

# Income, social support, and well-being in the GTA

James Iveniuk



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## Introduction

Socioeconomic status operates as a flexible resource, helping individuals acquire and produce good health.<sup>24,25</sup> Income is one part of how socioeconomic status may impact health. And one of the ways income may affect health is through its links with social support and social networks.

Low income is associated with multiple adverse events that could undermine social support. For example, eviction may lead to the burnout of social relationships if contacts feel overburdened by the demands placed upon them by the evicted person.<sup>6,7</sup> Contact with close friends can be undermined by unemployment.<sup>8</sup> Persons with low-income jobs may also be precariously employed,<sup>9</sup> which may prevent socializing due to uncertain schedules and exhaustion, weakening social ties.<sup>10</sup> Because one's friends and family tend to be of similar income levels, this may lead to 'vicarious stress' that undermines the provision of support to the focal person.<sup>11</sup>

There is a wealth of evidence from studies demonstrating the resilience of social relationships for people with low income, and that individuals can form strong and supportive bonds with each other even under the most adverse circumstances.<sup>12-17</sup> However, low income can also make it more challenging to acquire and maintain them. On average, therefore, income differences may create differences in social support, as another form of inequity arising from income inequality.

Moving downstream, deficits in social support can in turn undermine various forms of well-being. Decades of research have established that social support is reliably and reproducibly associated with numerous dimensions of well-being, including mental health, physical health,<sup>18,19</sup> and life satisfaction.<sup>19-21</sup> Social support operates to produce these forms of well-being through various mechanisms, including the provision of needed instrumental help, emotional support, as well as opportunities for feedback and processing of information to process complex tasks.<sup>18,19</sup> More broadly, positive social relationships are a crucial component of overall well-being,<sup>18,22,23</sup> and a necessary element of good quality of life for many.

However, the links between income, social support, and well-being are unclear. Understanding these links could lead to the development of policies that could improve health when income is under pressure. To this end, this paper undertakes an analysis of income, social support, and well-being in the Greater Toronto Area (GTA). The analysis explores whether income-related differences in social support 'explain' the association between income and health. That is, to what degree is the correlation between income and health reduced once we consider the correlation between income and social support?

## Methods

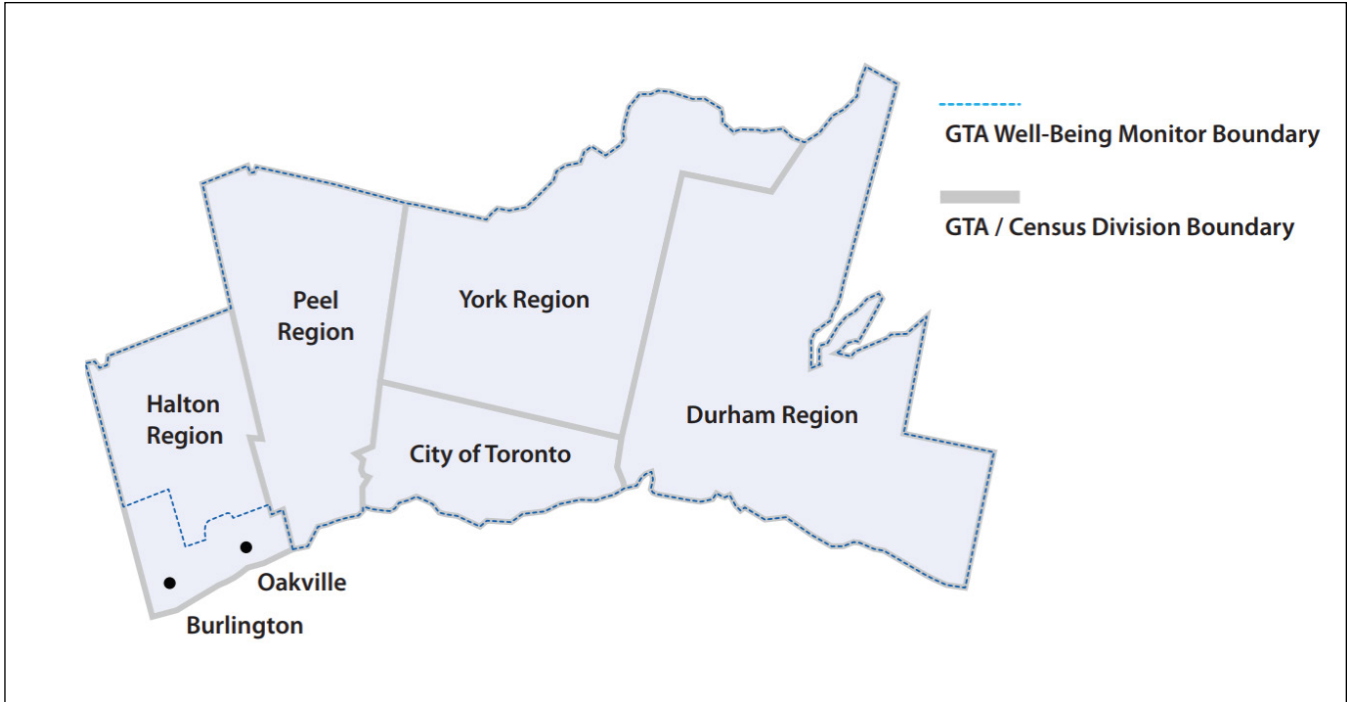
### Analytic approach for the present study

