population in France, and whether these are related to psychosocial and organizational constraints.	Cross-sectional secondary data analysis	11,895 people with jobs, aged 18 and over, who participated in the 2003 Decennial health survey	Once adjusted for social and demographic factors, life events, health, social situation, and work factors, self-employed workers had no more depressive symptoms than permanent contract workers. Self-employed women had half of the risk of depressive symptoms when compared with women on fixed contracts.
Schonfeld, I. S., & Mazzola, J. 2015 USA	Identifying stressors and strains experienced by the self-employed, and strategies used to cope with stressors	Qualitative, semi-structured interviews	54 self-employed individuals; all but one were solo business owners	Income uncertainty, business slowdown, reputational threat, betrayal, unreasonable customers, and health problems were stressors. Strains included anxiety, frustration, anger, and depression. Problem-focused coping is

Table 1 (continued)

Author, year and country	Aim of the study	Study design	Description of population	Key finding(s)
Smith, R., McElwee, G. 2011 UK	Investigate the role of shame in entrepreneurship	Narrative analysis	Entrepreneurs who experienced shame, as documented in news stories on the Internet	used more than emotion-focused, and the researchers identified a third—humanitarian coping. Entrepreneurship is a 'Man's World'; shame is a personal construct, a penance to be endured or ended. A conceptual model of shame was developed to assist entrepreneurs to further understand the negative emotions associated with being in crisis.
Stephan, U., & Roesler, U. 2010 Germany	Compare entrepreneurs' health with employees' health	Cross-sectional secondary data analysis	1264 participants ages 18–65, who had been in their job for 5 years or more, and who had completed the German National Health Survey 1998	Entrepreneurs reported significantly lower overall somatic and mental morbidity, lower blood pressure, lower prevalence rates of hypertension, and somatoform disorders, as well as higher well-being and behavioural health indicators.
Stephan, U. 2018 Various countries	Determine whether different types of entrepreneurs differ with respect to mental well-being (MWB); what factors influence their MWB; and what are the impacts of MWB on entrepreneurs' performance	Systematic review	Entrepreneurs and self-employed workers	Factors contributing to MWB include work, social and personality characteristics as well as motivation, human capital, firm and financial characteristics, and market context. Entrepreneurs' MWB can affect their work behaviours, firm performance, and have social consequences. The entrepreneur's work-life setting is fluid, and their work is central to their identity.
Toivanen, S., Melner, C., Vinberg, S. 2015 Sweden	Investigate the mortality differences between self-employed individuals in Sweden	Retrospective cohort	all self-employed persons recorded in the 2003 Swedish registry (<i>n</i> = 321,274)	Industrial sector and enterprise legal form are associated with an increased mortality risk for self-employed individuals
Toivanen, S., Griep, R., Melner, C., Vinberg, S., Eloranta, S. 2016 Sweden	Analyse mortality differences between self-employed individuals and paid employees	Retrospective cohort	Swedish workers (employees and self-employed), aged 18–100 (<i>n</i> = 4,776,135). Study years: 2003–2008.	The mortality differences between self-employed individuals and paid employees vary by the legal form of self-employment across industries and by gender
Torske, M., Bjørggaard, J., Hilt, B., Glasscock, D., Krokstad, S. 2016 Norway	To study the associated between occupation and symptoms of mental distress	Retrospective cohort	76,583 farmers and forestry workers who completed a validated mental health measurement, and who participated in the Nord-Trøndelag Health Study (1984–1986, 1995–1997, and 2006–2008)	Farmers had greater odds of having higher scores of depression, compared with both other occupational groups and their non-farming siblings. Working in agriculture may impact mental health.

Table 1 (continued)

Author, year and country	Aim of the study	Study design	Description of population	Key finding(s)
Uy, M. A., Foo, M. D., & Song, Z. L. 2013 Philippines	Investigate the relationship between entrepreneurs' coping on psychological well-being (PWB) and whether prior start-up experience moderates this relationship	Cross-sectional email survey	156 members of the Entrepreneurs Society of the Philippines who were business owners and founded their ventures.	For entrepreneurs with prior start-up experience, avoidance coping had an immediate positive effect on PWB. Over the long term, avoidance coping only improved PWB for those experienced entrepreneurs if they also used active coping. For those with less experience, the use of avoidance coping was related to lower PWB.
Wijnvoord, L. E. C., Brouwer, S., Buitenhuis, J., van, d. K., & de Boer, M. R. 2016 Netherlands	Evaluate the influence of the number of prior episodes of sickness absence on risk of subsequent periods of sickness absence in higher educated self-employed workers	Retrospective cohort study	15,868 self-employed, college-educated applicants for private income replacement insurance at Movir, and whose insurance contract lasted at least 18 months. Data were collected between 1993 and 2010.	The likelihood of a new period of sickness absence increased with each previous period of sickness absence, in all diagnostic categories.

characteristics, and (4) Personal factors. Table 2 displays the themes and corresponding articles from which they emerged. Additionally, Table 3 highlights papers whose findings represent potential differences in the development of depression or risk of suicide in entrepreneurs as compared with employees or with other sub-categories of entrepreneurs.

3.3 Theme 1: Mental health

This theme explores the potential mental health implications of entrepreneurial work. Sub-themes include depression-related symptoms and the occupational prevalence of suicide. Twelve of thirty-four articles contributed to this theme.

