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## Loneliness, Food Poverty, and Perceived Benefits of Communal Food Consumption from a Charity Service

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### ABSTRACT

In the study, 686 (345 male) patrons of a UK charity communal food service reported their demographic attributes, loneliness, food poverty, and benefits of the service. Food poverty was associated with loneliness. Women reported greater benefits of the service than men. Loneliness and food poverty were greater in middle adulthood and among the unemployed than other groups. Loneliness during middle adulthood and unemployment was associated with forming friendships during visits which may have been motivated by the need for social belonging. Gender, age, and occupation played a role in the benefits of a food charity to redress loneliness and food poverty.

### KEYWORDS

Charities; food services; food poverty; loneliness

In the 21<sup>st</sup> century a major challenge facing the world's population is that of redressing food poverty and the resulting psychosocial problems (*Royal Geographical Society*). Hunger has typically been associated with developing nations but is now a serious concern in developed nations (Pollard & Booth, 2019), a situation that has intensified following the global financial crisis of 2008 and resulting financial austerity (Garthwaite, 2017). For example, in the UK, welfare payments and household income have reduced substantially and the number of people experiencing food poverty has increased (All Party Parliamentary Group, 2014; Garthwaite, 2017; Lambie-Mumford & Dowler, 2014; Livingstone, 2015). Food poverty (also called food insecurity) is the limited or uncertain access to securing enough nutritious and safe food in ways that conform to social rules and the law (Kalil & Chen, 2008). People in the UK have increasingly missed meals (Save the Children, 2012) and have needed to use food banks to obtain emergency food aid (Trussell Trust). During the same period, loneliness has emerged as a serious problem in the UK as well as other countries. Two and half million adults living in the UK currently report suffering from chronic loneliness (Smith, 2018).

There has been a renewed interest in charitable organizations as a means of redressing the increases in food poverty and loneliness in the UK (Feeding Britain, 2020; Lambie-Mumford & Dowler, 2014). The purpose of this study

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was to examine the potential benefits of one such charitable organization, FoodCycle. This charity provides its patrons with freshly cooked three course vegetarian meals in a communal setting, using food donated by local businesses.<sup>1</sup> The current study examined the relation between food poverty and loneliness and the perceived food and social benefits to patrons of eating meals at FoodCycle events. The study examined further whether there were age, gender, and occupational status differences in the magnitude, and associations between, food poverty, loneliness and perceived effects of the communal meals at FoodCycle.

### ***Loneliness***

Loneliness poses a serious problem for psychosocial adjustment and physical health. It has been found that loneliness is concurrently and prospectively associated with poor physical health (Böger & Huxhold, 2018) and psychosocial maladjustment. Loneliness is concurrently and prospectively associated with the perceived lack of satisfactory relationships (e.g., friendships during the life span) (Nicolaisen & Thorsen, 2017; Schwartz-Mette et al., 2020). According to one line of research (Verhagen et al., 2018) loneliness results from a combination of the lack of satisfaction with relationships and an elevated need for social belonging. The remediation of loneliness, in older adults in particular, has been a major goal for social care (National Institute for Health Research) and an objective for policy makers (ONS, 2018).

### ***Food poverty and loneliness***

According to several streams of research, reduced eating deprives individuals of the opportunity of participating in the sharing of meals or social activities. This decreases the likelihood of experiencing cohesion among group members, social ties, and sense of belonging and reciprocity (Giacoman, 2016). As a consequence, individuals experience exclusion, isolation and loneliness. A relation between food poverty and loneliness has been found in several studies. Burris et al. (2019) found that food insecurity was associated with loneliness and lack of social support in older adults. Woolley et al. (2019) found that loneliness in young adults and children was promoted by food restriction (e.g., limited access to foods for health reasons). One line of research showed that consuming comfort food (e.g., chicken noodle soup) alleviated the experience of loneliness in young adults (Troisi & Gabriel, 2011). Knight, O'Connell and Brannen (2018) investigated the narratives from interviews of 11–15 year olds and their parents or carers as part of the “Families and Food in Hard Times” investigation. It was found that food poverty was a multi-dimensional experience which encompassed hunger, poor quality food, and social exclusion.