In this paper, the central question is whether differences in social support mediate associations between income and well-being. Put differently, the paper investigates whether income and well-being are associated in part because income and social support are associated. To that end, this paper undertakes mediation analyses, described in more detail in the appendix.

### Data

The data for this study were collected through a partnership formed by the YMCA GTA and Wellesley Institute.<sup>27</sup> They were collected between November 9 and December 21, 2017, by Forum Research. A total of 8,270 interviews were completed across 1,176 census tracts in the YMCA version of Greater Toronto (seven per census tract). The survey was only available in English. Figure 1 shows the geographic boundaries of the YMCA GTA, to show the coverage of the data. Full details for the dataset can be found in a joint report by the YMCA GTA and Wellesley, "Life in the GTA: A window on well-being."<sup>27</sup>

**Figure 1.** Geographical coverage of the data.<sup>27</sup>



## Measures

There are four forms of well-being considered in this paper: life satisfaction, general self-rated health, general self-rated mental health, and self-rated stress.

Social support is measured using the average of 12 questions about people’s social relationships. These questions can be broken down into three domains:

- **Tangible support.** Perceived availability of material/instrumental help (e.g. *“If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment”*).
- **Belonging.** Perceived availability of people to spend time with (e.g. *“If I wanted to have lunch with someone, I could easily find someone to join me”*).
- **Appraisal support.** Perceived availability of someone to talk to about one’s problems and find solutions (e.g. *“When I need suggestions on how to deal with a personal problem, I know someone I can turn to”*).

Income was also self-reported. The analyses control for gender, education, sexual orientation, age, ethnic origin, marital status, whether the respondent is born in Canada, and region.