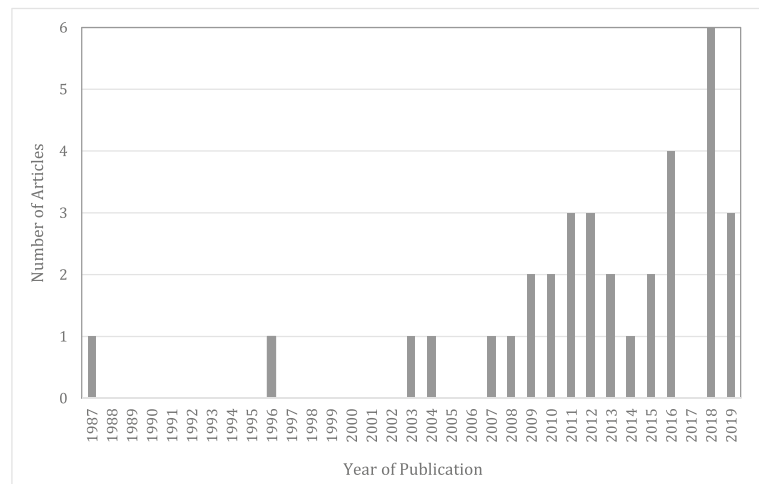
3.3.1 Entrepreneurial work and depression

Being an entrepreneur has been associated with poorer mental health (Saarni et al. 2008). In the study by Freeman et al. (2019) comparing entrepreneurs with students and faculty, 72% of entrepreneurs were either directly or indirectly impacted by mental health conditions. Specifically, entrepreneurs experienced 30% more depression than the comparison group (Freeman et al. 2018). Schonfeld and Mazzola (2015) found a similar result in that depression was one of the strains that many entrepreneurs experience. When considering the types of entrepreneurs and the impacts of these types on mental health, Saarni et al. (2008) found that even after controlling for socioeconomic factors, farmer entrepreneurs had the poorest mental health as reported on all scales. The findings of this study indicated that farmers in Finland experience problems in the psychosocial domain and not in regards to physical health (Saarni et al. 2008).

By contrast, several studies have also found that entrepreneurial work is either not related to depression or is related to better mental health. Leignel et al. (2014) found no significant relationship between the use of antidepressant medication and being an entrepreneur. Santin et al. (2009) found no difference between entrepreneurs and non-entrepreneurs with respect to mental health conditions, including depressive symptoms. Interestingly, Stephan and Roesler (2010) found that general and mental health morbidity was lower for entrepreneurs and that they had better overall mental well-being.

Finally, mental health conditions may interfere with work ability for entrepreneurs. Wijnvoord et al. (2016)

Fig. 3 Number of articles included in this review by year of publication



found that entrepreneurs who had a sickness absence were more likely to take additional time off in the future, with this likelihood increasing for each instance of sickness absence. However, Plaisier et al. (2012) reported the opposite: in their study, working individuals diagnosed with depression or anxiety disorders were less likely to miss work and/or have decreased work ability.

This sub-theme consists of many findings that appear to be conflicting, suggesting that the relationship between depression and entrepreneurship is complex and has not yet been fully elucidated.

3.3.2 Occupational prevalence of suicide

Several studies looked at the prevalence of suicide among occupations, including entrepreneurship and particular types of entrepreneurship. Kolstrup et al. (2013) found an increased prevalence of suicide among farm entrepreneurs when compared with other occupations. Additionally, the study by Hounscome et al. (2012) found farm entrepreneurs had higher psychological morbidity. According to the findings from the study by Toivanen et al. (2016), the type of entrepreneurial industry impacts the risk of suicide. They found suicide risk was lower among entrepreneurs who were involved in limited liability companies (not sole proprietors), as compared with those who were considered employees at a company. A suggested rationale for this outcome was that entrepreneurs typically organize their day to best suit their needs, which has been determined to be a factor in lowering suicide risk (Toivanen et al. 2016).

Finally, in a study looking at mortality differences among various occupations, Toivanen et al. (2015)

suggest that the sector in which entrepreneurs chose to work could impact mortality, including suicide. Workers in personal and cultural sectors (including hotels and restaurants) had lower risks of suicide, while those in agriculture, forestry, and fishing had higher (though not statistically significant) rates of suicide. The data set used in this study was unable to explain why these differences existed, though the researchers noted self-employed workers in the personal and cultural sectors were younger, and a higher proportion of these workers are women.

4 Theme 2: Social relations

This theme describes the link between social relations and depression among entrepreneurs. The topics within this theme include isolation from social support systems, and the impact of divorce or negative social relationships. This theme emerged from eight of thirty-four articles and is discussed further below.

4.1 Isolation

Isolation, in this case, refers to individuals being separated from their support system with little or no physical contact or emotional support. In entrepreneurship, individuals may experience isolation due to high workloads, long hours, or working in a geographically isolated setting.

Entrepreneurs often work alone as the sole operator of their business, isolating them from social supports. A demographic study of Norwegian agricultural workers

Table 2 Themes and sub-themes developed from studies included in the review

Articles	Themes/sub-themes							
	Mental Health		Work Characteristics		Social Relations		Personal Factors	
	Entrepreneurial work and depression	Occupational prevalence	Routine	Impact of failure	Isolation	Divorce and relationship strain	Personality traits	Impact of gender
Farmer suicides and the function of death in neoliberal biopolitics				X				
Self-employment, work-family conflict, and work-family synergy: antecedents and consequences			X					
Self-employment and job satisfaction: investigating the role of self-efficacy, depression, and seniority				X				
Quality of life and depression in entrepreneurs and managers				X	X			
The prevalence and co-occurrence of psychiatric conditions among entrepreneurs and their families	X							
What's up with the self-employed? A cross-national perspective on the self-employed's work-related mental well-being							X	
Financial problems and psychological distress: investigating reciprocal effects among business owners				X				
The sleep trap: do sleep problems prompt entrepreneurial motives but undermine entrepreneurial means?			X					
Depression and entrepreneurial exit							X	X
Psychological morbidity of farmers and non-farming population: results from a UK survey	X							
Mental symptoms among Finnish farm entrepreneurs					X			X
Psychosocial and psychiatric aspects of suicide completers with unmanageable debt: a psychological autopsy study				X				X

