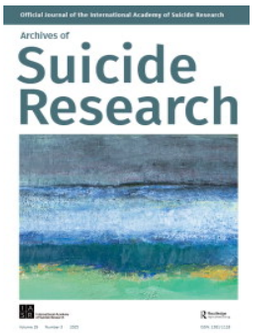

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ABSTRACT

Objective: Socioeconomic status deprivation is known to be associated with self-harm in Western countries but there is less information about this association in Low and Middle Income Countries (LMIC). One way of investigating this is to assess the prevalence of indicators of financial stress in people who self-harm. We have assessed the prevalence and correlates of day-to-day financial hardships amongst individual presenting with non-fatal self-harm to hospitals in Sri Lanka.

Methods: Data on non-fatal self-harm presentations were collected from an ongoing surveillance project in 52 hospitals in Sri Lanka. A questionnaire captured data on two forms of financial stress: unmet need (i.e., costs and bills that cannot be paid) and required support (i.e., steps taken to cover costs, such as selling belongings). Additional data on demographic, economic and clinical characteristics were also collected.

Results: The sample included 2516 individuals. Both forms of financial stress were very common, with pawning/selling items (47%) and asking family or friends for money (46%) in order to pay bills or cover costs being commonly reported. Greater financial stress was associated with being aged 26-55 years, limited education, and low socioeconomic position. Financial stress was greater in women than men after adjusting for other factors.

Conclusion: The results indicate that financial stress is commonly reported amongst individuals presenting to hospital with non-fatal self-harm in Sri Lanka, especially women. The research highlights a need to attend to financial stress both within self-harm prevention and aftercare.

KEYWORDS
Financial stress; self-harm; socioeconomic deprivation; Sri Lanka

INTRODUCTION

Fatal and non-fatal self-harm represent a global health problem (Knipe et al., 2022; World Health Organisation, 2014, 2021). Whilst most research takes place in high-income settings, an estimated 77% of suicides occur in Low and Middle-Income (LMIC) countries (World Health Organisation, 2021), underscoring the importance of studying suicide and self-harm in these settings (Vijayakumar & Armstrong, 2019).

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South Asia has been identified as a region where suicide and self-harm poses a significant problem (Eddleston & Konradsen, 2007). Better understanding of the characteristics and trends relating to self-harm in South Asia is important in fully determining the nature and scope of the problem and in developing effective interventions and preventative initiatives in these settings.

Self-harm in Sri Lanka has been highlighted as a problem (Eddleston et al., 1998). Suicide rates showed a sharp rise that peaked in the mid-1990s, followed by a decline into the 2000s, the latter linked to measures to restrict access to toxic pesticides (Gunnell et al., 2007; Knipe et al., 2017; Marecek & Senadheera, 2012). However, it has been suggested hospital attendance due to self-poisoning with medicines or other substances has increased (Rajapakse, 2017). More recent data suggests a slight decline in self-poisoning during COVID-19 related lockdown, but suicide rates remaining relatively stable, with suicide rates due to hanging showing an increase (Rajapakse et al., 2023). Self-harm remains a problem in Sri Lanka, with pesticide use still being the most common method in rural districts, despite restrictions to access (Knipe et al., 2014; 2019). There are differences to self-harm in high-income countries, such as a lower rate of repetition (Knipe et al., 2019) and lower association with psychiatric morbidity (Knipe et al., 2019). This highlights the importance of not assuming characteristics of self-harm in high-income countries extend to other global settings, and the need to study self-harm within different LMIC settings.

Living in a low socioeconomic position may expose individuals to a range of stressors, including financial uncertainty and stress, as well as limited access to health and social resources. Research from both high-income (Cairns et al., 2017; Geulayov et al., 2022 Lin et al., 2020; McIntyre et al., 2021) and LMIC countries, including in South Asia [See reviews by Shekhani et al., 2018; Knipe et al., 2015], suggests low socioeconomic position is a risk factor for self-harm. A study looking at area-level socioeconomic disadvantage in Sri Lanka suggested lower self-harm in more deprived areas, but as this study focused on an area-level metric it may not translate to individual-level risk (Manuel et al., 2008). Sri-Lanka has seen an increase in problems with poverty and indebtedness following an economic crisis in 2022 (United Nations Development Programme, 2023; Yaparante & Senathissa, 2022). It is important to consider how these factors may contribute to self-harm rates.

Socioeconomic position is typically measured in terms of access, or lack of access, to resources (income, transportation, housing). Such characterizations, however, do not directly capture the hardship or adversity that lack of resources imposes for an individual. Measuring financial stress, the day-to-day challenges or adversities imposed by lack of access to resources, provides an alternative approach to considering the impact of low socioeconomic position on individuals. These financial stressors, such as the inability to pay bills, or the need to borrow money to cover expenses, may have a more proximal relationship with self-harm than socioeconomic position. Exposure to financial stress may readily generate psychological stress, uncertainty and worry, and thus worsen mental health (Rashid, 2018; Ridley et al., 2020; Santiago et al., 2011; Stack & Meredith, 2018). These stressors may lead individuals to feel trapped or hopeless, or that they are a burden on others around them. These are psychological states that are believed to contribute to the formation of suicidal ideation and intent (Joiner, 2005; O'Connor et al., 2017, O'Connor & Kirtley, 2018).