### ***Food poverty, nutrition, and health***

Food poverty is a factor directly linked to poor health outcomes, contributing to poor nutrition, illnesses (hypertension, coronary heart disease, stroke, type 2 diabetes, and some cancers) and an increased chance of mortality (see Holmes et al., 2008). Food poverty results in a low consumption of fruit and vegetables that account, in part, for poor health and mortality (Gans et al., 2018; Keith-Jennings et al., 2019). Limited nutritional intake in older adults, notably older men, has been found to be associated with lack of social connectedness and poor health (see Gans et al., 2018). The Meals on Wheels Association of America Program and Supplemental Nutrition Assistance Program have successfully reduced food poverty and poor diets of older adults (Keith-Jennings et al., 2019).

### ***The foodcycle charity food service***

FoodCycle is a charitable organization in UK which was established in 2009. It has 43 sites operating across the country and each week surplus produce is collected from retailers in each location and transformed by volunteers into a three course meal served free of charge to anyone wishing to attend. Any food that is leftover or isn't used to make the meal is made available for the patrons to take home. FoodCycle serves approximately 15,000 people per week. The overall aim of this charity is to provide healthy meals and enable attendees to build social connections, friendships and community belonging. The food to produce these meals is donated by local businesses and retailers and is produce that would otherwise go to waste. This charity utilizes the food waste as provided by households, food manufacturing sectors, and retail sectors. These donations of food are renewable resources in industrialized countries. Food waste in the UK in 2018 alone was 9.5 million tonnes with a value of £19 billion (WRAP, 2020). FoodCycle meals are 100% vegetarian and therefore have potential to increase the health and longevity of its patrons.

### ***Overview of study and hypotheses***

The current study comprises the report of analyses of the data yielded by the FoodCycle survey completed in multiple food service sites in the UK during 2018. The survey assessed the patrons' reports of their demographics, food poverty, loneliness, food benefits, and social benefits of the food service (friendship formation and community belonging). The study was guided by the expectation that food poverty would be associated with loneliness because the former reduced the opportunities for social connections and social cohesion. In relation to this expected association, the FoodCycle centers provided food services in a communal setting in which patrons eat their meals alongside

others. It was expected that patrons of the services would associate the food benefits of the services with the social benefits of the services.

The current study further examined whether the magnitude of the measures, and the associations between them, varied by gender, age, and occupational status. It addressed, for example, whether women and men differed on measures of food poverty, loneliness, and the perceived benefits of the charitable food services. Because of the principle that older adults are an “at-risk” group, it addressed whether older adults would experience greater food poverty, and loneliness than those adults who are younger. The study was carried out with the recognition that lonely individuals might experience greater social benefits than would other individuals because lonely individuals’ have a greater need for social belonging.

Research has shown that financial poverty is associated with social isolation which includes loneliness (see Gallie et al., 2003; Samuel et al., 2018; Stewart et al., 2009). Guided by those findings, it was expected in the current study that food poverty and loneliness would be greater in adults who were unemployed than those who were employed because the former group had less financial resources and less social contacts. The current study also examined whether the relation between food poverty and loneliness was dependent on occupational status (as an index of financial poverty). Specifically, some independence between financial poverty and food poverty would be demonstrated if a relation between food poverty and loneliness was found for adults who were employed and those who were unemployed. The relation may be approximately equal in strength for the different occupations. Because food poverty involves the deprivation of social ties and the associated community cohesion, then it is possible that food poverty would be associated with loneliness regardless of financial income and the social contacts provided by employment.

The following was hypothesized, that among FoodCycle patrons:

- (1) Food poverty would be associated with loneliness.
- (2) Food poverty would be associated with perceived food benefits.
- (3) Perceived food benefits would be associated with perceived social benefits.
- (4) Food poverty and loneliness would be higher among adults who were unemployed than those who were employed.