Table 2 (continued)

Articles	Themes/sub-themes						
	Mental Health		Work Characteristics			Social Relations	
	Entrepreneurial work and depression	Occupational prevalence	Routine	Impact of failure	Job satisfaction	Isolation	Divorce and relationship strain
International Perspectives on psychological working conditions, mental health, and stress of dairy farm operators	X						
Mental health and substance use among self-employed lawyers and pharmacists						X	
Comparison of the prevalence of substance use and psychiatric disorders between government- and self-employed commercial drivers							
Predictors of mental complaints among Norwegian male farmers						X	
Positive affect mediates the relationship between self-efficacy and innovative behaviour in entrepreneurs							X
Comparison of occupational health problems of employees and self-employed individuals who work in different fields			X				X
Negative emotions of an entrepreneurial career: self-employment and regulatory coping behaviours			X				X
Depressive and anxiety disorders on the job: the importance of job characteristics for good work functioning in persons with depressive and anxiety disorders	X						
The moderating role of social ties on entrepreneurs' depressed affect and withdrawal intentions in response to economic stress				X		X	
Stress, strain, and their moderators: an empirical comparison of entrepreneurs and managers						X	
Entrepreneurship and eudaimonic well-being: Five venues for new science							X

Table 2 (continued)

Articles	Themes/sub-themes							
	Mental Health		Work Characteristics		Social Relations		Personal Factors	
	Entrepreneurial work and depression	Occupational prevalence	Routine	Impact of failure	Isolation	Divorce and relationship strain	Personality traits	Impact of gender
Quality of life, work ability, and self-employment: a population survey of entrepreneurs, farmers, and salary earners	X							
Depressive symptoms and atypical jobs in France, from the 2003 decennial health survey	X							X
A qualitative study of stress in individuals self-employed in solo businesses	X		X				X	
After the fall—developing a conceptual script-based model of shame in narratives of entrepreneurs in crisis!			X				X	X
Health of entrepreneurs versus employees in a national representative sample	X							
Entrepreneurs' mental health and well-being: A review and research agenda				X				
Self-employed person in Sweden—mortality differentials by industrial sector and enterprise legal form: a 5-year follow up study		X						
Mortality differences between self-employed and paid employees: a 5-year follow up study of the working population in Sweden		X						
Farmers' mental health: a longitudinal sibling comparison—the HUNT study, Norway								
Joint effects of prior start-up experience and coping strategies on entrepreneurs' psychological well-being							X	
Indications of a scarring effect of sickness absence periods in a cohort of higher educated self-employed	X							
								X
							X	X

Table 3 Papers with findings that suggest potential differences in the development of depression among entrepreneurs (or subgroups of entrepreneurs) compared with other workers

Author/year	Findings specific to entrepreneurs
Beutell, N. J. 2007	- Self-employed reported better mental health than those who were organizationally employed in the study's sample
Bradley, D.E. & Roberts, J.A. 2004	- Depression associated negatively with job satisfaction for the self-employed; however the self-employed have a positive and high correlation with job satisfaction - Self-employed, when compared with others, were less likely to display depressive symptoms
Freeman, M.A., Staudenmaier, P.J., Zisser, M.R. & Andresen, L.A. 2018	- Entrepreneurs in this study report higher rates of depression than the comparison group (students and faculty)
Hounsorne, B., Edwards, R. T., Hounsorne, N., & Edwards-Jones, G. 2012	- Farmer entrepreneurs and their families were shown to have higher psychological morbidity compared with non-farmers and their families
Kameyama, A., Matsumoto, T., Katsumata, Y., Akazawa, M., Kitani, M., Hirokawa, S., Takeshima, T. 2011	- All participants had contacted the mental health welfare centers - Debt group had more self-employed participants with less help-seeking behaviours, although there was also a higher prevalence of psychiatric disorders - No significant difference in major depressive disorder between debt and no debt group
Kolstrup, C., Kallioniemi, M., Lundqvist, P., Kymalainen, H., Stallones, L., Brumby, S. 2013	- Increased prevalence of suicide among farm entrepreneurs when compared with other occupations - Entrepreneurs were less likely to ask for help, despite having limited social support and subsequent relationship strain
Lin, S. K., Lee, C. H., Pan, C. H., & Hu, W. H. 2003	- Entrepreneurs who do not have immediate relational support and also have stressful work situations may be more vulnerable to mental health conditions
Mielniczuk, E., & Laguna, M. 2018	- Depression—as an aspect of negative affect—did not influence innovation, nor did it mediate the relationship between self-efficacy and innovation; however, positive affect did
Park, J., Han, B., & Kim, Y. 2019	- Mental well-being is poorer for self-employed Korean workers as compared with employee.
Patzelt, H., Shepherd, D. 2011	- Negative emotions are negatively correlated with being self-employed. This relationship was stronger for those who use problem- or emotion-focused coping strategies, than for those who do not use these strategies
Plaisier, I., de Graaf, R., de Bruijn, J., Smit, J., van Dyck, R., Beekman, A., et al. 2012	- Self-employed had significantly lower absenteeism and less poor performance were significantly lower among persons reporting self-employed - Job characteristics had no effects on diagnoses of anxiety and depressive disorders
Rahim, A. 1996	- Study compared entrepreneurs with managers - Stress was associated with strain (including depression) - Social support was negatively assoc. with strain - Social support was not found to be a significant modifier of stress-strain association - Locus of control was also not found to be a significant modifier
Saami, S. I., Saami, E. S., & Saami, H. 2008	- Finnish farm entrepreneurs have poorer health-related quality of life, which is mainly explained by psychosocial domains
Santin, G., Cohidon, C., Goldberg, M., & Imbernon, E. 2009	- Self-employed workers had no more depressive symptoms than permanent contract workers
Schonfeld, I. S., & Mazzola, J. J. 2015	- Authors reported that “the magnitude of the problem of individuals experiencing job or income threat is considerably greater in this sample [of entrepreneurs] than what is found in the organizationally employed” - Participants reported sadness, depression - Participants employed problem-focused coping more frequently than emotion-focused coping