Research suggests financial stress may be an important factor contributing to self-harm in South Asia. High suicide rates amongst rural populations in some South Asian countries may be due to challenges in making a living (Vijayakumar et al., 2008). Indebtedness was highlighted as an important factor associated with suicide rates amongst farmers in India (Kennedy & King, 2014; Merriott, 2016). This mirrors other research (Stack, 2021), including a meta-analysis of 65 studies, which demonstrates a large association between indebtedness and suicide (OR = 7.9; Richardson et al., 2013). Financial hardship was one factor linked to self-harm in Sri Lanka in a study using key informant interviews and focus groups (Konradsen et al., 2006).

Amongst those who self-harm, financial stress may be a more important factor for some individuals than others. Gender may be one factor associated with financial stress. Whilst Sri Lanka traditionally follows patriarchal norms there is evidence of gender roles changing (Attanapola, 2004). It is possible that men may more typically be seen as responsible for bringing in an income and hence may carry greater financial stress, but this is unclear and requires testing. We might also anticipate that financial stress will vary by age group, as some age groups may hold fewer financial resources or have less control over their finances. Precarious employment has been highlighted as a growing problem in many societies, which has been associated with poorer mental health, including greater suicide risk (Kalleberg & Vallas, 2018; Milner et al., 2018; Min et al., 2015). Precarious employment may increase the likelihood of financial stress, given its association with greater financial uncertainty and reduced worker control (Kalleberg & Vallas, 2018). In this study we focus on number of jobs held in the past five years as a proxy indicator of precarious employment.

Financial stress may also be associated with the characteristics of self-harm, such as the method or repetition. The prevalence of pesticide use as a method of self-harm have been linked to their accessibility (Eddleston et al., 1998; Knipe et al., 2019; World Health Organisation, 2014) For those facing greater financial stress, the accessibility of pesticides may mean they are more likely to be used than other methods of self-harm. Currently little is known about self-harm recurrence in Sri Lanka, or the factors that might contribute to greater risk of repetition. In the UK it was found those presenting to hospital with self-harm from more deprived areas were more likely to have a prior history of self-harm, compared to those from less deprived areas (Geulayov et al., 2022). Financial stress may represent a relatively chronic stressor, and so it may also be hypothesized that greater financial stress is more likely be associated with a pattern of repeated self-harm. Both of these hypotheses require testing.

The aim of the current study was to investigate the extent of financial stress amongst people attending hospital following non-fatal self-harm in Sri Lanka. Specifically, the study aimed to 1) estimate the level of financial stress this population experienced, and 2) investigate factors that were associated with financial stress, including age, gender, occupation, self-harm method, and repetition. The study used data from a surveillance system monitoring self-harm presentations in North Central Province at 52 hospitals in the province and surrounding districts. The following hypotheses were tested:

1. Financial stress amongst people who have self-harmed will be greater in men compared to women.

2. Financial stress amongst people who have self-harmed will be unequally distributed across age groups.
3. Financial stress amongst people who have self-harmed will be higher amongst those with more precarious employment, operationalized as the number of jobs in the past 5 years.
4. Pesticides as a method of self-harm will be greater amongst those with more financial stress.
5. Financial stress amongst people who self-harm will be greater in those with a previous history of self-harm, compared to those without a prior history of this behavior. This reflects the suggestion that financial stress may be a relatively chronic stressor that is likely to continue following previous self-harm.

METHOD

Study Setting

The study was nested in a large step-wedge cluster randomized trial being conducted in the North Central Province of Sri Lanka (Weerasinghe et al., 2022). The North Central Province is primarily an agricultural area, with a mix of major irrigation networks and ancient tank irrigated agriculture. There are two districts, Anuradhapura (Pop ~0.8 m) and Polonnaruwa (Pop ~0.4 m), and a total population of approximately 1.2 million (Department of Census & Statistics, 2012). As part of the trial, a large surveillance system was developed to identify non-fatal cases of pesticide poisoning and all other self-harm. For this study, we used data from 52 hospitals across the province (Figure 1). Permission for the study was obtained in an amendment to Rajarata University of Sri Lanka Ethics Research Committee (ERC 2018/30/2). See supplementary File I for further socio-demographic information concerning Sri Lanka.