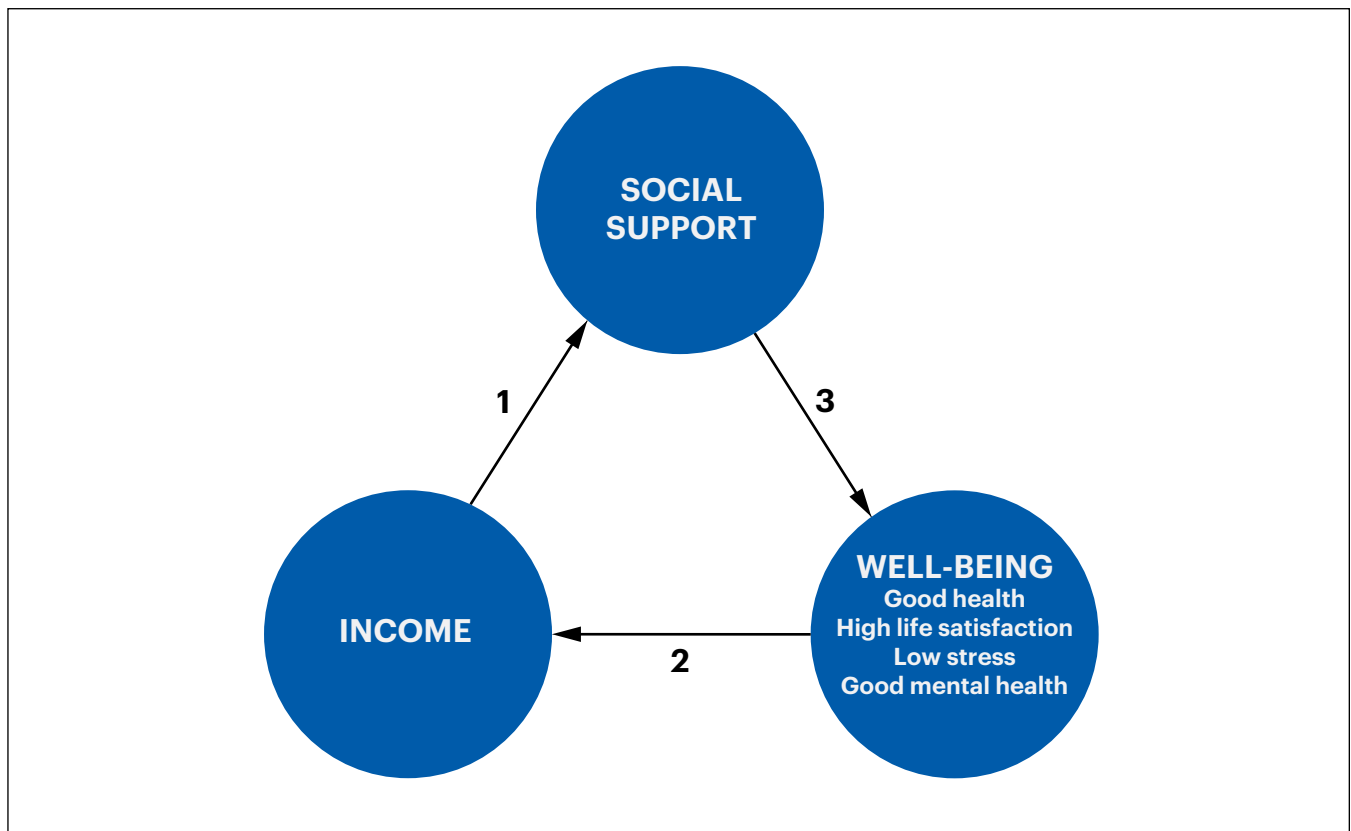
## Analysis

The analyses in this paper proceed in several steps. Figure 2 illustrates the steps in this analysis. A mediation analysis must establish an association between each of the variables shown in the figure. First, this paper explores whether there is an association between income and social support (arrow 1). Second, the paper explores the association between income and well-being (arrow 2). Third, it explores the association between social support and well-being (arrow 3).

It then carries out a mediation analysis, which entails predicting well-being with both social support and income and examining how much the association between income and well-being has been reduced by the inclusion of social support.

Finally, it breaks social support down into its components (tangible, belonging, appraisal support) and repeats the previous steps to see which aspects of social support seemingly play the greatest part in the mediation process (i.e., which aspects of social support are most 'responsible' for the association between income and well-being).

**Figure 2.** Conceptual model of income, social support, and well-being



## Results

### Description of the sample

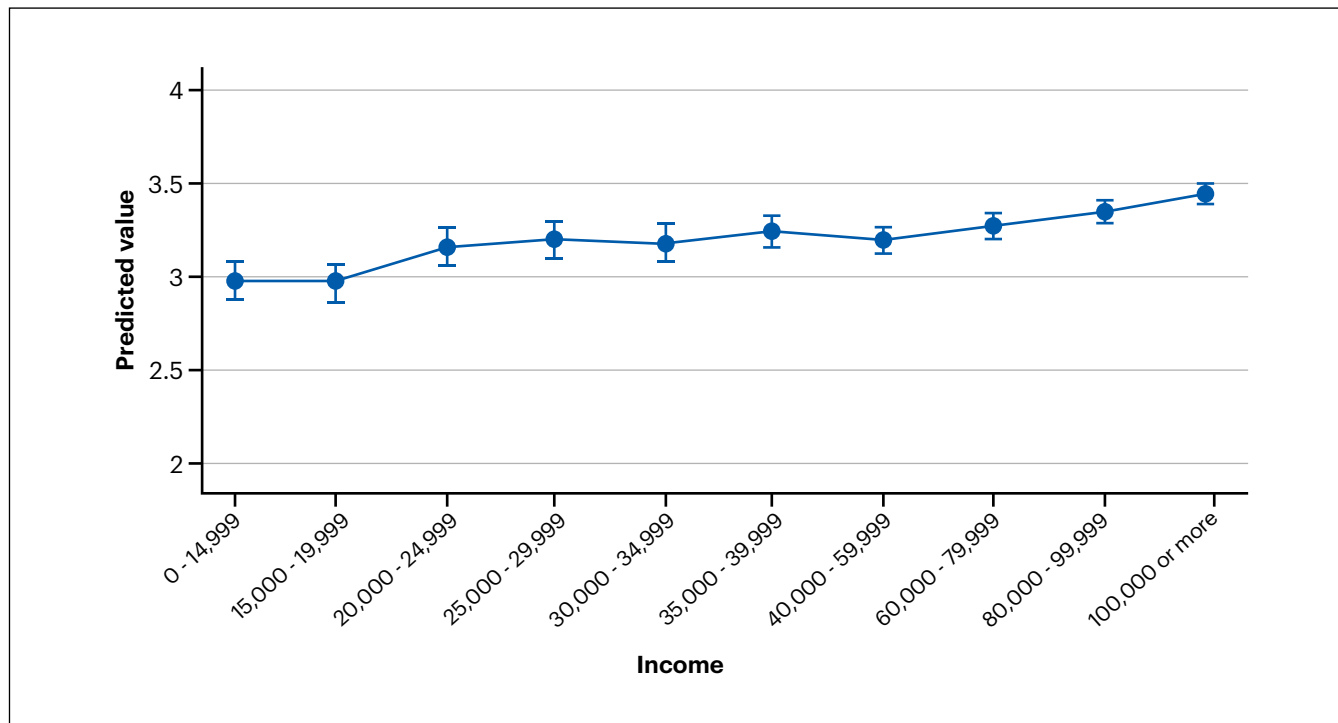
After applying weights, the sample was 51.4 per cent female and 60.5 per cent married. With regards to education 47.9 per cent had obtained at least a bachelor's degree. Thirty-eight per cent of the sample had \$100,000 or more annual household income. Most of these numbers were very similar before and after weighting, with the exception of income; unweighted, 31.7 per cent of the sample had \$100,000 or more annual household income.

