Social determinants of emotional well-being in new refugees in the UK.

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1

Abstract

Objectives: Refugees are most vulnerable to mental health problems of all migrant groups, and an understanding of the role of post-displacement social factors on refugee emotional well-being, can help to shape future interventions for this group. We aimed to investigate the effect of social determinants, such as employment, language ability and accommodation, upon mental health in refugees in the UK.

Study design: This prospective longitudinal cohort study was set in the UK. The study population of new UK refugees was drawn from an existing dataset of the Longitudinal Survey of New Refugees (n=5678), in which all new UK refugees (2005-2007) were sent a postal questionnaire at four time points across two years.

Methods: Ordered logistic regression models were used to evaluate associations between social determinants and the dependent variables, emotional well-being, or change in emotional well-being, using a question from the Short-Form-36 (SF-36) Health Survey Questionnaire.

Results: Refugees who were unemployed in the UK, or could not speak English well, or were unsatisfied with their accommodation, had significantly higher odds of poorer emotional well-being in the cross-sectional analysis (p<0.05 at all time points measured).

Conclusions: Post-displacement social factors, including language ability, employment status and accommodation satisfaction, were important determinants of refugee emotional well-being. Changes in these social determinants have the potential to improve refugee mental health, making them legitimate, modifiable targets for important public health interventions. Accounting for this, further research into how to improve refugee well-being is crucial given the increase in refugee numbers around the developed world.

Keywords: Mental health, refugees, employment, social determinants.

Introduction

Forced displacement of populations has occurred for centuries as a result of "persecution, conflict, generalized violence and human rights violations" [1]. The number of forcibly displaced persons has gradually increased globally such that by the end of 2015, this number reached 65.3 million persons, 21.3 million of which were refugees [1]. The United Nations Refugee Convention defines a refugee as a person who, "owing to a well-founded fear of being persecuted…is outside the country of his nationality, and is unable to or, owing to such fear, unwilling to avail himself of the protection of that country" [2].

According to the United Nations High Commissioner for Refugees (UNHCR), at the end of 2015, there were 122,996 refugees of all nationalities living in the UK and 45,773 asylum seekers with pending applications for refugee status [3]. For refugees, resettlement to a new country and culture brings numerous social challenges including financial difficulties, building new social support networks, gaining suitable employment and, often, learning a new language.

Refugees are the most vulnerable to mental health problems of all migrant groups [4]. Epidemiological studies measuring the prevalence of mental health disorders in resettled refugee populations have found high rates of psychiatric disorders including post-traumatic stress disorder (PTSD) [5,6], depression [7] and anxiety [7]. Fazel et al's [8] systematic review of large refugee population psychiatric disorder surveys, suggested lower prevalence rates of serious mental disorder than those reported in some smaller studies, using more rigorous definitions. However, the combined reported prevalence rate of 9% of PTSD was still approximately ten times higher than that in age-matched general populations. A large meta-analysis, including 56 studies and 67,294 participants reported that refugees scored 0.41 standard deviations worse on measures of mental health compared with control groups across all studies [9].

Traditionally, studies in this area have focused on risk factors in the country of origin [9]. The importance of post displacement social factors for moderating refugees' current mental health and well-being has

been highlighted [9], however, much of the existing research has investigated the effect of individual social determinants on refugee mental health, but not controlled for the impact of other pertinent social factors.

Cross-sectional designs [10-13] have limited the interpretation of the relationship between mental health and dynamic post-displacement social factors. Longitudinal research allows better interpretation of the causative relationships between factors and outcomes. In this study, we investigated the effect of social determinants upon emotional well-being and changes in emotional well-being in new refugees in the UK, using anonymised data from the Longitudinal Survey of New Refugees [14].

Methods

The Longitudinal Survey of New Refugees, carried out by the UK Border Agency [14], aimed to study refugee integration in the UK, using measures of social factors. A self-completion questionnaire was sent to all new adult refugees, identified by the Border Agency's central database, from 1st December 2005-25th March 2007, one week after they were granted refugee status and leave to remain in the UK (this included a positive decision of asylum, humanitarian protection or discretionary leave to remain in the UK). Further survey waves were carried out 8, 15 and 21 months later. Questionnaires were translated into appropriate languages. Anonymised data were downloaded from the UK Data Service. Further details of the survey are provided elsewhere [15].