## **Method**

### ***Participants***

The participants were 686 individuals (345 males, 301 females, and 4 preferring not to say) who were patrons of FoodCycle. This was an opportunity sample. The participants were primarily “not working” (25%) “unable to

work due to disability or illness” (24%) and “retired” (20%). The participants primarily reported they had a combination of “a long-term physical health condition, homelessness, mental health problems, and lived by myself” (20%).

### **Measures**

**Loneliness.** The participants rated the extent to which they had felt lonely on a 4-point Likert scale: “Often,” “Sometimes,” “Rarely,” and “Never.” For purposes of analysis, the direction of the rating was reversed such that higher ratings denoted greater loneliness. Self-reported frequency of loneliness has served as a measure of loneliness in older adults (Nyqvist et al., 2013) and many of the patrons of FoodCycle were older adults (i.e., 60 years of age and older).

### **Food poverty**

The participants rated the extent to which “they worried that their food would run out because they do not have enough money to buy more” (*item 1*) and “how often they skipped a meal” (*item 2*). Ratings were made on 4-point Likert scales comprising “Often” “Sometimes,” “Rarely,” and “Never”. The two items were substantively correlated,  $r(685) = .51$ ,  $p < .001$ , and therefore were summed and averaged to construct a Food Poverty scale. Higher ratings denoted greater Food Poverty.

### **Food benefits**

This was assessed by the participants rating of the extent to which “they ate more fruit and vegetables” (*Item 1*) and “tried new foods” (*Item 2*) as a result of attending FoodCycle events. The ratings were made on a 5-point Likert scale comprising “Strongly Disagree,” “Disagree,” “Neither Agree or Disagree,” “Agree Strongly.” These two items were substantively correlated,  $r(589) = .44$ ,  $p < .001$ , and were summed and averaged to construct a Food Benefits scale. Larger numbers denoted greater perceptions of food benefit from the charity service.

### **Social benefits of food service**

There were two separate measures of the social benefits of the food service. Food service friendship formation was assessed by the participants rating the extent to which “they made friends at centres.” Food service community belonging was assessed by participants rating the extent to which “they felt more part of their community as a result of their visits to the centres.” For each item, the rating was made on a 5-point Likert scale comprising “Strongly Disagree,” “Disagree,” “Neither Agree or Disagree” “Agree Strongly.” Higher ratings on the items denoted greater perceived friendship formation and greater perceived community belonging.

**Procedure.** Participation in the study was voluntary and depended on verbal consent by the individual. The patrons completed the survey at the food centers alone without interference or intrusions by staff or other patrons. The participants were guaranteed, and provided, complete confidentiality and anonymity of their answers. No information about the identity of the patron was obtained. The testing was carried out in accordance with the British Psychological Association ethical guidelines.

## Results

### *Strategy for the analysis*

First, the data were aggregated for the analyses of age categories and occupational statuses. Some subsamples of categories of age and occupation were too small to be included in the analyses and were omitted accordingly. Second, the data were subjected to a MANOVA and corresponding ANOVAs to assess whether there were differences on the four measures by gender, age category, and occupational status. Third, the data were subjected to correlational analyses to assess whether there were associations for those measures and whether the pattern of associations were different by gender, age category, and occupational status. The participants had the option of not answering given items in order to comply with ethical codes of practice. In some cases, the participants had the option of giving multiple answers to given questions which were not amenable to analysis. Inputting estimates of missing data required assumptions about the data that were not necessarily met and therefore the unadjusted scores were used. As a consequence, there was variability in the sample sizes for the various measures in the analyses. The data is available for viewing at the OSF site: [https://osf.io/vgwj6/?view\\_only=73a34ac0c7a04f91ae9716ac2d5c792c](https://osf.io/vgwj6/?view_only=73a34ac0c7a04f91ae9716ac2d5c792c)