Sixty-five per cent of the sample was of European ethnic identity, five per cent was of African/Caribbean/Black identity, and four per cent was of East Asian /Southeast Asian identity. (Table 1, in the appendix)

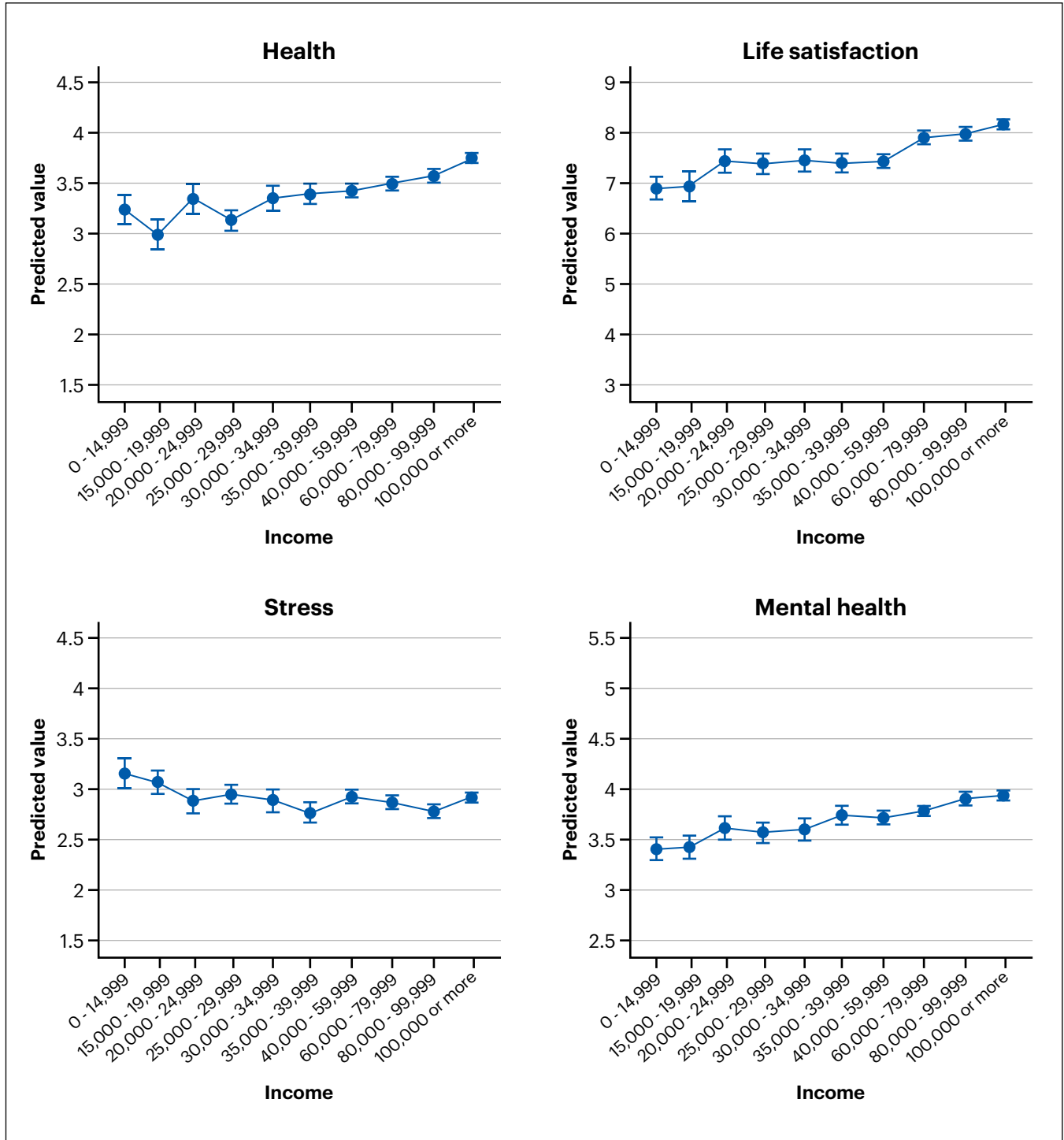
### Association between income, social support, and well-being