Emotional well-being was measured at all time points, using a self-reported 5-point ordinal scale in response to a question, which has been validated in a refugee population [16] from the Short Form-36 (SF-36) Health Survey Questionnaire [17]. The question used was: "During the past 4 weeks, how much have you been bothered by emotional problems (such as feeling worried, stressed or depressed)?", to which respondents could answer "Not at all", "Slightly", "Moderately", "Quite A Lot" or "Extremely." This was the only question from the SF-36 included in the survey. Change in emotional well-being was

derived from the responses at each time point to the same question, and calculated by subtracting each respondent's earlier time point score from their later one to give a value ranging from -4 to +4.

Potential predictors were also assessed from the questionnaire, with sex, age-group at time of asylum decision, country of origin and number of years of education prior to arriving in the UK all measured at baseline only. Longitudinal measures included frequency of contact with relatives, friends, their own national or ethnic group and place of worship in the UK (all measured at baseline and the final follow-up). Their current employment status (and how appropriate it was, given their skills and qualifications) was assessed at first, second and third follow-ups. How satisfied they were with their accommodation was measured at first and second follow-ups only. Ability to understand English was measured at baseline and the final follow-up, while both difficulties in managing money and whether they had been a victim of verbal or physical attacks in the previous six months were assessed at all follow-ups post-baseline. All such data were self-reported in questionnaires [15].

Statistical Methods and Weighting

The cross-sectional analyses included all individuals who answered the relevant question(s) at a given time point, whereas longitudinal analysis participants were restricted to individuals who responded to all time points of the survey. All analyses were weighted using either a baseline, cross-sectional or longitudinal weighting, provided by the Longitudinal Survey of New Refugees [15], to account for non-response and attrition.

Ordered logistic regression models were used to evaluate associations between the dependent variables, emotional well-being, or change in emotional well-being, and the independent variables. Estimated odds ratios (OR) with corresponding 95% confidence intervals (CI) are reported, describing the impact of each category on predicting emotional well-being, relative to the reference category for each variable. Statistical significance of variables was assessed using likelihood ratio tests. In the cross-sectional analyses, an adjusted model was constructed for the outcome variable at each time point of the survey

in order to attempt to control for potential confounding by the other included variables. Interactions between variables were assessed within the ordinal logistic regression modeling framework. All statistical analyses were done using Stata, version 11 (StataCorp, College Station, TX).

Results

There were 5,678 respondents to the survey at baseline, 70% of all new UK refugees in the study time period [15].

Descriptive demographic statistics of the study population at baseline are given in Table 1. At baseline, 57% of respondents had experienced emotional problems to at least a moderate extent in the last 4 weeks. The corresponding figure remained at 48% at the final follow-up (Table 2). There was a high rate of attrition. Eight months after the baseline assessment, 1,840 refugees responded, 39% of the baseline population. This fell to 1,259 refugees at the 2nd follow-up, 15 months after baseline, and to 939 at the third follow-up, 21 months after baseline. The majority of respondents to the initial survey were male (64%) and under the age of 35 (71%).

In the unadjusted cross-sectional analyses, associations with emotional well-being at all time points were seen for sex, age, country of origin, time in education prior to arriving in the UK, satisfaction with current accommodation, current employment status and the appropriateness of that job for skills and qualifications, difficulty in managing money, and whether or not they had suffered a verbal or physical attack in the prior 6 months (Table 3). Frequency of contact with UK relatives and ability to understand English was significantly associated with emotional well-being at baseline, but not at the third follow-up period (Table 3). Being female, older, reduced frequency of contact with relatives in the UK, a lower ability to understand English, decreased satisfaction with current accommodation, being unemployed, having a job lower than one's skills and qualifications, having difficulty managing money and suffering from verbal or physical attack were all independently significantly associated with higher odds of poor emotional well-being (Table 3). In adjusted models, being middle-aged (but under 65), lower levels of

satisfaction with current accommodation, difficulty managing money and being an attack victim were all independently significantly associated with higher odds of poor emotional well-being (Table 4).

In the longitudinal analysis, no baseline demographic variables were significantly associated with change in emotional well-being over the study period, nor were any changes in potential explanatory variables.

Discussion

In our study, new refugees experienced a high prevalence of poor emotional well-being, which was predicted by both pre and post-displacement factors. Refugees who were unemployed or in inadequate employment, lived in poor quality accommodation, had infrequent contact with social support networks, struggled financially, had poor understanding of English or were victims of discrimination had worse emotional health.