Data Collection Tool

Those providing consent were interviewed and a range of social, clinical, psychological, economic and other variables were recorded. Whilst other measures of financial stress have been developed (e.g. Northern et al., 2010) we are not aware of any that have been validated for use in LMICs, and not in the context of Sri Lanka in particular. We therefore developed a questionnaire for this study to assess financial stress based on the Visionary study (Essue et al., 2014) and contextually adapted locally. The questionnaire has two parts. The first asks about costs the participant's household was unable to pay in the last 12 months as a result of lack of money (e.g. bills, rent, work costs), called *unmet needs*. The second asks about steps the participant's household took because they needed money for living expenses in the past 12 months (e.g., took out a loan, borrowed money), called *required support*. Both forms of financial stress also relate to indebtedness but provide additional information beyond whether or not a person was in debt. Unmet need, for example, highlights the specific costs of living that an individual was unable to meet. To further assess the validity of the financial stress questionnaire we investigated the association with socioeconomic position in the present study.

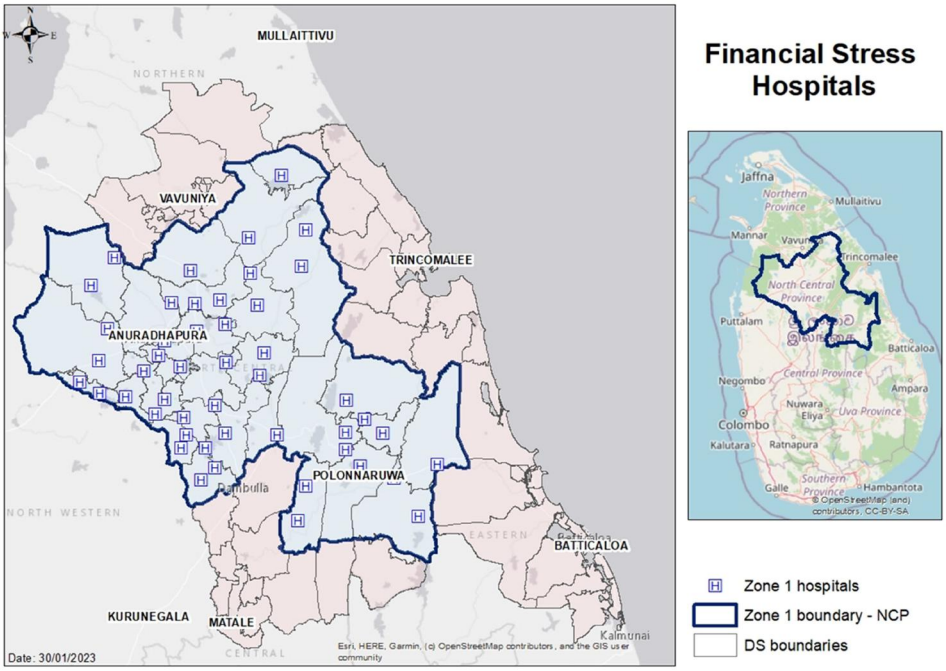

FIGURE 1. Study hospitals included in financial stress in self-harm study. Credit: M Pearson on behalf of Vendor Gatekeeper study collaborators.

In addition to the financial stress variables, we also included details about socio-demographic characteristics (age, sex), farming status, the stability of the participant's employment (measured through the number of jobs in the previous 5 years), and their socioeconomic position. Socioeconomic position was a categorical variable coded based on household construction and ownership of vehicles, adapting the method used by Knipe et al. (2019). The levels of this variable were low (no motorized vehicle AND improvised household construction), medium (either a motorized vehicle OR semi-permanent/solid household construction); and high (motorized vehicle ownership AND semi-permanent/solid household construction). For all cases of self-harm we also recorded the method and any self-reported previous self-harm episodes.

Data Collection Procedure

Data were collected between 1 March 2020 until 26 April 2021. Trained interviewers regularly visited the 52 hospitals and collected data on all self-harm cases presenting to the hospitals. Larger hospital and referral hospitals were visited daily and smaller peripheral units were visited at least weekly. All adults (18 years and over) presenting with non-fatal acts of self-harm at hospitals were eligible for inclusion. Eligible patients attending hospitals were invited to consent to the research interview. Patients too physically unwell to be interviewed, nonresidents, and those diagnosed with intellectual disabilities or dementia, were excluded. The majority of interviews were conducted in the days following the incident during the admission. Some people were contacted after discharge by phone or in-person.

Data Analysis

The study hypotheses and data analysis plan were pre-registered on the Open Science Framework (https://osf.io/tajvm) prior to analysis. Missing data were minimal for the variables of interest, with 99 out of 2516 (3.93%) participants having at least one missing variable. Therefore, it was managed with case wise removal of incomplete cases from analyses. We used multivariable regression models to explore which of our potential exposures (gender, age, number of jobs in the past 5 years, education and socioeconomic position) were associated with our outcomes (number of financial stressors identified as unmet needs and number of financial stressors identified as required support). Generalized linear models (GLM) were used. The outcomes, number of financial stressors, were count variables, and a negative binomial regression model was therefore used. A multivariable multinomial regression model was used to determine the association between financial stress (identified as unmet needs and required support) and self-harm method. Confounders that were explored in the model included age, gender, number of jobs in the past 5 years, education, socioeconomic position, and farming (whether or not participant was a farmer). A multivariable logistic regression model was used to determine the association of financial stress (identified as unmet needs and required support) with previous history of self-harm. Confounders that were explored in the model included age, gender, number of jobs in the past 5 years, education and socioeconomic position. All statistical analyses were conducted in Stata version 14 (StataCorp, 2015).