Table 3 (continued)

Author/year	Findings specific to entrepreneurs
Smith, R., McElwee, G. 2011	- Unresolved feelings of blame may lead to disengagement and possibly suicide
Stephan, U., & Roesler, U. 2010	- Entrepreneurs reported significantly lower overall somatic and mental morbidity and somatoform disorders, as well as higher well-being and behavioural health indicators
Stephan, U. 2018	- Necessity entrepreneurs have poorer mental well-being than opportunity entrepreneurs. May be partly explained by education, traits, desire for independence, and intrinsic work motivation.
Toivanen, S., Mellner, C., Vinberg, S. 2015	- Industrial sector and enterprise legal form are associated with an increased mortality risk for self-employed individuals
Toivanen, S., Griep, R., Mellner, C., Vinberg, S., Eloranta, S. 2016	- The mortality differences between self-employed individuals and paid employees vary by the legal form of self-employment across industries and by gender

from 1995 to 2004 suggested that an increasing number of farmentrepreneurs were impacted by isolation and were not content with their current level of social support (Barstad and Skrede 2009; cited in Logstein 2016). Isolation has been identified as a continuing issue in entrepreneurs, specifically in the agriculture industry (Kolstrup et al. 2013). This is concerning, as positive social supports have been shown to be predictors of health and well-being (Logstein 2016) and to be negatively related to depression (DeJong and Verhage 1987). When poor social support (i.e., limited social contact leading to isolation) is paired with the high demands of the entrepreneurial lifestyle, individuals must manage their work and life challenges independently, which may contribute to the development of depression (Kolstrup et al. 2013). As the gap between entrepreneurs and their social supports becomes larger, stress increases, potentially leading to depressed mood (Pollack et al. 2012). Entrepreneurs who do not have immediate relational support and also have stressful work situations may be more vulnerable to mental health conditions (Lin et al. 2003). Conversely, in an article by Rahim (1996), it was suggested that although entrepreneurs may not receive the same level of support as non-entrepreneurs, they may feel that they do not require this support based on their drive to be independent.

4.2 Divorce and relationship strain

The isolation described above may be a factor in relationship strain among entrepreneurs. Another factor that may influence social relationships is the work of the

entrepreneur's partner (Kolstrup et al. 2013). Partners may have a job that differs in work schedule from the entrepreneur, causing strain on time spent together and on the balance between work and social life. This may lead to poor emotional support of the entrepreneurs from their partners. In a study by Kallioniemi et al. (2009) examining 1182 full-time Finish farmers, lack of emotional support was an indicator for 'at least 3 symptoms' of mental health conditions, including—but not limited to—depression.

Finally, entrepreneurs who are divorced or separated have been shown to have a higher prevalence of depression and insomnia (45%) when compared with the general population (26%) (Kallioniemi et al. 2009). It is currently unclear whether relationship strain, influenced by factors such as isolation or differing daily routines, leads to divorce or separation of entrepreneurs and their partners.

5 Theme 3: Work characteristics

Papers included in this theme explored work characteristics among entrepreneurs and in relation to depression and suicide. Sub-themes include work routine, the impact of failure (business or personal), and job satisfaction. Fourteen of thirty-four articles contained information that contributed to this theme.

5.1 Work routine

Entrepreneurs have the ability to determine the structure of their days. They can work short or long hours, at a fast or relatively relaxed pace (Patzelt and Shepherd 2011).

When individuals have control over the decision-making in this area, they are less likely to experience symptoms of exhaustion and depression (Patzelt and Shepherd 2011). When considering the potential for work to interfere with family life, entrepreneurs have been found to have better overall adjustment to routine when compared with non-entrepreneurs (Beutell 2007). However, level of control does not necessarily mean that the work routines of entrepreneurs are beneficial to their well-being. For instance, Gunia's review on sleep difficulties (2018) found that in general, entrepreneurs have an increased prevalence of depression. Park et al. (2019) found that, compared with employees, self-employed workers worked longer hours and rated their health more poorly. This difference between entrepreneurs and non-entrepreneurs can help to explain the potential impact of increased locus of control on mental health (Park et al. 2019). The consequences of decisions about work routine can be detrimental to entrepreneurs' business success through their interactions at work, and may also impact their individual social supports (Stephan 2018).