Socio-demographic differences in the emotional health of the new refugees in this study were predominantly in keeping with previous research. Women had significantly increased odds of poor emotional well-being compared to men [7,18] and poor emotional well-being was associated with increasing age [9,19]. Younger refugees may find adjustment to a new culture and society easier, with increased behavioural flexibility aiding the acceptance of new values and customs [9,19]. The association between emotional well-being and country of origin may also reflect the varying nature of conflicts or political situations across the world and consequent variation in exposure to traumatic experiences. Historical, political and cultural contexts are likely to affect the type of refugee population that resettles in a new country at any time and therefore, specific countries' populations who may be at higher or lower risk of mental health problems is a dynamic entity. Since the completion of this study, the onset of the war in Syria in 2011, has resulted in the need for global resettlement of millions of Syrian refugees [20] reflecting the changing dynamic of refugee populations, which can sometimes be very sudden. In 2013, for the first time since World War II, the number of people forcibly displaced

from their homes exceeded 50 million, and it is widely acknowledged that there is a global refugee crisis [21].

Low socio-economic status and education level are strongly associated with adverse mental health outcomes in the general population [22]. However, this study finds that refugees from higher levels of education or socio-economic backgrounds in their country of origin, experience poorer emotional well-being in resettlement. These results are in line with Porter et al.'s meta-analysis results [9], demonstrating an association between poorer mental health outcomes and higher educational level. These groups are likely to experience a greater loss of income, wealth, status and self-esteem from downwards social mobility [9].

The association between unemployment and adverse mental health has been shown previously, both within the general [23] and refugee populations [24]. Our study re-emphasises the importance of this association. There is debate about the direction of causation of the link between unemployment and poor mental health, with evidence for unemployment directly adversely impacting upon mental health (social causation) and for a degree of "social drift" in which people with poor mental health are less likely to be employed [24]. Unemployment can cause financial strain and loss of self-esteem, social contact and status, as well as increasing the risk of health-damaging behaviours such as drinking and drug-taking [25].

Underemployment is also a risk factor for poor mental health in the general population, due to personal frustration, job dissatisfaction, insecurity or low pay [25]. This concept has rarely been utilised for refugee populations. One study concluded it may be less applicable because the frustration of limited current opportunities may be offset by the positive perception of opportunities for their family in the future [25]. However, the results of this study suggest that refugees who felt that they were over-skilled or overqualified for their job had worse mental health outcomes. This is likely to represent a decline in job

status, compared to their work in their country of origin. Similar findings have been shown in a UK birth cohort [26].

Accommodation satisfaction was found to be strongly associated with emotional well-being in our study. Since the 1999 Immigration and Asylum Act, asylum seekers and refugees have been accommodated outside London and the South East of England in a series of 'dispersal zones' within urban centres of the North of England, Scotland and Wales [27,28]. Accommodation is usually in areas of already high socio-economic deprivation in 'hard-to-let' social housing [27-29] and has led to considerable tensions and concerns amongst both refugee and local populations [29,30]. Whilst accommodation satisfaction and quality are neglected issues within refugee research, the research on dispersal suggests that it has led to isolation and produced strain in already socio-economically deprived populations [28,31].

Our analysis found that infrequent contact with relatives was associated with poor emotional well-being. In this study, over 50% of refugees stated that they had no relatives in the UK at baseline. Involvement in community networks may be viewed as essential facets of life, especially within the many more socio-centric cultures that exist outside Western culture [25]. Our data was limited to report frequency of contact with relatives as a proxy measure of community networks, which of course does not consider social contact outside of their relatives. It is also difficult to rule out the possibility that refugees suffering from poorer mental health isolate themselves, which may result in associations through reverse causality.

Refugees with a lower self-reported understanding of English language had poorer mental health outcomes, even after adjustment for country of origin, in the current study. Language skills are vital for adjustment and integration into a new country and culture. They affect the chance of employment, modify educational opportunities and the ease of access to health and welfare services. A lack of language skills can lead to social isolation and dependence on others [32].

Low income and poverty are major risk factors for poor mental health in the general population [33] and in refugees [10,34]. Lack of financial resources restricts opportunities, creates burdens of responsibility and can lead to poor mental health. In this study, greater difficulty in managing money was strongly associated with poorer mental health outcomes.

Discrimination has unfailingly been found to be associated with poor mental health outcomes amongst refugees and immigrants in previous studies [35]. While discrimination can take many forms, this study was restricted to measurement of being a victim of verbal or physical attack, and those who reported this suffered from worse emotional well-being. Victims of discrimination and violence can feel unfairly treated, suffer from internalised negative self-images and fear further incidents [36].

Importantly, the dynamic social and political climate of a country of asylum, can impact on refugee well-being. The roll out of austerity measures in the UK since 2010, has resulted in several public funding and welfare cuts [37]. State weekly support to asylum seekers has been reduced to £36.95 per single adult or child [38], refugee services such as the Refugee Council have suffered funding cuts of 61.7% [39] and cuts have impacted several other refugee community organisations [40]. The reduction in financial and service support to refugees, as well as the social climate, will likely expose refugees further to poverty, unemployment and discrimination. It would be interesting to see if the study were to be repeated in the current UK climate, whether refugees would have lower well-being scores. Associations in the current climate may also differ due to different baseline distributions, in particular, country of origin and the reasons for seeking asylum.