### *Age grouping*

The age of the participants was assessed in the survey by their endorsement of one of six age groups: Under 18 ( $n = 11$ , 1.6%), 18–24 ( $n = 28$ , 4.1%), 25–49 ( $n = 265$ , 38.6%), 50–64 ( $n = 215$ , 31.3%), 64–75 ( $n = 83$ , 12.1), and 75+ ( $n = 39$ , 5.7%). For data analysis purposes though, three dominant age groups were calculated: young adulthood (25 to 49 years,  $n = 184$ ), middle adulthood (50 to 64 years,  $n = 150$ ), and older adulthood (64 to 75+ years,  $n = 73$ ). This age grouping represents conventional age categorization in research. Participants under 18 were excluded using this categorization and data analyses because they were not adults and comprised a very small sample size. The age categorization did ensure that there were reasonable sample sizes per age grouping and sufficient sample sizes for the correlational analyses.

**Occupational status**

The final occupational status was composed of employed (full or part-time;  $n = 78$ ), retired ( $n = 80$ ), unemployed due to disability or illness ( $n = 113$ ) and unemployed ( $n = 117$ ). The subsample of students ( $n = 4$ ) were omitted because they were a very small sample. This data was limited by patrons' frequent declining to report their occupation and multiple answers for that question (which was permitted as answers).

**Gender and age group differences**

The measures were subjected to a Multivariate Analysis of Variance (MANOVA) with Gender and Age Group as between factors. The MANOVA yielded a main effect of Gender for the Roy's Largest Root,  $F(5, 397) = 2.847, p = .032, \mu^2 = .030$ . (The *Ms* and *SDs* are shown in Table 1.) The ANOVAS showed that there were Gender Differences on Food Benefits,  $F(1,401) = 7.78, p = .006, \mu^2 = .019$ , Food Service Friendship Formation,  $F(1,401) = 6.80, p = .009, \mu^2 = .017$ , and Food Service Community Inclusion,  $F(1,401) = 7.33, p = .007, \mu^2 = .018$ . (The *Ms* and *SDs* are shown in Table 1.) Women reported greater Food Benefit, Food Service Friendship Formation, and Food Service Community Belonging, than did men.

The MANOVA also yielded a main effect of Age Group with the Roy's Largest Root,  $F(10,796) = 3.64, p < .001, \mu^2 = .04$ . The ANOVAS showed that there were Age Group Differences on Loneliness,  $F(2,401) = 5.68, p = .004, \mu^2 = .028$  and Food Poverty,  $F(2,401) = 11.56, p < .001, \mu^2 = .054$ . (The *Ms* and *SDs* are shown in Table 2). Least Significant Difference (LSD) *a posteriori* contrasts showed that loneliness was greater for middle adulthood than for young adulthood and older adulthood. Also, food poverty was greater for

**Table 1.** Correlations between the variables (with *Ms* and *SDs*) across gender and separately by gender.

Measure/Gender	M	SD	FP	FB	FRFF	FSCB
<b>All Participants</b>						
Loneliness	2.96	.99	.45***	.02	.07	.05
Food Poverty (FP)	2.90	.92		.09*	.05	-.02
Food Benefits (FB)	4.16	.68			.39***	.42***
Food Service Friendship Formation (FSFF)	4.16	.81				.58***
Food Service Community Belonging (FSCB)	4.18	.80				
<b>Men</b>						
Loneliness	2.97	.99	.45***	-.02	.01	.01
Food Poverty (FP)	2.86	.91		.07	.09	-.02
Food Benefits (FB)	4.06	.72			.35***	.40***
Food Service Friendship Formation (FSFF)	4.08	.80				.54***
Food Service Community Belonging (FSCB)	4.06	.83				
<b>Women</b>						
Loneliness	2.97	1.00	.45***	.06	.11	.10
Food Poverty (FP)	2.75	.94		.17*	.02	.00
Food Benefits (FB)	4.29	.61			.42***	.41***
Food Service Friendship Formation (FSFF)	4.27	.80				.62***
Food Service Community Belonging (FSCB)	4.33	.70				