RESULTS

Characteristics of Study Participants

A total of 2516 participants were included in the analysis. Their mean age was 32 (SD = 13 years), and 51.3% (n = 1290) of the participants were male. Forty-four percent (n = 1102) had one job during the last five years, whilst 22% (n = 554) had more than one job during this time. The majority had received education up to an ordinary O-level (up to 16 years; 68.3%; n = 1718) Over three-quarters of participants (77.3%; n = 1946) were in the middle socioeconomic class. The study participant characteristics are shown in Table 1.

Levels of Financial Stress

The level of financial stress identified as *unmet needs* is shown in Figure 2. Seventy-seven percent of participants had at least one form of financial stress from either type. Most participants reported at least one financial stress identified as unmet need (65.9%; n = 1658). Participants had an average of 1.9 (SD = 1.9) financial stressors in the previous 12 months identified as unmet needs. Costs for utilities (38.9%), agricultural inputs (31.2%), rent (28.1%), education (23.1%) and medicine (22.1%) were the most prolific stressors that participants' households in the survey were unable to pay for in the last 12 months as a result of lacking money.

The level of financial stress identified as *required support* is shown in Figure 2. Most participants reported at least one financial stress identified as required support (72.5%;

TABLE 1. Participant characteristics and risk factor summaries.

	Total (N (%))	Financial stress identified as unmet needs (Mean (SD))[a]	Financial stress identified as required support (Mean (SD))[a]
Characteristic			
N	2,516	2,492	2,495
Age group (Years)			
18 – 25	1,051 (41.8)	1.53 (1.8)	1.54 (1.4)
26 – 40	909 (36.1)	2.18 (1.9)	1.91 (1.4)
41 – 55	376 (14.9)	2.53 (2.0)	2.06 (1.4)
>55	180 (7.2)	1.94 (1.8)	1.51 (1.3)
Gender			
Male N(%)	1,290 (51.3)	1.96 (1.9)	1.76 (1.4)
Female N(%)	1,226 (48.7)	1.92 (2.0)	1.74 (1.4)
No of jobs in last 5 years			
0	860 (34.2)	1.65 (1.9)	1.61 (1.4)
1	1,102 (43.8)	2.12 (2.0)	1.83 (1.4)
2	414 (16.5)	2.03 (1.9)	1.81 (1.3)
3	85 (3.4)	2.26 (1.9)	1.85 (1.4)
4	21 (0.8)	2.19 (2.1)	1.86 (1.5)
5+	23 (0.9)	1.41 (1.7)	1.70 (1.6)
Missing N (%)	11 (0.4)	1.27 (2.1)	1.27 (1.4)
Education			
Not attended N (%)	54 (2.2)	2.93 (1.9)	1.83 (1.2)
Primary (1–5) N (%)	197 (7.8)	2.43 (1.9)	1.94 (1.3)
O Level (6–11) N (%)	1,718 (68.3)	2.07 (1.9)	1.89 (1.4)
A Level (12–13) N (%)	514 (20.4)	1.26 (1.8)	1.22 (1.4)
University N (%)	33 (1.3)	1.12 (1.8)	1.06 (1.3)
Socioeconomic position			
Low N (%)	164 (6.5)	2.48 (1.8)	2.07 (1.2)
Middle N (%)	1,946 (77.3)	2.00 (1.9)	1.82 (1.4)
High N (%)	400 (15.9)	1.45 (1.9)	1.27 (1.3)
Missing N (%)	6 (0.2)	0.83 (1.6)	0.83 (1.0)

[a]Columns report the average number of endorsed forms of financial stress, broken down by demographic variables.

n = 1823). Participants had an average of 1.7 (SD = 1.4) financial stressors in the last 12 months identified as required support. Pawning/selling items (47.1%), asking family or friends for financial support (46.0%), and diverting savings (37.7%), were the most common steps the participants' households took because they needed money for living expenses in the past 12 months.

Association of the Five Risk Factors with Financial Stress

A summary of the association of the five risk factors (age, gender, number of jobs in the past 5 years, education, socioeconomic position) with financial stress identified as *unmet needs*, and *required support*, is shown in Tables 2 and 3, respectively. The number of financial stressors (unmet needs and required support) was inversely related to participants' socioeconomic position, supporting the concurrent validity of the financial stress questionnaire. The incident rate of financial stress (either identified as unmet needs or required support) was greater in participants in a middle or low socioeconomic position when compared to participants who were in a high socioeconomic position, including after accounting for the effect of other risk factors.