Before proceeding to the mediation analysis, the associations between the three key constructs will be presented. Figure 3 shows the association between social support and income, and as income increases, so does social support. Figure 4 shows four panels, one for each well-being outcome, and in each case, there is a statistically significant association between income and well-being. Finally, Figure 5 shows the linear associations between social support and well-being; note that the Y-axis has the same scale as in Figure 4, so the figures can be directly compared to each other in terms of the steepness of the slopes. There are statistically significant associations between all four forms of well-being and social support.

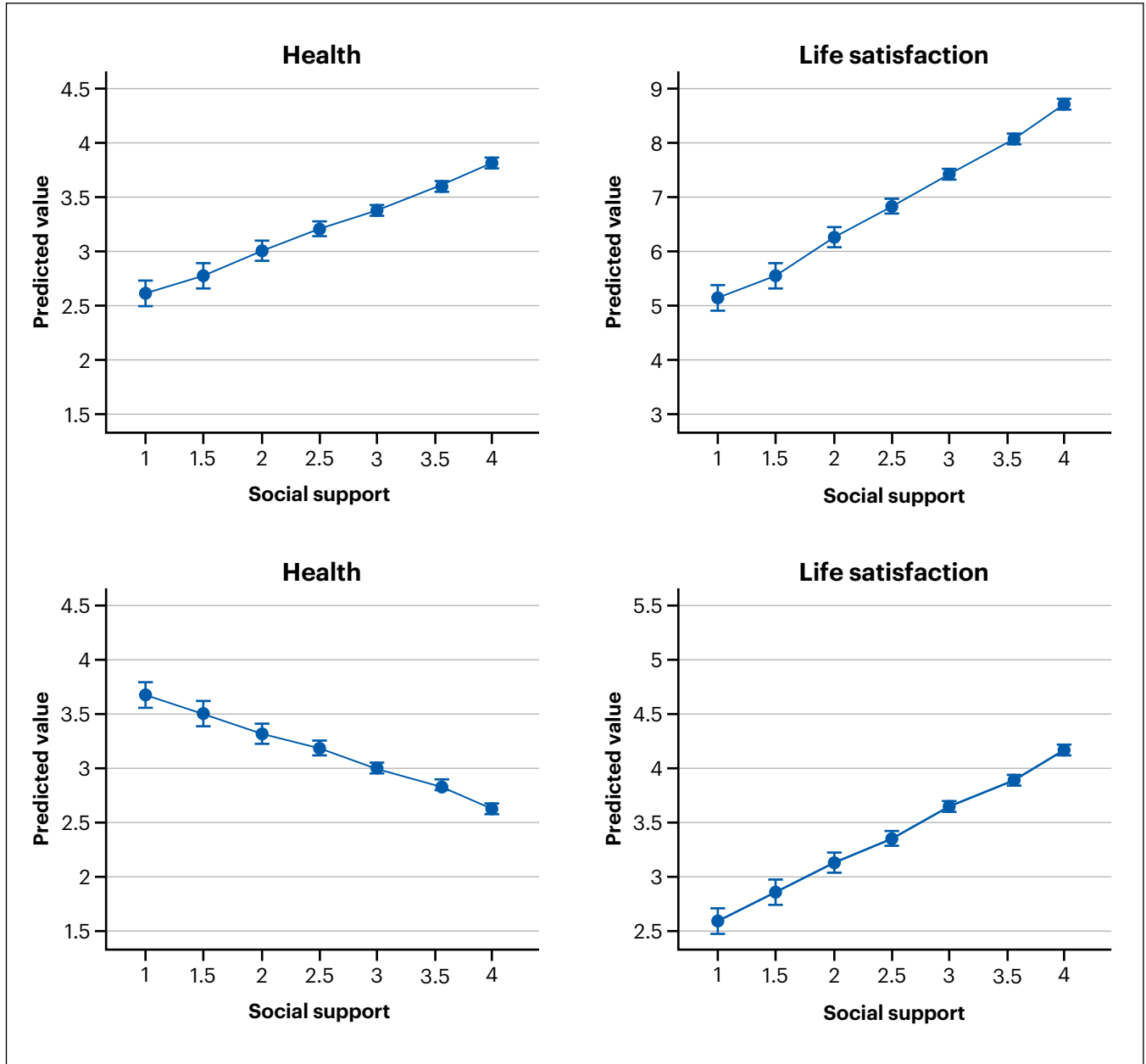
**Figure 3.** Association between income and social support