\* $p < .05$  and \*\*\* $p < .001$ . *Dfs* = 516 to 560



**Table 2.** Correlations between the variables (with Ms and SDs) by age group.

Measure	M	SD	FP	FB	FRFF	FSCB
<b>Young Adulthood</b>						
Loneliness	2.92	.70	.49***	-.04	.03	.05
Food Poverty (FP)	2.85	.73		.07	.05	.05
Food Benefits (FB)	4.25	.90			.36***	.42***
Food Service Friendship Formation (FSFF)	4.14	.96				.54***
Food Service Community Belonging (FSCB)	4.21	.79				
<b>Middle Adulthood</b>						
Loneliness	3.19	.96	.49***	.14	.18*	.13
Food Poverty (FP)	3.00	.87		.14	.11	.05
Food Benefits (FB)	4.14	.88			.36***	.50***
Food Service Friendship Formation (FSFF)	4.05	.78				.61***
Food Service Community Belonging (FSCB)	4.12	.81				
<b>Older Adulthood</b>						
Loneliness	2.84	1.01	.32***	-.10	-.17	-.07
Food Poverty (FP)	4.80	.89		.10	-.10	-.13
Food Benefits (FB)	4.15	.69			.38***	.29**
Food Service Friendship Formation (FSFF)	4.26	.82				.66***
Food Service Community Belonging (FSCB)	4.23	.78				

\*  $p < .05$ , \*\* $p < .01$ , and \*\*\* $p < .001$ .  $Dfs = 89$  to  $190$ .

middle than for older adulthood. Food poverty was not appreciably different between young adulthood and the two other age groups.

### **Occupational status differences**

The measures were subjected to a Multivariate Analysis of Variance (MANOVA) with Occupational Status as the between factor. The MANOVA yielded a main effect of Occupational Status for the Roy's Largest Root,  $F(15, 1146) = 15.88$ ,  $p < .001$ ,  $\mu^2 = .049$ . The ANOVAs showed that there were Occupational Status differences on Loneliness,  $F(3, 384) = 15.88$ ,  $p < .001$ ,  $\mu^2 = .110$ , and Food Poverty  $F(3, 384) = 5.69$ ,  $p = .001$ ,  $\mu^2 = .043$ . (The Ms and SDs are shown in Table 3.) LSD *a posteriori* contrasts showed that there was no appreciable difference between the employed status and retired occupational status on food poverty but each of those was different from the food poverty of the unemployed due to disability or illness and unemployed occupational statuses (which were not different from each other). A similar pattern was found on loneliness with the exception that there was no appreciable difference between the loneliness of retired and the unemployed participants.

### **Correlations between the measures (all participants)**

The correlations between the measures (with Ms and SDs) are shown in Table 1. There was a correlation between Loneliness and Food Poverty. There was a modest but appreciable correlation between Food Poverty and Food Benefit. There were correlations between Food Benefits and both Food Service Friendship Formation and Food Service Community Belonging, which were correlated.

**Table 3.** Correlations between the variables (with Ms and SDs) by employment status.

Measure/Employment Status	M	SD	FP	FB	FRFF	FSCB
<b>Employed</b>						
Loneliness	2.61	1.00	.34**	-.05	.02	-.01
Food Poverty (FP)	2.42	1.00		.04	.03	.03
Food Benefits (FB)	4.11	.68			.34**	.30**
Food Service Friendship Formation (FSFF)	4.10	.79				.65***
Food Service Community Belonging (FSCB)	4.15	.77				
<b>Retired</b>						
Loneliness	2.87	1.00	.42**	-.04	-.06	.05
Food Poverty (FP)	2.52	.88		.13	-.15	-.11
Food Benefits (FB)	4.11	.63			.31**	.21*
Food Service Friendship Formation (FSFF)	4.23	.79				.67***
Food Service Community Belonging (FSCB)	4.16	.81				
<b>Unemployed Due to Disability or Illness</b>						
Loneliness	3.13	.97	.39**	-.05	-.02	-.05
Food Poverty (FP)	3.16	.81		.00	-.03	-.17
Food Benefits (FB)	4.09	.73			.37**	.56**
Food Service Friendship Formation (FSFF)	4.19	.80				.58**
Food Service Community Belonging (FSCB)	4.14	.79				
<b>Unemployed</b>						
Loneliness	3.04	1.01	.41**	.14	.20*	.16
Food Poverty (FP)	2.95	.86		-.01	.16	.06
Food Benefits (FB)	4.20	.69			.49**	.45**
Food Service Friendship Formation (FSFF)	4.08	.82				.46**
Food Service Community Belonging (FSCB)	4.12	.79				