Strengths and Limitations

The strengths of this study included the use of a large initial data set and a high baseline response rate. A combination of cross-sectional and longitudinal analysis helped improve the evidence for potential links between social determinants and mental health, in a refugee population.

A number of limitations must also be acknowledged. Many of the measures analysed were subjective and self-reported. There is potential for reverse causality and the validity of some of these measures requires further assessment. However, many correlate well with objective alternatives or are the only legitimate option available for measurement. Similarly, the outcome measure used in this study was that of self-reported emotional well-being. This is a separate entity to mental illness and poor levels do not equate to mental health disorders, as defined in Western psychiatry. There were no significant associations between changes in explanatory variables and changes in emotional well-being, with only small average improvements in well-being over the study period. This may reflect a lack of statistical power, but may also suggest that the impact of factors at baseline are the most important to consider in the development of interventions.

Only one question was used to assess emotional well-being. It is possible that different results would have been seen using a more complete battery assessment which, despite the question being validated for use in refugee populations, should be a consideration for further studies of this nature.

Baseline response bias was identified, with socio-demographic differences in respondents likely to bias the population towards showing better emotional health. There was a high rate of attrition in the survey. While this was taken into account by using weighted analyses, it is possible that some bias was introduced. Overall, the socio-demographics of the retained sample indicated a likely bias towards poorer outcomes, although the difference was small. Outcome scores generally improved over the survey time period, but this may be an underestimate than if a fully representative sample of refugees had been retained. The decision to initiate the study one week after asylum decision may have had a strong influence on the outcome measures at baseline, as this is a time of considerable stress for the new refugees. For example, refugees often have just 28 days after asylum is granted to find new accommodation and before their Asylum Support benefit payment is stopped [41]. However, this baseline data collection was initiated at a standardised point for every participant. The fact that the UK Border Agency were the original agency collecting the survey data also needs to be considered. This means

that the agency's decision on refugee status determines those who are eligible for the study, and does not consider the refugee population as defined by international law or those whose asylum applications have been rejected. This could mean that the study data is not free from the influence of political policy and subsequent bias as a result of the exclusion of individuals even more vulnerable to adverse mental health outcomes.

Further Research and Interventions

Further research should build upon the strengths and limitations of this study to gain a more comprehensive understanding of the determinants of emotional well-being and mental health in resettlement. Studies should include measurement of socio-demographic factors and a comprehensive set of post-displacement social factors to adjust for potential confounding. Parallel measurement of pre-displacement factors such as trauma exposure and post-traumatic stress disorder will allow the context and interplay between pre- and post-displacement factors to be better understood. More objective measures should be utilised where possible. Further work to identify and validate appropriate cross-cultural mental health outcome measures will be beneficial to standardise outcomes and facilitate comparison between studies. Follow-up over a longer time period will give greater insight into the long-term resettlement process for refugees.

Interventions to promote refugee mental health could identify and target at-risk sub-populations and/or target key modifiable post-displacement social factors. Refugees need to be provided with better assistance to gain suitable employment, good quality accommodation, increased financial assistance and language teaching to promote integration.

Under the current climate of austerity within the UK, it is important for existing services to be creative and dynamic when considering interventions and assistance to refugees under constrained budgets. Within broader society, interventions to increase awareness of refugees' experiences and promote

integration, such as the Refugee Council's Integration Support Service [42], as well as those to reduce discrimination towards refugee groups, will be beneficial.

Conclusions

Despite the traumatic and stressful events that may precipitate and accompany a refugee's pursuit for asylum, emotional health problems are not an inevitable consequence of their experience. Instead, a refugee's well-being is shaped by a complex interplay between risk and protective factors. The most important social factors are potentially modifiable, and therefore of particular interest to groups who seek to improve refugees' experiences, including health professionals, public health, the voluntary sector and policy makers.