There were a higher average number of financial stressors identified as unmet needs in participants aged 26 to 55 years compared to those aged less than 25 years or greater than 55 years. Analyses indicated that compared to those aged 18-25 years, the incident

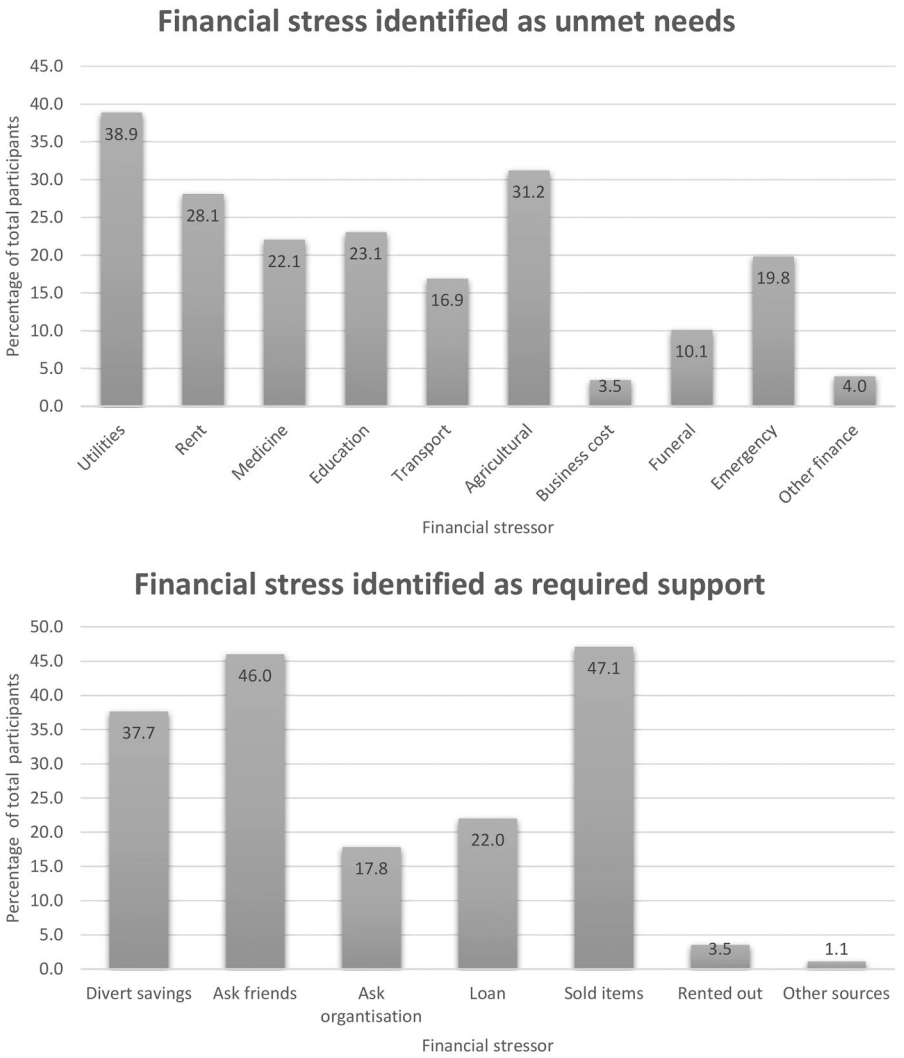

FIGURE 2. Level of financial stress identified as unmet needs and required support.

rate of financial stress identified as unmet needs was greater in participants aged 26 to 40 years, 41 to 55, and 56 years or more. Likewise, compared to those aged 18-25 years, the incident rate of financial stress identified as required support was greater in participants aged 26 to 40 years and 41 to 55 years. After accounting for the effect of other risk factors, the incident rate of financial stress (identified as unmet needs or required support) was greater in those participants aged 26 to 40 years and those aged 41 to 55 years.

Regarding gender, the incident rate of financial stress (either identified as unmet needs or required support) did not differ between females and males. However, after accounting for the effect of other risk factors, the incident rate of financial stress identified as unmet needs was greater in female participants than in male participants.

The incident rate of financial stress identified as unmet needs was greater in participants who had one, two or three jobs in the past five years, compared to those with no

TABLE 2. Association of socio-demographic and occupational factors with financial stress identified as unmet needs amongst non-fatal self-harm hospital attendees in Sri Lanka.