Similarly, working long hours and the potential for inconsistent sleep routine can have negative implications for entrepreneurs. Insufficient sleep and depression are related (Gunia 2018), can manifest with similar symptoms, and can contribute to each other. For example, insufficient sleep can be associated with a decrease in individuals' self-efficacy, motivation, attention, and decision-making, and can cause an increase in negative emotions (Gunia 2018). Depression can cause a reduction in self-efficacy along with a decrease in attention and memory, which is further discussed in Theme 4 (Hessels et al. 2018). These factors can contribute to a decrease in entrepreneurs' confidence in their business ideas (Gunia 2018), making it difficult for them to stay motivated to work long hours (Hessels et al. 2018).

5.2 Impact of failure

Business and personal failure are both related to an increase in suicide risk. In an article by Kameyama et al. (2011), looking at the psychological aspects of people who died by suicide, the authors discuss that those with unmanageable debt and subsequent business failure were often entrepreneurs. Pollack et al. (2012) found that entrepreneurs are more likely to experience depressed affect when they have limited social support while experiencing financial stress. The

emotions associated with failure can consume individuals with thoughts about suicide (Smith and McElwee 2011). Many entrepreneurs put significant effort into their business, and if that business fails it can lead to a sense of personal failure (Kolstrup et al. 2013). Gorgievski et al. (2010) note that business strain, such as financial stress, can influence the occurrence of psychological distress, and if the distress persists, it can lead to further financial stress. Similarly, Schonfeld & Mazzola (2015) found income uncertainty and business slowdown contributed to entrepreneurial stress. Entrepreneurs may also consider a lack of financial success as a failure, causing them distress and potentially leading to the outcome of suicide (Alt 2019).

The lifestyle of entrepreneurs can also have a negative impact on mental health due to high workloads and limited time for other meaningful activities, such as exercise (Smith and McElwee 2011). When paired with the impact of business failure and long workdays, personal relationships may also become strained, resulting in limited social supports/coping outlets prior to the outcome of suicide (Kameyama et al. 2011).

In summary, failure—whether financial or personal—is a significant risk associated with entrepreneurial work. Although this risk can sometimes pay off, it can also contribute to a host of circumstances that lead to an increased risk of death by suicide.

5.3 Job satisfaction

Only two articles explored this sub-theme. Generally, job satisfaction is viewed as protective with respect to depression and suicide. That is to say, lower levels of depression are related to improved job satisfaction (Bradley and Roberts 2004), and if individuals perceive their job satisfaction to be high, they are less likely to indicate that they have previously experienced symptoms of depression (Dejong and Verhage 1987). The implications of these findings are further explored in the discussion.

6 Theme 4: Personal factors

This theme addresses the impact of personal factors and characteristics among entrepreneurs in relation to depression. Personal factors are a dimension of the World Health Organization's International Classification of Functioning, Disability and Health (2001) and are

defined as ‘the particular background of an individual’s life and living, and comprise features of the individual that are not part of a health condition or health states’ (p. 17). The topics within this theme include personality traits of individuals, impact of gender, and how the fear of stigma associated with mental illness prevents entrepreneurs from seeking the help that they need. Seventeen of thirty-four articles contributed to the development of this theme.

6.1 Personality traits

There are certain personality traits that are beneficial to entrepreneurship and which workers in this field tend to possess. These include risk-taking, leadership and organization skills, ability to handle responsibility and to make decisions independently (Patzelt and Shepherd 2011), along with identifying one’s own strengths, which may influence entrepreneurial mental well-being (Ryff 2019). Hessels et al. (2018) identified that one of the most important traits of entrepreneurs for successful business creation and sustainability is self-efficacy. Self-efficacy is described as confidence in one’s own ability to achieve goals in the face of adversity and challenge (Hessels et al. 2018). Depression is associated with lower self-efficacy (Hessels et al. 2018). Although self-efficacy does not prevent the occurrence of depression (Mielniczuk and Laguna 2018), aspects of self-efficacy (e.g. motivation) can positively impact entrepreneurs’ mental health (Gevaert et al. 2018). However, some of the characteristics that can enhance mental health, such as motivation and the ability to recognize opportunities, were found less frequently in farming or freelance entrepreneurs (Gevaert et al. 2018). Depression can impact the way entrepreneurs function socially, physically, and cognitively, leading individuals to view themselves more negatively and decreasing their ability to perform tasks effectively (Hessels et al. 2018). Over time, low self-efficacy and subsequent negative thoughts can influence personality (Smith and McElwee 2011), and can increase the likelihood that these individuals will not maintain their entrepreneurial career (Hessels et al. 2018).

Entrepreneurs’ personal ability to cope with stress and the pressure of entrepreneurship can also have an impact on mental health and depression. Entrepreneurs employ several types of coping, including

problem-focused (the most common), emotion-focused, and humanitarian coping (engaging in good deeds in response to stress), identified in the study by Schonfeld & Mazzola (2015). These skills can change and be improved upon over time for the demands of entrepreneurial work (Uy et al. 2013). For example, entrepreneurs with more experience can positively benefit from using avoidance coping skills in the short term, but according to Uy et al. (2013), may require a combination of both avoidance and active coping skills over time. Park et al. (2019) found that the presence of negative emotions was impacted by individuals’ coping skills.

In conclusion, the contribution of personality traits to depression among entrepreneurs is complex and multifaceted. While some characteristics associated with entrepreneurship may be protective in regard to mental health, there is room for more strategic development of coping skills and other factors, such as decision-making and identifying one’s strengths, to support entrepreneurs’ mental health.