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Table 1: Socio-demographic characteristics of the refugees in this study at baseline (unweighted)

Variable	Category	Male, N (%)	Female, N (%)	Total, Nª (%)
Age group (years)	18-24	750 (20.8)	496 (24.8)	1249 (21.9)
	25-34	1800 (49.8)	869 (43.4)	2673 (46.9)
	35-44	711 (19.6)	368 (18.4)	1079 (19.0)
	45-64	269 (7.4)	180 (9.0)	450 (7.9)
	65+	45 (1.2)	62 (3.1)	108 (1.9)
	Missing	45 (1.2)	27 (1.3)	137 (2.4)
Country of origin	Afghanistan	95 (2.6)	60 (3.0)	156 (2.7)
	Americas	30 (0.8)	19 (1.0)	49 (0.9)
	DRC/Congo	131 (3.6)	105 (5.2)	237 (4.1)
	Eritrea	768 (21.2)	363 (18.1)	1141 (20.0)
	Ethiopia	50 (1.4)	52 (2.6)	102 (1.8)
	Iran	337 (9.3)	141 (7.0)	485 (8.5)
	Iraq	430 (11.9)	70 (3.5)	504 (8.9)
	Other Africa	192 (5.3)	174 (8.7)	369 (6.5)
	Other Asia	200 (5.5)	109 (5.4)	312 (5.5)
	Other Europe	145 (4.0)	114 (5.7)	262 (4.6)
	Other Middle East	215 (5.9)	48 (2.4)	266 (4.7)
	Pakistan	69 (1.9)	82 (4.1)	151 (2.7)
	Somalia	423 (11.7)	331 (16.5)	758 (13.3)
	Sudan	169 (4.7)	25 (1.3)	197 (3.5)

Variable	Category	Male, N (%)	Female, N (%)	Total, Nª (%)
	Turkey	140 (3.9)	43 (2.2)	184 (3.2)
	Zimbabwe	207 (5.7)	247 (12.3)	458 (8.0)
	Missing	20 (0.6)	19 (1.0)	65 (1.1)
Pre-UK years of education	None	340 (9.4)	367 (18.3)	717 (12.6)
	6 years or less	485 (13.4)	222 (11.1)	711 (12.5)
	7-9 years	532 (14.7)	255 (12.7)	792 (13.9)
	10-12 years	1104 (30.5)	548 (27.5)	1669 (29.3)
	13-15 years	568 (15.7)	341 (17.0)	921 (16.1)
	16 or more years	557 (15.3)	255 (12.7)	815 (14.3)
	Missing	35 (1.0)	14 (0.7)	71 (1.3)
Frequency of contact with relatives in the UK	More than twice a week	407 (11.2)	251 (12.6)	668 (11.7)
	Once or twice a week	386 (10.7)	207 (10.3)	595 (10.5)
	Once or twice a month	269 (7.5)	144 (7.2)	416 (7.3)
	Less than once a month	192 (5.3)	103 (5.1)	301 (5.3)
	Never	171 (4.7)	119 (5.9)	294 (5.1)
	No relatives in the UK	2115 (58.4)	1134 (56.7)	3276 (57.5)
	Missing	81 (2.2)	44 (2.2)	146 (2.6)
Ability to understand English	Very well	714 (19.7)	385 (19.2)	1104 (19.4)
	Fairly well	1363 (37.6)	564 (28.2)	1941 (34.1)
	Not very well	1179 (32.6)	665 (33.2)	1865 (32.7)
	Not at all	338 (9.3)	377 (18.8)	723 (12.7)
	Missing	27 (0.8)	11 (0.6)	63 (1.1)

[a] **Including 73 refugees with missing sex classification.**

Table 2: Emotional well-being of the refugees, at each time point (unweighted)

Variable	Baseline (N= 5581)		First follow-up (N= 1808)		Second follow-up (N= 1247)		Third follow-up (N= 926)	
	Male	Female	Male	Female	Male	Female	Male	Female
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Extent bothered by emotional problems in the last 4 weeks								
Not at all	909 (25.5)	318 (16.2)	264 (23.7)	103 (15.6)	202 (26.2)	81 (17.7)	156 (28.0)	67 (18.7)
Slightly	772 (21.6)	371 (18.9)	286 (25.7)	162 (24.5)	221 (28.7)	109 (23.9)	155 (27.8)	97 (27.1)
Moderately	789 (22.1)	424 (21.6)	235 (21.0)	146 (22.0)	130 (16.9)	103 (22.5)	106 (19.0)	60 (16.8)
Quite a lot	790 (22.1)	591 (30.1)	233 (20.9)	181 (27.3)	152 (19.7)	123 (26.9)	104 (18.6)	96 (26.8)
Extremely	309 (8.7)	260 (13.2)	97 (8.7)	70 (10.6)	65 (8.5)	41 (9.0)	37 (6.6)	38 (10.6)
Total	*3569 (64.5)*	*1964 (35.5)*	*1115 (62.8)*	*662 (37.2)*	*770 (62.8)*	*457 (37.2)*	*558 (61.0)*	*358 (39.0)*

Table 3. Unadjusted ordered logistic regression results for cross-sectional measures of emotional well-being at each of the time points of the survey.