		Univariable analysis		Multivariable analysis	
	Total (%)	IRR	95%CI	IRR	95%CI
N	**2516**				
Age group (Years)					
18–25	1,051 (41.77)	1.00		1.00	
26–40	909 (36.13)	1.43	1.29 to 1.57	1.29	1.17 to 1.42
41–55	376 (14.94)	1.66	1.46 to 1.87	1.43	1.25 to 1.64
>55	180 (7.15)	1.27	1.07 to 1.51	1.09	0.90 to 1.31
Gender					
Male	1,290 (51.27)	1.00		1.00	
Female	1,226 (48.73)	0.98	0.90 to 1.07	1.21	1.09 to 1.33
No of jobs in last 5 years					
0	860 (34.18)	1.00		1.00	
1	1,102 (43.80)	1.29	1.17 to 1.42	1.21	1.09 to 1.35
2	414 (16.45)	1.24	1.09 to 1.40	1.18	1.02 to 1.36
3	85 (3.38)	1.37	1.08 to 1.74	1.26	1.00 to 1.60
4	21 (0.83)	1.33	0.84 to 2.10	1.47	0.94 to 2.29
5+	13 (0.52)	0.86	0.52 to 1.40	0.85	0.52 to 1.37
Education					
Not attended	54 (2.15)	1.00		1.00	
Primary (1–5)	197 (7.83)	0.83	0.62 to 1.12	0.91	0.68 to 1.21
O Level (6–11)	1,718 (68.28)	0.71	0.54 to 0.92	0.81	0.61 to 1.06
A Level (12–13)	514 (20.43)	0.43	0.33 to 0.57	0.55	0.41 to 0.73
University	33 (1.31)	0.38	0.23 to 0.63	0.47	0.28 to 0.76
Socioeconomic position					
High	164 (6.52)	1.00		1.00	
Middle	1,946 (77.34)	1.38	1.22 to 1.56	1.32	1.17 to 1.49
Low	400 (15.90)	1.71	1.41 to 2.07	1.49	1.23 to 1.80

TABLE 3. Association of socio-demographic and occupational with financial stress identified as required support amongst non-fatal self-harm hospital attendees in Sri Lanka.

		Univariable analysis		Multivariable analysis	
	Total (%)	IRR	95%CI	IRR	95%CI
N	**2516**				
Age group (Years)					
18–25	1,051 (41.77)	1.00		1.00	
26–40	909 (36.13)	1.24	1.15 to 1.34	1.15	1.07 to 1.24
41–55	376 (14.94)	1.34	1.22 to 1.47	1.22	1.11 to 1.35
>55	180 (7.15)	0.98	0.85 to 1.12	0.90	0.77 to 1.04
Gender					
Male	1,290 (51.27)	1.00		1.00	
Female	1,226 (48.73)	0.99	0.93 to 1.06	1.10	1.02 to 1.18
No of jobs in last 5 years					
0	860 (34.18)	1.00		1.00	
1	1,102 (43.80)	1.14	1.06 to 1.23	1.07	0.98 to 1.16
2	414 (16.45)	1.12	1.02 to 1.24	1.04	0.94 to 1.16
3	85 (3.38)	1.15	0.96 to 1.38	1.05	0.87 to 1.25
4	21 (0.83)	1.15	0.82 to 1.64	1.11	0.79 to 1.55
5+	13 (0.52)	1.05	0.75 to 1.49	1.01	0.72 to 1.41
Education					
Not attended	54 (2.15)	1.00		1.00	
Primary (1–5)	197 (7.83)	1.06	0.83 to 1.34	1.14	0.90 to 1.44
O Level (6–11)	1,718 (68.28)	1.03	0.83 to 1.28	1.09	0.88 to 1.36
A Level (12–13)	514 (20.43)	0.67	0.53 to 0.84	0.75	0.59 to 0.95
University	33 (1.31)	0.58	0.39 to 0.87	0.66	0.44 to 0.99
Socio-economic position					
High	164 (6.52)	1.00		1.00	
Middle	1,946 (77.34)	1.43	1.29 to 1.58	1.37	1.25 to 1.51
Low	400 (15.90)	1.63	1.40 to 1.89	1.48	1.28 to 1.71

jobs. After adjusting for the effect of other risk factors, this effect was only apparent for participants who had one job (IRR 1.21, 95% CI 1.09 to 1.35) and two jobs (IRR 1.18, 95% CI 1.02 to 1.36), compared to those with no jobs in the past five years. The incident rate of financial stress identified as required support was also greater in participants who had one or two jobs in the last five years compared to those with no jobs. However, after adjusting for the effect of the other risk factors, these effects did not remain significant.

Participants with higher education levels reported fewer financial stressors identified as unmet needs and required support. Compared to those with no formal education, the incident rate of financial stress identified as unmet needs was less in participants who were educated up to an ordinary level, advanced level, or who had a university qualification. Similarly, the incident rate of financial stress identified as required support was less in participants who were educated to an advanced or university level, compared to those with no formal education. After adjusting for the effect of other risk factors, the incident rate of financial stress (either identified as unmet needs or required support) remained lower in participants who were educated to an advanced level or had a university qualification compared to those with no formal education.

Association of Financial Stress with Self-Harm Method

A summary of the association of financial stress identified as unmet needs with the self-harm method is shown in Table 4. For each one-unit increase in the number of financial stressors, the risk of using medicines as a self-harm method (in comparison to using pesticides) decreased between 10% (for financial stress identified as unmet need) and 8% (for financial stress identified as required support). This means that the greater the financial stress the lower the likelihood that self-harm involved the consumption of medicines, and greater the likelihood that it involved the consumption of pesticides. However, after adjusting for baseline covariates and farming, this effect was no longer significant.