6.2 Impact of gender

There were few studies that looked at gender as a factor influencing depression in entrepreneurs. Among those diagnosed with depression and considering entering into an entrepreneurial career, males were less likely to enter, whereas no similar relationship was observed in females (Hessels et al. 2018). Among the entrepreneur farmers, Kallioniemi et al. (2009) found that females were 7% more likely to report symptoms of depression than males. A study by Torske et al. (2016) found that when compared with non-entrepreneurs, male farm entrepreneurs were less likely to experience symptoms of depression or anxiety, with no association for females. Overall, the study by Kallioniemi et al. (2009) found that female farmers were more likely to experience symptoms related to mental health, which included symptoms of depression. Conversely, Santin et al. (2009), whose population was not limited to farmers, found no association for males; however, their study reported that female entrepreneurs had 50% fewer symptoms of depression compared with female non-entrepreneurs. Taken together, these studies suggest differences between males and females in the relationship of entrepreneurial work to depression.

6.3 Fear of stigma

Discussion of the stigma associated with mental health and depression was common throughout a variety of articles in this paper, despite year, type, or style of entrepreneurship. Fear of stigma can lead individuals to internalize emotions and prevent them from seeking assistance socially and professionally. For example, Kameyama et al. (2011) found those with unmanageable debt were less likely to seek assistance in the year prior to suicide. Reasons for this include fear of the negative societal perception of debt and spending significant time and cognitive energy on resolving the debt, which in turn leaves no time for mental health assistance (Kameyama et al. 2011). In regard to farm entrepreneurs, Torske et al. (2016) found that individuals who did seek help or assistance felt stigmatized. As a result, they did not want to ask for help and were less likely to receive the assistance they required (Kolstrup et al. 2013). Entrepreneurs experiencing depression may lose their sense of reality and not recognize that their mental health is being negatively impacted, and therefore may not see the need to seek assistance (Smith and McElwee 2011).

7 Discussion

The aim of this scoping review was to explore what is known about depression among entrepreneurs. Scoping reviews are not intended to evaluate the quality of the literature, nor to draw conclusions about causation or clinical pathways. However, our findings are novel in pulling together what is known about depression among entrepreneurs in one place. Table 4 summarizes the findings of the papers included our review, in the order that they are presented in Section 3 of this paper, moving from a broad view of depression in entrepreneurial work generally, to intrinsic factors related to entrepreneurs themselves that may influence the development of depression. As is described in detail below, more evidence is needed in order to determine which of these factors are predictive of depression, for which entrepreneurs, and under what circumstances.

Entrepreneurship requires the ability to plan, create, review, and problem-solve, along with many other skills. When individuals experience a disruption in their capacity to carry out these tasks, it can have a negative impact on their business or enterprise. One reason for

this disruption may be a manifestation of depression. Based on the articles included in this scoping review, it appears that social relationships, personal factors, and fields of work may influence entrepreneurs' susceptibility to developing depression. Entrepreneurs experiencing depression may also have a tendency to internalize emotions due to stigma and fear of failure. According to the studies included in this review, these factors may also influence the risk of suicide among entrepreneurs.

Determining the prevalence of death by suicide among entrepreneurs was not within the scope of this review; however, the prevalence of this topic in popular literature is in stark contrast to the limited number of research studies examining this subject. In 2016, the second author conducted an informal review of articles about suicide among entrepreneurs in newspapers, magazines, and blogs, which stopped when they reached 100 articles. It is evident that research interest in this area is lagging behind societal concern, and our review suggests that this concern is likely well-founded.

The most prevalent findings in this review about the link between entrepreneurship and risk of suicide were related to themes of isolation and social supports, personal factors, and the relationship between the stigma of failure and suicide. Few articles examined the impact of gender and the relationship of entrepreneurship to risk of suicide; however, this review suggests that female entrepreneurs may be at higher risk of developing depression. Viewing these findings through the lens of the diathesis-stress model of depression, this may suggest that female entrepreneurs have a heightened level of vulnerability—influenced by personal factors, social supports, and stigma—that increases the likelihood of developing depressive symptoms. It also seems reasonable to suggest that factors that influence worker health and work ability, such as access to appropriate care and gender discrimination, may play a role in this gender discrepancy, but this review did not find any papers that examined those factors.

It is not possible to generalize the finding of gender discrepancy across all entrepreneurs, due to the limited number of papers found and the nature and purpose of scoping reviews. Anecdotally, the second author has observed that there may be less support—such as mentors and business support/networking groups—for women entrepreneurs, particularly in certain sectors such as technology, which are dominated by men. Additionally, there are generally fewer women who own businesses. Given that they are already in the minority, it

Table 4 Summary of factors influencing depression among entrepreneurs in this review

Factors influencing depression
Entrepreneurial work generally
Work sector, particularly:
Farming
Forestry
Fishing
Personal and cultural sectors
Limited liability enterprises
Work routine:
Long hours
Poor sleep
Failure:
Financial
Personal
Job satisfaction
Isolation
Social support:
Workplace
Personal
Divorce and relationship strain
Personality traits:
Risk-taking
Leadership
Organizational skills
Ability to handle responsibility
Decision-making ability
Knowledge of one's own strengths
Self-efficacy
Coping strategies
Gender
Fear of stigma

may be that women entrepreneurs are less open to disclosing mental illness and other challenges, when such disclosure may contribute to a perception of women entrepreneurs as 'weak'. This can be contrasted with what has become known as 'toxic masculinity', which suggests that men are less willing to admit to mental health challenges. Although this sub-theme is based on a small number of reviewed studies (4), this is an important area of future research, especially when considered with the social impact, or 'multiplier effect', of women's contributions to family life in addition to their entrepreneurial work (Lepeley 2019). It is also important to

consider the impact of gender on depression in entrepreneurs, because most of the studies in this review consider gender as binary only. A nuanced understanding of the underlying causes of gender differences found in this review will not be possible until researchers begin to document the full range of sex and gender diversity in our studies (Slade et al. 2020).