Independent Variable	Category	Time Point							
		Baseline[a]		First Follow up[a]		Second Follow up[a]		Third Follow up[a]	
		OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
Sex	Male	1.00 (Reference)	<0.0001	1.00 (Reference)	<0.0001	1.00 (Reference)	0.0015	1.00 (Reference)	0.0250
	Female	1.71 (1.55 – 1.89)		1.40 (1.16 – 1.69)		1.47 (1.15 – 1.87)		1.39 (1.04 – 1.86)	
Age Group (at baseline)	18-24	1.00 (Reference)	<0.0001	1.00 (Reference)	<0.0001	1.00 (Reference)	0.0002	1.00 (Reference)	<0.0001
	25-34	1.29 (1.15 – 1.47)		1.26 (0.98 – 1.62)		0.93 (0.68 – 1.29)		1.09 (0.73 – 1.63)	
	35-44	1.82 (1.57 – 2.12)		1.74 (1.32 – 2.30)		1.50 (1.06 – 2.11)		1.99 (1.28 – 3.09)	
	45-64	2.00 (1.65 – 2.43)		2.79 (2.01 – 3.88)		1.98 (1.29 – 3.03)		2.35 (1.44 – 3.83)	
	65+	2.20 (1.56 – 3.12)		1.72 (0.96 – 3.10)		1.49 (0.57 – 3.91)		0.82 (0.27 – 2.45)	
Country of Origin	overall		<0.0001		<0.0001		<0.0001		<0.0001
Pre-UK years in education	None	1.00 (Reference)	<0.0001	1.00 (Reference)	<0.0001	1.00 (Reference)	0.0035	1.00 (Reference)	0.0058
	≤ 6 years	0.82 (0.68 – 0.99)		0.78 (0.51 – 1.19)		1.18 (0.66 – 2.14)		0.85 (0.39 – 1.84)	
	7-9 years	0.72 (0.59- 0.86)		1.00 (0.67 – 1.52)		1.11 (0.64 – 1.91)		1.25 (0.61 – 2.57)	
	10-12 years	0.62 (0.52 – 0.72)		0.78 (0.54 – 1.11)		0.81 (0.49 – 1.32)		0.83 (0.42 – 1.61)	

Variable	Category								
	13-15 years	1.13 (0.95 – 1.34)		1.27 (0.89 -1.83)		1.40 (0.87 – 2.27)		1.32 (0.68 – 2.57)	
	≥ 16 years	1.19 (0.99 – 1.42)		1.46 (1.02 – 2.11)		1.41 (0.87 – 2.27)		1.58 (0.82 – 3.06)	
Frequency of contact with relatives in the UK	> twice a week	1.00 (Reference)	0.0224	Not measured		Not measured		1.00 (Reference)	0.1490
	Once or twice a week	1.18 (0.97 – 1.43)						0.73 (0.44 – 1.21)	
	Once or twice a month	0.94 (0.77 – 1.15)						1.09 (0.66 – 1.81)	
	< once a month	1.41 (1.07 – 1.86)						1.62 (0.87 – 3.00)	
	Never	1.18 (0.90 – 1.53)						1.39 (0.72 – 2.66)	
	No relatives in UK	1.02 (0.87 – 1.19)						1.15 (0.76 – 1.73)	
Ability to understand English	Very well	1.00 (Reference)	<0.0001	Not measured		Not measured		1.00 (Reference)	0.8025
	Fairly well	0.63 (0.55 – 0.73)						0.99 (0.73 – 1.35)	
	Not very well	0.76 (0.66 – 0.87)						1.02 (0.68 – 1.52)	
	Not at all	1.05 (0.88 – 1.27)						2.21 (0.45 – 10.7)	

Variable	Category							
Satisfaction with current accommodation	Very satisfied	Not measured	1.00 (Reference)	<0.0001	1.00 (Reference)	<0.0001	Not measured	
	Fairly satisfied		1.68 (1.31 – 2.16)		1.82 (1.32 – 2.51)			
	Neither satisfied nor dissatisfied		2.21 (1.63 – 2.99)		2.24 (1.54 – 3.25)			
	Slightly dissatisfied		2.54 (1.86 – 3.47)		3.45 (2.33 – 5.12)			
	Very dissatisfied		6.15 (4.35 – 8.68)		4.08 (2.63 – 6.34)			
UK Employment status	Full-time employment	Not measured	1.00 (Reference)	<0.0001	1.00 (Reference)	0.0008	1.00 (Reference)	0.0093
	Part-time employment		1.68 (1.20 – 2.37)		1.21 (0.83 – 1.77)		1.07 (0.70 – 1.63)	
	Self employed		1.49 (0.89 – 2.50)		0.57 (0.30 – 1.07)		0.70 (0.37 – 1.33)	
	Unemployed and looking for work		1.96 (1.50 – 2.54)		1.46 (1.02 – 2.09)		1.91 (1.16 – 3.16)	