For each one-unit increase in the number of financial stressors identified as unmet needs, the risk of self-harm involving methods other than medicine or pesticide use (compared to involving pesticides) decreased by 6%. There was no significant relationship with financial stress identified as required support though. After adjusting for baseline covariates and farming, no significant relationships were present between financial stress and the use of methods other than pesticides or medicines.

TABLE 4. Association of financial stress with self-harm method.

	Univariable analysis		Multivariable analysis	
Self-harm Method	RRR	95%CI	RRR	95%CI
Association of financial stress (unmet needs) with self-harm method				
Pesticides				
Medicine	0.90	0.86 to 0.95	1.00	0.95 to 1.06
Other	0.94	0.89 to 1.00	1.00	0.94 to 1.07
Association of financial stress (required support) with self-harm methods				
Pesticides				
Medicine	0.92	0.86 to 0.98	1.03	0.95 to 1.10
Other	0.94	0.87 to 1.01	0.99	0.91 to 1.08

Note: Pesticides was the reference category.

Association of Financial Stress with Having Previously Self-Harmed

There was no difference in the odds of having previously self-harmed per unit change in financial stress identified as unmet needs before (OR = 1.05, 95% CI: 0.99 – 1.12) or after adjusting for the baseline covariates (OR = 0.99, 95% CI: 0.92-1.06). There was a 10% increase in the odds of having previously self-harmed per unit increase in financial stress identified as required support (OR 1.10, 95% CI: 1.00 – 1.20). However, after adjusting for baseline covariates, this association was no longer significant (OR 1.02, 95% CI: 0.93 – 1.12).

DISCUSSION

The aim of this study was to estimate the prevalence of financial stress amongst people presenting at hospitals in Sri Lanka with non-fatal self-harm and to investigate whether demographic and clinical factors were associated with levels of financial stress in this population. The prevalence of financial stress was high in this population, with 65.9% of people experiencing at least one form of financial stress identified as unmet need and 72.5% experiencing at least one form of financial stress identified as required support. Regarding unmet needs, difficulties paying for utilities bills and agricultural bills were especially common (39% and 31%, respectively). Financial stress identified as required support was more common than unmet need, with participants frequently reporting asking family or friends for money (46%) or pawning/selling items to cover costs (47%). These data suggest that many participants had to take steps to cover their costs, whether pawning/selling items or asking for money from others. However, while such steps may have helped reduce the number of unmet needs experienced, the latter were still common. From this perspective, financial stress identified as unmet need may be indicative of more severe or pronounced financial difficulties. Pawning of items is a fairly common method to access credit facilities in this rural setting. The selling of items is likely to be rare but also likely to cause substantial distress due to the permanence of the loss. Therefore, it is also possible that we have underestimated the severity of distress related to the sale of items and in future these should be separately recorded.

The prevalence of financial stress is consistent with research indicating that factors like socio-economic deprivation and indebtedness are linked to self-harm risk (e.g. Richardson et al., 2013; Stack, 2021), including in South Asia (Merriott, 2016; Kennedy & King, 2014), and qualitative research linking self-harm to financial hardship in Sri Lanka (Konradsen et al., 2006). In Pakistan financial stress was also cited as an antecedent for self-harm in 10% of people presenting at a tertiary care hospital (Zakiullah et al., 2008) suggesting it was not an uncommon if not predominant precipitate. Likewise, a psychological autopsy of 839 suicides in Nepal reported that financial stress was present amongst 54% of the sample and was identified as a potential contributing factor (Hagaman et al., 2018). However, it is important to note that the current study did not include a comparator group of individuals who had not self-harmed and as such, it is not possible to determine to what extent the characteristics of financial stress seen in this group mirror, or differ from, the wider population in Sri Lanka. Problems with indebtedness and poverty have increased in Sri Lanka in recent years (United Nations Development Programme, 2023; Yaparante & Senathissa, 2022), and so the

levels of financial stress reported here may also be present in the wider population. As such it is not clear from these data whether financial stress is acting as a risk factor for self-harm. There is scarce research investigating financial stress amongst people who self-harm in the context of South Asia. Future research could apply the financial stress measure to comparator groups (e.g. those admitted to hospital for other reasons) to determine whether financial stress is elevated amongst those who self-harm.

Consistent with our hypothesis, financial stress was related to age, with greater stress apparent in those aged 26 to 55 years. This coincides with the age when people are most likely economically active and working but also have caring and family responsibilities and as such may face additional financial pressures. There was no effect of gender, until other variables were adjusted for, when women experienced greater financial stress. It is therefore possible other variables, such as employment (i.e., women more likely not to have worked in the past 5 years), were initially suppressing this association, until they were included in the analysis. This finding raises the possibility that amongst those who self-harm, women are more affected by financial stress. Men in households typically have responsibility for earning money and women are more likely to have responsibility for managing the household budget. Therefore, women may feel more of the pressure related to managing the budget and less agency to affect the household income. Additionally, they may not have the money management skills or education and so it could explain why the effect becomes significant once accounting for these factors.