**Figure 4.** Associations between income and forms of well-being



**Figure 5.** Associations between social support and forms of well-being

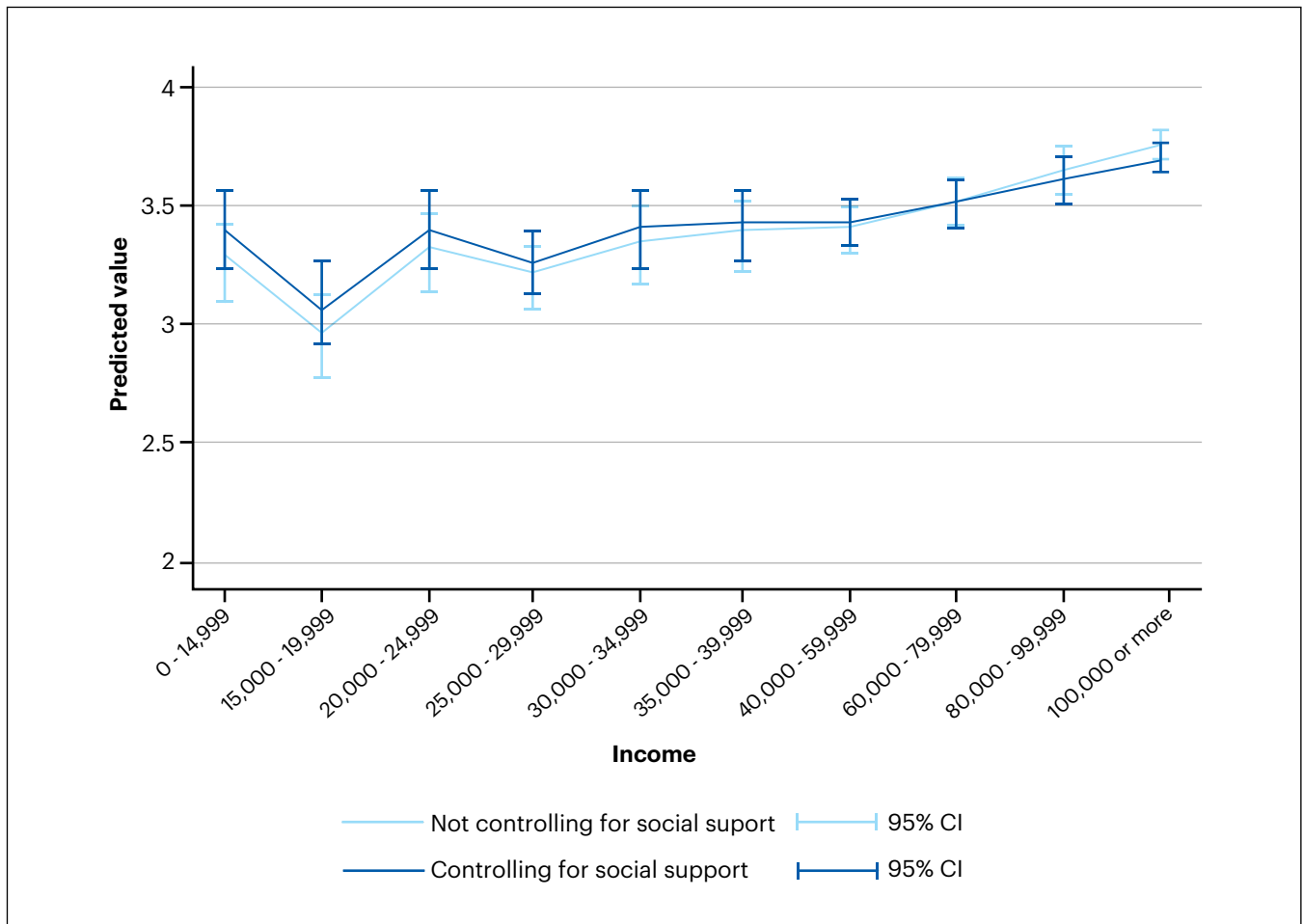




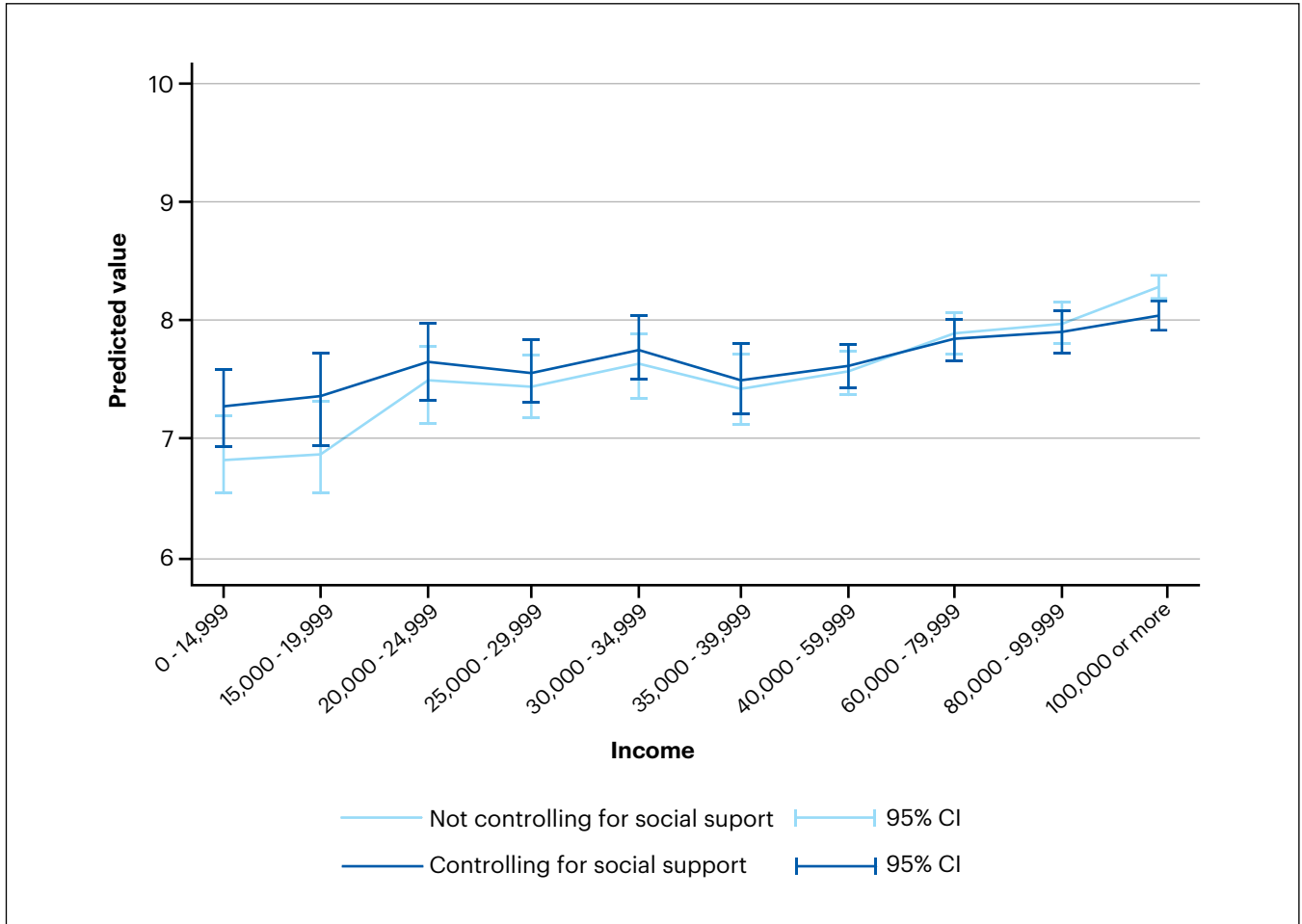
## Mediation analysis

Social support mediated associations between income and all four aspects of well-being. Figures 6 through 9 show associations between income and well-being outcomes, before and after controlling for social support. As is shown by the flattening out of the line after controlling for social support, the association between income and well-being was substantially mediated by support to varying degrees for health (45.4 per cent of the total association between income and health was mediated by social support), life satisfaction (39.9 per cent), stress (30.5 per cent), and mental health (38.4 per cent).