	Student		1.47 (1.12 – 1.92)		1.28 (0.92 – 1.78)		1.00 (0.68 – 1.47)	
	Looking after home and family		2.17 (1.53 – 3.10)		1.55 (0.99 – 2.42)		1.99 (1.13 – 3.49)	
	Retired		2.81 (1.57 – 5.05)		1.02 (0.48 – 2.18)		1.23 (0.58 – 2.59)	
	Sick/disabled		8.05 (4.59 – 14.1)		Non recorded		Non recorded	
	Other		4.47 (1.90 – 10.5)		2.85 (1.70 – 4.78)		2.54 (1.11 – 5.84)	
Current job's appropriaten-ess for skills and qualifications	Job lower than skills and qualifications	Not measured	1.00 (Reference)	0.0001	1.00 (Reference)	0.0055	1.00 (Reference)	0.0084
	Job matches skills and qualifications		0.48 (0.34 – 0.67)		0.62 (0.43 – 0.87)		0.50 (0.32 – 2.63)	
	Job higher than skills and qualifications		1.30 (0.39 – 4.33)		1.87 (0.76 – 4.61)		0.75 (0.21 – 2.63)	
	Very difficult	Not measured	1.00 (Reference)	<0.0001	1.00 (Reference)	<0.0001	1.00 (Reference)	<0.0001

Difficulty managing money	Quite difficult		0.56 (0.43 – 0.72)		0.52 (0.38 – 0.72)		0.41 (0.27 – 0.63)	
	Moderately difficult		0.38 (0.29 – 0.59)		0.40 (0.29 – 0.55)		0.30 (0.20 – 0.46)	
	Not difficult at all		0.19 (0.13 – 0.26)		0.16 (0.10 – 0.24)		0.15 (0.09 – 0.25)	
Victim of physical or verbal attack	No	Not measured	1.00 (Reference)	<0.0001	1.00 (Reference)	<0.0001	1.00 (Reference)	<0.0001
	Yes		2.04 (1.60 – 2.60)		3.37 (2.47 – 4.58)		2.74 (1.84 – 4.08)	

[a] **Weighted for baseline or the appropriate follow-up point.**

Table 4: Final adjusted multivariable model results for emotional well-being at each of the time points of the survey.

Independent Variable	Category	Model 1[a] Baseline (n=5255) OR (95% CI)	p-value	Model 2[a] First Follow up (n=1602) OR (95% CI)	p-value	Model 3[a] Second Follow up (n=1112) OR (95% CI)	p-value	Model 4[a] Third Follow up (n=830) OR (95% CI)	p-value
Sex	Male	1.00 (Reference)	<0.001	1.00 (Reference)	0.136	1.00 (Reference)	0.008	1.00 (Reference)	0.083
	Female	1.63 (1.46 – 1.82)		1.19 (0.85 – 1.50)		1.50 (1.11 – 2.02)		1.42 (0.96 – 2.10)	
Age Group (at baseline)	18-24	1.00 (Reference)	<0.001	1.00 (Reference)	0.005	1.00 (Reference)	0.046	1.00 (Reference)	0.009
	25-34	1.20 (1.05 – 1.37)		1.09 (0.82 – 1.44)		0.96 (0.67 – 1.38)		0.78 (0.49 – 1.22)	
	35-44	1.41 (1.20 – 1.66)		1.19 (0.85 – 1.65)		1.13 (0.74 – 1.71)		1.40 (0.82 – 2.40)	
	45-64	1.45 (1.17 – 1.79)		1.97 (1.34 – 2.89)		1.89 (1.10 – 3.24)		1.65 (0.90 – 3.03)	
	65+	1.56 (1.07 – 2.28)		0.94 (0.40 – 2.21)		4.87 (0.86 – 27.5)		0.75 (0.15 – 3.66)	
Country of Origin	Overall	-	<0.001	-	<0.001	-	<0.001	-	0.001
	None	1.00 (Reference)		1.00 (Reference)	0.024	1.00 (Reference)	0.947	1.00 (Reference)	0.257