Although the findings regarding isolation and social relationships were limited to those papers that examined farmers as entrepreneurs, the circumstances described in these papers appear to relate to those of other entrepreneurs, as defined both in our introduction and by the studies included in our review (please see [Appendix](#) for search strategy). The high workload, long hours, and stress associated with this career can subject workers to isolation, causing subsequent relationship strain and leading to negative mental health outcomes (Kolstrup et al. 2013). Viewing these findings through the lens of the diathesis-stress model of depression suggests that the lifestyle of entrepreneurship and its impact on social relations may expose entrepreneurs to a higher level of stress, increasing their vulnerability to developing signs and symptoms of depression.

Specific personality traits may prove advantageous in an entrepreneurial career. One would anticipate that those with traits such as leadership, organizational skills (Patzelt and Shepherd 2011), and knowledge of their own strengths (Ryff 2019) would be less likely to experience depression. However, the relationship between personality and depression is not so simple. Since each entrepreneur is creating and building something different, it is reasonable to assume that they would be exposed to different factors in their social and work environment. The findings of this review suggest that the interaction of these social and work environment factors with the individual's personality may result in decreased self-efficacy (Hessels et al. 2018). When low self-efficacy is paired with negative thoughts, which may be due to social or work factors, an individual may begin to experience personality or behavioural changes (Smith and McElwee 2011). Using the diathesis-stress model of depression as a guide, these changes may indicate a change in personal vulnerability which, when paired with external factors, may lead an entrepreneur into a depressive episode.

This interplay also appears to be impacted by business failure and stigma with respect to seeking help for symptoms of depression and other mental illness. The findings presented in this sub-theme suggest that when individuals

are at a risk of business failure, they invest more time in the business, leaving limited room for social and personal relief. By doing so, individuals may increase their stress, thus increasing their level of vulnerability. The ideal work-life balance is an elusive, and privileged, concept (Hammell 2009). Nevertheless, studies in this review suggest that by work time in this way, entrepreneurs may increase their vulnerability and begin to experience signs and symptoms of depression, which can be explained through the use of the diathesis-stress model (Fig. 1). On the other hand, entrepreneurs may be thriving in their business, but may be experiencing stress from negative events in their personal lives. In this case, based on the findings in this review, entrepreneurs may tend to feel stigmatized, preventing them from seeking the help that they need (Torske et al. 2016). These findings demonstrate two potential paths leading to vulnerability to depression and risk of suicide. Further research is needed to determine whether entrepreneurs have sufficient access to support for their mental health and how best to aid entrepreneurs in balancing their business and personal time.

It is important to note that the articles exploring farmers as entrepreneurs were generally from Europe, Scandinavia, and the UK, with only one from India and one review paper that provided an international perspective. Further research should explore whether farmers and other entrepreneurs from areas around the globe experience similar factors influencing mental health. Future research should also examine the full range of factors contributing to work disability, from the individual entrepreneur to the design of health and social security systems to support entrepreneurs who experience depression. Researchers might also consider the impact of specific occupations, such as entrepreneurship, on the development of work disability. The field of Occupational Science may offer a rich source of knowledge to ground this work (Guptill 2012).

7.1 Study limitations

A limitation of our study is that we excluded papers that were not available in English. Although these were small in number, information may have been missed by employing this exclusion criterion. Another limitation is that our study was focused specifically on depression and suicide among entrepreneurs. We excluded a number of studies that considered related constructs,

such as stress, psychological distress, and general mental health/well-being. We also did not examine the growing body of literature elucidating psychological traits that can contribute to entrepreneurial success (Wiklund et al. 2018). These did, however, emerge in the literature we reviewed, and are represented in the sub-theme Personality Traits. A more complete review of the positive and negative impact of certain characteristics on entrepreneurial work could prove important in highlighting that the tendency to view health as binary—health or illness—is an oversimplification at best. At worst, this tendency risks negative impacts on the work ability and health of people who would thrive in ideal work environments, perhaps even leading to depression and death by suicide.

In reference to Table 3, which presents papers whose findings represent potential differences in the development of depression or risk of suicide in entrepreneurs, it is important that readers consider the purpose and limitations of scoping review methodology. The potential differences highlighted are, for example, not weighted by method or quality. While these can and should be used to inspire future research to elucidate the relationship of depression and entrepreneurial work, they should not be taken out of context from the original source papers.

Finally, our findings are limited by our disciplinary lenses. Since LC and CGs are occupational therapists, our development of themes in this work was influenced by conceptual frameworks in our discipline, in health more broadly (e.g. WHO 2001, Engel 1977), and in work disability prevention (Loisel et al. 2005). The organization of findings is shaped by such influences, and other researchers might have used different thematic groupings. We strove to maintain fidelity to the research question and to present detailed results, such that the reader can understand the breadth of the literature about depression among entrepreneurs.

8 Conclusion

This review explored what is known about factors influencing depression among entrepreneurs. These include personal factors of those who engage in entrepreneurial work, such as gender, personality traits, stigma. Other factors include the high demand and time requirements that come with being an entrepreneur, which can put these workers at risk of isolation and relationship

strain. When entrepreneurs experience some of the negative impacts of entrepreneurial work, they may find themselves experiencing feelings of failure and subsequent shame, and stigma may prevent them from seeking the help that they need. Combined, these factors subject entrepreneurs to a risk of developing symptoms of depression and dying by suicide.