\*  $p < .05$ , \*\* $p < .01$  and \*\*\* $p < .001$ .  $Dfs = 76$  to  $114$ .

### **Correlations between the measures by gender**

The correlations between the measures by gender (with *Ms* and *SDs*) are shown in Table 1. The observed pattern of correlations was found for men and women with one exception. The correlation between Food Poverty and Food Benefit was found for women only.

### **Correlations between the measures by age group**

The correlations between the measures (with *Ms* and *SDs*) for each of the three age groups are shown in Table 2. The correlation between Loneliness and Food Poverty was found in all three age groups. The correlations between Food Benefits, Food Service Friendship Formation and Food Service Community Belonging were found for each age group. In addition, there was a correlation between Loneliness and Food Service Friendship Formation for middle adulthood.

### **Correlations between the measures by occupational status**

The correlations between the measures (with *Ms* and *SDs*) for each of the three age groups are shown in Table 3. The correlation between Loneliness and Food Poverty was found for all four occupational statuses with approximately equal strength. The correlations between Food Benefits, Food Service Friendship Formation and Food Service Community Belonging were found for all four occupational statuses. In addition, there was a correlation between Loneliness and Food Service Friendship Formation for the unemployed occupational status.

## Discussion

The findings yielded support for the four hypotheses. As expected, loneliness was associated with food poverty. As expected, food poverty was associated with perceived food benefits, although this applied to women only. As expected, perceived food benefits were associated with perceived social benefits (friendship formation and community belonging). Finally, as expected, food poverty and loneliness were higher in adults who were unemployed (notably those unemployed due to disability and illness) than adults who were employed or retired.

The findings yielded by the current study complement studies showing that food poverty is associated with loneliness (Burriss et al., 2019; Knight, O'Connell & Brannen, 2018; Woolley et al., 2019). Previous studies have demonstrated similar association, primarily for older adults, persons with specific food restrictions, the consumption of a given food (i.e., chicken soup) or in the narratives of children in families suffering financial hardship. The current study showed the association between poverty and loneliness is evident across a wide range of adults and separately by gender, age and occupational status. The findings support the principle that reduced eating deprives individuals of the opportunity of participating in the sharing of meals or social activities. This decreases the likelihood of experiencing cohesion among group members, social ties, and sense of belonging and reciprocity (Giacoman, 2016). As a consequence, individuals may experience exclusion, isolation and loneliness

The principle that food opportunities promote social contact and social cohesion received further support from the patrons' perceptions of the benefits of the charity food service. The patrons associated food benefits with social benefits. This finding highlights the principle that FoodCycle provides communal eating which affords the patrons the opportunities of eating meals with others and thus forming friendships and experiencing community belonging.

The different patterns shown by women and men in the current study may reflect conventional gender roles regarding food preparation and socializing. Women in general assume the main responsibility for feeding the family and, when experiencing poverty, will dedicate their time to meet the food consumption needs of their family (Cappellini et al., 2019). Consequently women are more receptive to the new food opportunities offered by the FoodCycle services and when experiencing food poverty may be more receptive to the food benefits than men. Women show a modestly greater orientation to social communion in social relationships by greater striving for intimacy, social connectedness, and social solidarity (Wiggins, 1991; Zabatany et al., 2004). Consequently, the women may be oriented to the opportunities for friendship formation and community inclusion afforded by the meals at FoodCycle. In light of these findings, it could be worthwhile for FoodCycle to consider providing various types of social interaction opportunities in the centers. For example, it could structure the food consumption

activities (tables that serve smaller groups, volunteers at each table) to promote social interaction that would benefit all clients, especially men.