Financial stress was generally higher among those who had worked in the past five years. However, this difference was only significant when comparing those with one or two jobs against those with no jobs. It is unclear why this effect did not hold for those with three or more jobs, though reduced power to detect effects at lower frequencies may have been a factor. The category of people with no jobs may have included people who did not work for numerous reasons including housewives, unemployed and retied people, which may have affected this comparison. It is also possible that some people routinely had multiple jobs and so this question may not have captured people with unstable employment and led to the unclear picture. As such the pattern of results does not clearly support the suggestion that precarious employment may lead to greater financial stress (Kalleberg & Vallas, 2018) but this may have been due to how precarious employment was measured. Precarious employment is a complex concept, encompassing various aspects related to the nature, reliability and quality of jobs available (Kalleberg & Vallas, 2018), and so a multidimensional measure that better captures this complexity should be considered for future research. Likewise further assessment of variables such as reliance on temporary and part-time work- would further contribute to this research. It is likely that a broad range of social, economic and psychological variables are linked to financial stress that have not been measured in this study.

As might be expected, financial stress was greater amongst those with less education or lower socioeconomic position. Financial stress was not consistently related to self-harm method or prior history, suggesting that financial stress does not affect the choice or method, and is not more of a feature amongst those with a history of repeated self-harm. This finding is inconsistent with research in the UK that found those from more deprived areas were more likely to have a prior history of self-harm (Geulayov et al.,

2022). This study focused on where participants lived, rather than financial stress though, which may account for these differences, as well as the distinct settings of the UK and Sri Lanka.

This study has a number of limitations. The data comes from individuals presenting at hospital and as such excludes those who self-harm and seek treatment elsewhere (or not at all). The data also excludes those who die by suicide. The data was collected up until the onset of restrictions for COVID. In the years following COVID Sri Lanka has experienced a severe economic crisis and this is likely to have led to more substantial pressures on households than when our survey was conducted. The required support subscale focused on legal activities, but some individuals may also engage in illegal activity (e.g. involvement in trafficking, the drugs trade, fencing of stolen good, etc.) to meet their financial needs. Future research could consider these additional activities, though participants may be understandably reluctant to share such information and so careful consideration of how to record this sort of activity would be needed. The measure of financial stress was developed for this study. Whilst we did find that financial stress was negatively associated with socioeconomic position, providing some evidence of concurrent validity, further evaluation would be beneficial.

As noted, the present findings do not indicate whether financial stress acts as a risk factor for self-harm. Prior research does suggest that greater financial stress, and greater socioeconomic deprivation more generally, may contribute to greater risk of self-harm (Geulayov et al., 2022; Knipe et al., 2015; Merriott, 2016; Shekhani et al., 2018; Vijayakumar et al., 2008). It is therefore plausible that the experience of financial stress plays a role in the occurrence of self-harm amongst this group, especially given its frequency in this group. Further investigation of the association it has with the occurrence of self-harm, both in Sri Lanka, and globally, is clearly warranted. Many individuals reported having to take steps to cover their costs, including pawning/selling possessions, borrowing from family or friends, and diverting savings. Despite these steps, many still reported areas of unmet needs, often in important areas of life such as utilities, rent, and medicine. These experiences likely represent a significant psychological stressor for individuals, which may adversely affect their mental health. This is consistent with the findings from the recent review of political, social and economic factors associated with suicide (Stack, 2021) where low income was the most consistent factor. The experience of financial stress is significantly different in this context where there is no safety net provision for unemployment. Reliance on informal sources of support is much greater and our results highlight the importance of understanding the dynamics operating at an individual level and how these may impact individuals differently from those in higher income countries. Our results also suggest that amongst those presenting with self-harm, there are subgroups where financial stress is greater (26-55 years old, female, employed, low education and socio-economic position). The extent to which financial stress was a key driver of self-harm for these individuals is unclear, but future qualitative investigation may provide a valuable means of further understanding the role of financial stress in self-harm amongst this subgroup.

Future research could investigate the impact of efforts to ameliorate financial stress upon self-harm rates, including economic and social interventions, which could include

the provision of financial support and guidance, and steps to reduce the number of economically deprived people in the population. For example, financial interventions such as cash transfers to reduce poverty have been lined to reduced suicide rates in Brazil (Alves et al., 2019). This mirrors findings in the higher-income settings, where social welfare interventions including food stamps and welfare payments have been linked to lower suicide rates (Stack, 2021). The present study illustrates the feasibility of collecting financial stress data amongst those who self-harm at a province wide level, suggesting large-scale evaluations of such interventions may be possible. Future research should also consider collecting data on financial stress from a comparator group of people without a history of self-harm.

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ETHICAL STANDARDS

This research was approved by an ethics committee (Rajarata University of Sri Lanka Ethics Research Committee; ERC 2018/30/2) and has been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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DATA AVAILABILITY STATEMENT

Due to this being part of a larger project data is not available.

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