Currently, government policies and education in the developed world emphasize a need for innovation and entrepreneurial work (Government of Canada 2016, European Commission n.d., Innovation and Science Australia 2017, ISEDC 2019, National Research Council 2012). Given the prominence of high-profile entrepreneurs experiencing depression and dying by suicide noted in the introduction, it is critical that researchers explore factors contributing to work ability and well-being of entrepreneurs, effective prevention and intervention strategies, and the development and sustainability of social and health systems to support entrepreneurs in their careers.

Appendix. Search strategy

Ovid MEDLINE(R) and Epub ahead of print, in-process and other non-indexed citations and daily 1946 to July 05, 2019

Date searched: July 8, 2019

Results: 256

1. Entrepreneurship/
2. (entrepreneur* or self-employ*).mp.
3. ((founding or founded or founder* or owner*) adj5 (startup* or start-up* or company or companies or business* or president or CEO or COO)).mp.
4. or/1–3
5. (((depression or depressed) not econ* depress*) or dysthymi* or antidepress* or anti-depress* or ((depress* or mood or affective or bipolar or bi-polar) adj5 (disorder* or symptom*)) or suicid* or self-harm* or selfharm* or mental-health or (mental adj5 (wellbeing or well-being)) or mental*-ill* or mental-disorder* or psychiatric-disorder*).mp.
6. exp. mood disorders/
7. 5 or 6
8. 4 and 7
9. limit 8 to animals
10. 8 not 9
11. limit 10 to (address or autobiography or bibliography or biography or clinical trial, veterinary or clinical

trials, veterinary as topic or dictionary or directory or editorial or historical article or news or newspaper article or portrait or video-audio media or webcasts).

12. 10 not 11

Embase 1974 to 2019 July 05

Date searched: July 8, 2019

Results: 296

1. entrepreneurship/
2. (entrepreneur* or self-employ*).mp.
3. ((founding or founded or founder* or owner*) adj5 (startup* or start-up* or company or companies or business* or president or CEO or COO)).mp.
4. or/1–3
5. exp. mood disorder/
6. (((depression or depressed) not econ* depress*) or dysthymi* or antidepress* or anti-depress* or ((depress* or mood or affective or bipolar or bi-polar) adj5 (disorder* or symptom*)) or suicid* or self-harm* or selfharm* or mental-health or (mental adj5 (wellbeing or well-being)) or mental*-ill* or mental-disorder* or psychiatric-disorder*).mp.
7. 5 or 6
8. 4 and 7
9. (exp animal/ or animal.hw. or nonhuman/) not (exp human/ or human cell/ or human experiment/ or normal human/ or (human or humans).ti.)
10. 8 not 9.
11. limit 10 to (conference abstract or note or short survey or tombstone).
12. 10 not 11

PsycINFO 1806 to July week 1 2019

Date searched: July 8, 2019

Results: 360

1. self-employment/
2. entrepreneurship/
3. (entrepreneur* or self-employ*).mp.
4. ((founding or founded or founder* or owner*) adj5 (startup* or start-up* or company or companies or business* or president or CEO or COO)).mp.
5. or/1–4
6. exp. affective disorders/
7. (((depression or depressed) not econ* depress*) or dysthymi* or antidepress* or anti-depress* or ((depress* or mood or affective or bipolar or bi-polar) adj5 (disorder* or symptom*)) or suicid* or self-harm* or

selfharm* or mental-health or (mental adj5 (wellbeing or well-being)) or mental*-ill* or mental-disorder* or psychiatric-disorder*).mp.

8. 6 or 7

9. 5 and 8

10. limit 9 to animal

11. 9 not 10

SCOPUS

Date searched: July 8, 2019

Results: 664

(TITLE-ABS-KEY (entrepreneur* OR self-employ* OR ((founding OR founded OR founder* OR owner*) W/5 (startup* OR start-up* OR company OR companies OR business* OR president OR ceo OR coo))) AND TITLE-ABS-KEY (depression OR depressed OR dysthymi* OR antidepress* OR anti-depress* OR ((depress* OR mood OR affective OR bipolar OR bi-polar) W/5 (disorder* OR symptom*)) OR suicid* OR self-harm* OR selfharm* OR mental-health OR (mental W/5 (wellbeing OR well-being)) OR mental*-ill* OR mental-disorder* OR psychiatric-disorder*)) AND (EXCLUDE (DOCTYPE, "cp") OR EXCLUDE (DOCTYPE, "ed") OR EXCLUDE (DOCTYPE, "no") OR EXCLUDE (DOCTYPE, "sh")) AND (EXCLUDE (SRCTYPE, "p") OR EXCLUDE (SRCTYPE, "d"))

Web of Science

Indexes = SCI-EXPANDED, SSCI, A&HCI, ESCI, CCR-EXPANDED, IC Timespan = All years

Date searched: July 8, 2019

Results: 499

TS = (entrepreneur* OR self-employ* OR ((founding OR founded OR founder* OR owner*) NEAR/5 (startup* OR start-up* OR company OR companies OR business* OR president OR ceo OR coo))) AND TS = (depression OR depressed OR dysthymi* OR antidepress* OR anti-depress* OR ((depress* OR mood OR affective OR bipolar OR bi-polar) NEAR/5 (disorder* OR symptom*)) OR suicid* OR self-harm* OR selfharm* OR mental-health OR (mental NEAR/5 (wellbeing OR well-being)) OR mental*-ill* OR mental-disorder* OR psychiatric-disorder*)

Refined by: [excluding] DOCUMENT TYPES: (EDITORIAL MATERIAL OR BIOGRAPHICAL ITEM OR MEETING ABSTRACT OR NOTE)

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