As expected, loneliness and food poverty were greater among the unemployed than other occupational groups. The findings complement studies showing that financial poverty is associated with social isolation which includes loneliness (see Gallie et al., 2003; Samuel et al., 2018; Stewart et al., 2009). The findings from the current study provide a basis, however, for concluding that the relation between financial poverty and loneliness are independent of the relation between food poverty and loneliness. The association between loneliness and food poverty was found for each occupational status and were approximately equal in strength. The findings support the principle that food poverty reduces the opportunities for social connections and social cohesion, and thus enhanced loneliness, whether the person is employed or unemployed with accompanying income and social opportunities.

Research has yielded evidence for the conclusion that loneliness results from a combination of the lack of satisfaction with relationships and an elevated need for social belonging (Verhagen et al., 2018). Such findings provide one account of the observed associations in the current study between loneliness and the formation of friendships in the food centers for those in middle adulthood and the unemployed. The associations may have been due to the need to belong and the need to establish a social connection by lonely adults in middle adulthood and those unemployed. It should be noted, though, that finding this correlation suggests that the friendships formed in the service centers were not be sufficient to overcome the general loneliness of those patrons. The findings are consistent with the proposition that the FoodCycle food service centers provide the opportunity for friendship formation for adults especially those who need those opportunities the most – the lonely.

Research indicates that both loneliness and social isolation contribute to poor health and psychosocial problems in very old adults (Courtin & Knapp, 2017; Ong et al., 2016). Interventions or strategies that reduce social isolation and loneliness in adults have the potential to improve their health and psychosocial functioning. Only a few types of interventions (animal-assisted therapy, mindfulness-stress training and new technologies) have been found to be effective in reducing loneliness and isolation in very old adults (Hagan et al., 2014). There is evidence that providing food services decreases loneliness in older adults. The home-delivered meals program has been found to reduce feelings of loneliness in homebound older adults (Thomas et al., 2016; Wright et al., 2015). Similarly, the FoodCycle charity food service program has the potential to be an effective intervention for lonely adults and those experiencing food poverty. Previous studies have reported the sense of stigma experienced by those receiving food parcels from food banks (Garthwaite, 2016) which may exacerbate loneliness and social isolation of those experiencing food poverty. However, organizations responding to food poverty vary in format, values and practices (Parsons et al., 2021) and the social contact and friendship benefits arising from eating meals in a communal setting such as that at

FoodCycle could address the problem of food poverty without the accompanying sense of stigma and shame.

Previous research has focused on loneliness, social isolation, and food poverty in older adults who are typically retired. This has served as an impetus for interventions and social policies for that age group. Participants in the current study represented young, middle and older adulthood and the findings show that the persons who are at greatest risk of loneliness and food poverty are those who are in middle adulthood and unemployed notably because of disability and illness. These groups may have been left exposed because the austerity policies implemented in recent years have resulted in a shift in responsibility from the state to charitable organizations (Lambie-Mumford & Dowler, 2014) for meeting the needs of the most vulnerable. The consequence is that many such individuals “fall through the cracks” of the current reemployment and welfare system. This group of adults are not yet eligible for pensions and may have failed to receive or continue receiving welfare or other financial benefits. As a result, they suffer more food poverty and deprivation of social contacts than other groups of adults.

### **Directions for future research**

The findings are limited because they are cross-sectional in nature and comprise data from an opportunity sample. These problems could be redressed by longitudinal research that investigates loneliness, food poverty, perceived food benefits and, perceived social benefits across time. This design could provide evidence for changes in the measures and therefore evidence for causal relation between the measures. The designs could include comparison groups that did not use the charity food services. In summary, the findings from the current study provide evidence for associations between loneliness and food poverty by gender, age and occupational status. The findings support the conclusion that those can be addressed through the commensality of meals provided by charity organizations such as FoodCycle.

### **Note**

1. FoodCycle uses the term *guest* to refer to patron.

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