Pre-UK years in education	≤ 6 years	1.05 (0.85 – 1.30)	0.007	0.61 (0.37 – 1.00)	1.16 (0.54 – 2.47)	0.90 (0.35 – 2.28)	
	7-9 years	1.05 (0.84 – 1.31)		0.90 (0.55 – 1.48)	1.15 (0.58 – 2.27)	1.50 (0.64 – 3.55)	
	10-12 years	0.91 (0.74 – 1.12)		0.77 (0.49 – 1.23)	0.97 (0.51 – 1.84)	1.10 (0.49 – 2.47)	
	13-15 years	1.13 (0.90 – 1.42)		0.94 (0.58 – 1.51)	1.08 (0.57 – 2.05)	1.47 (0.66 – 3.26)	
	≥ 16 years	1.24 (0.98 – 1.57)		1.14 (0.72 – 1.81)	1.12 (0.58 – 2.18)	1.64 (0.74 – 3.64)	
Ability to understand English	Very well	1.00 (Reference)	0.001	Not Measured	Not Measured	1.00 (Reference)	0.919
	Fairly well	0.88 (0.75 – 1.04)				1.08 (0.74 – 1.58)	
	Not very well	1.02 (0.85 – 1.22)				0.93 (0.54 – 1.60)	
	Not at all	1.30 (1.03 – 1.64)				0.96 (0.14 – 6.41)	
Frequency of contact with relatives in the UK	> twice a week	1.00 (Reference)	<0.001	Not Measured	Not Measured	1.00 (Reference)	0.001
	Once or twice a week	1.22 (0.99 – 1.51)				0.77 (0.44 – 1.35)	
	Once or twice a month	1.05 (0.84 – 1.31)				1.10 (0.62 – 1.95)	
	< once a month	1.54 (1.16 – 2.08)				1.99 (1.07 – 3.70)	

	Never	1.55 (1.17 – 20.6)					2.72 (1.25 – 5.94)	
	No relatives in UK	1.40 (1.17 – 1.67)					1.91 (1.19 – 3.07)	
Satisfaction with current accommodation	Very satisfied	Not Measured	1.00 (Reference)		1.00 (Reference)		Not Measured	
	Fairly satisfied		1.39 (1.05 – 1.84)		1.58 (1.09 – 2.29)			
	Neither satisfied nor dissatisfied		1.88 (1.33 – 2.65)	<0.001	1.71 (1.12 – 2.62)	<0.001		
	Slightly dissatisfied		2.03 (1.41 – 2.92)		2.86 (1.88 – 4.35)			
	Very dissatisfied		4.23 (2.90 – 6.19)		2.59 (1.57 -4.26)			
UK Employment status	Full-time employment	Not Measured	1.00 (Reference)		1.00 (Reference)		1.00 (Reference)	
	Part-time employment		1.48 (1.03 – 2.13)	<0.001	1.04 (0.69 – 1.57)	0.023	0.97 (0.59 – 1.61)	0.171
	Self employed		1.67 (0.96 – 2.91)		0.52 (0.26 – 1.05)		0.61 (0.32 – 1.16)	

	Unemployed looking for work		1.88 (1.40 – 2.54)		1.55 (1.00- 2.39)		1.56 (0.88 – 2.77)	
	Student		1.62 (1.19 – 2.21)		0.92 (0.63 – 1.34)		0.90 (0.54 – 1.50)	
	Homemaker/carer		1.71 (1.14 – 2.60)		0.95 (0.56 – 1.62)		1.67 (0.86 – 3.22)	
	Retired		2.92 (1.26 – 6.75)		0.45 (0.16 – 1.31)		1.17 (0.43 – 3.14)	
	Sick/disabled		4.28 (1.13 – 16.3)		1.91 (0.56 – 4.25)		1.58 (0.62 – 4.03)	
	Other		9.08 (4.75 – 17.4)		-		-	
Difficulty managing money	Very difficult	Not Measured	1.00 (Reference)	<0.001	1.00 (Reference)	<0.001	1.00 (Reference)	<0.001
	Quite difficult		0.65 (0.50 – 0.85)		0.58 (0.41 – 0.84)		0.36 (0.23 – 0.57)	
	Moderately difficult		0.45 (0.33 – 0.60)		0.38 (0.26 – 0.55)		0.22 (0.14 – 0.35)	
	Not difficult at all		0.26 (0.17 – 0.38)		0.20 (0.12 – 0.32)		0.15 (0.09 -0.26)	
Victim of physical or verbal attack	No	Not Measured	1.00 (Reference)	<0.001	1.00 (Reference)	<0.001	1.00 (Reference)	<0.001
	Yes		1.92 (1.48 – 2.48)		2.10 (1.15 – 3.03)		2.29 (1.49 – 3.53)	

Each model adjusted for all other variables within the model (all recorded in the table) and estimates weighted for the appropriate follow up period