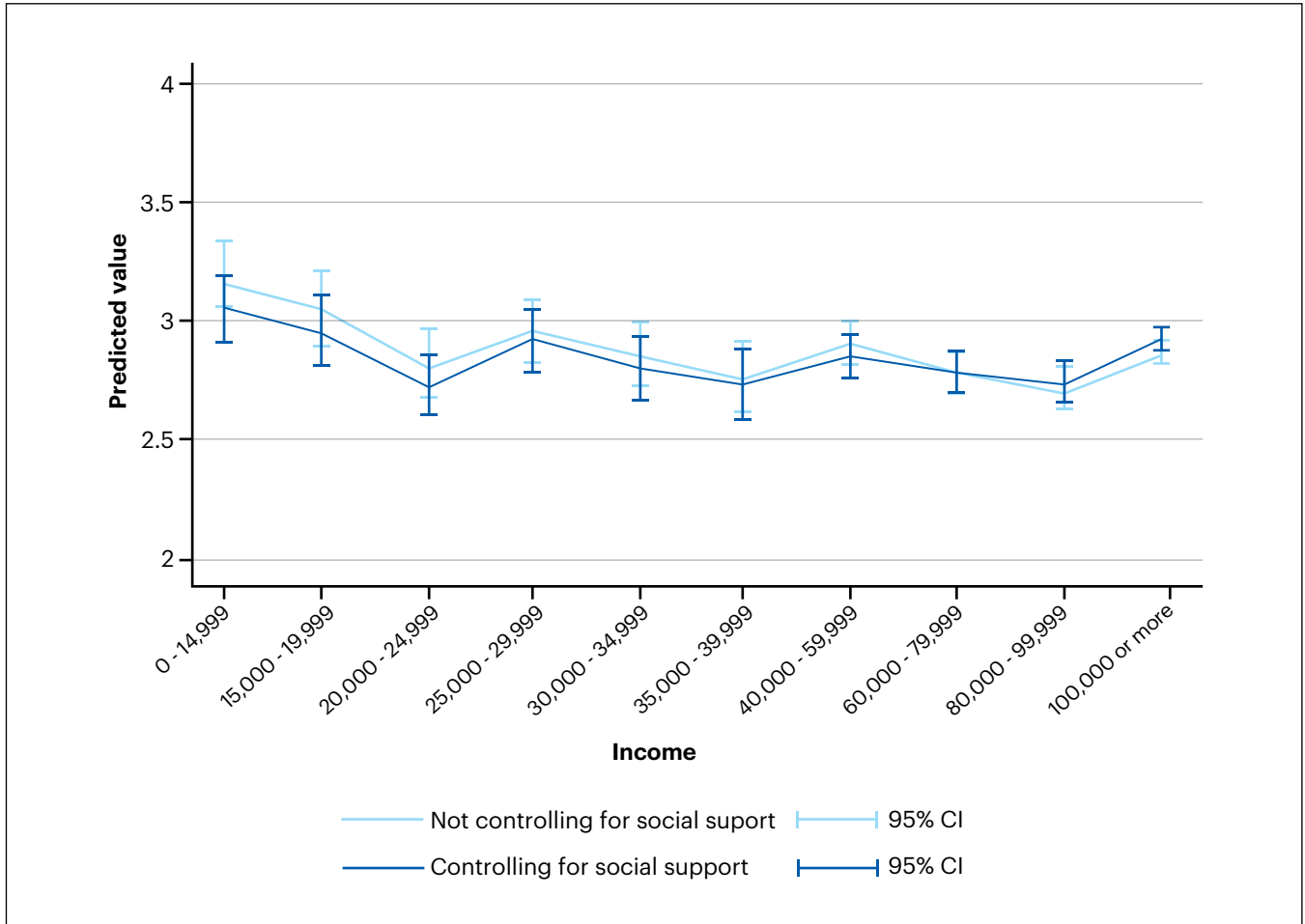
**Figure 6.** Association between health and income, before and after controlling for social support



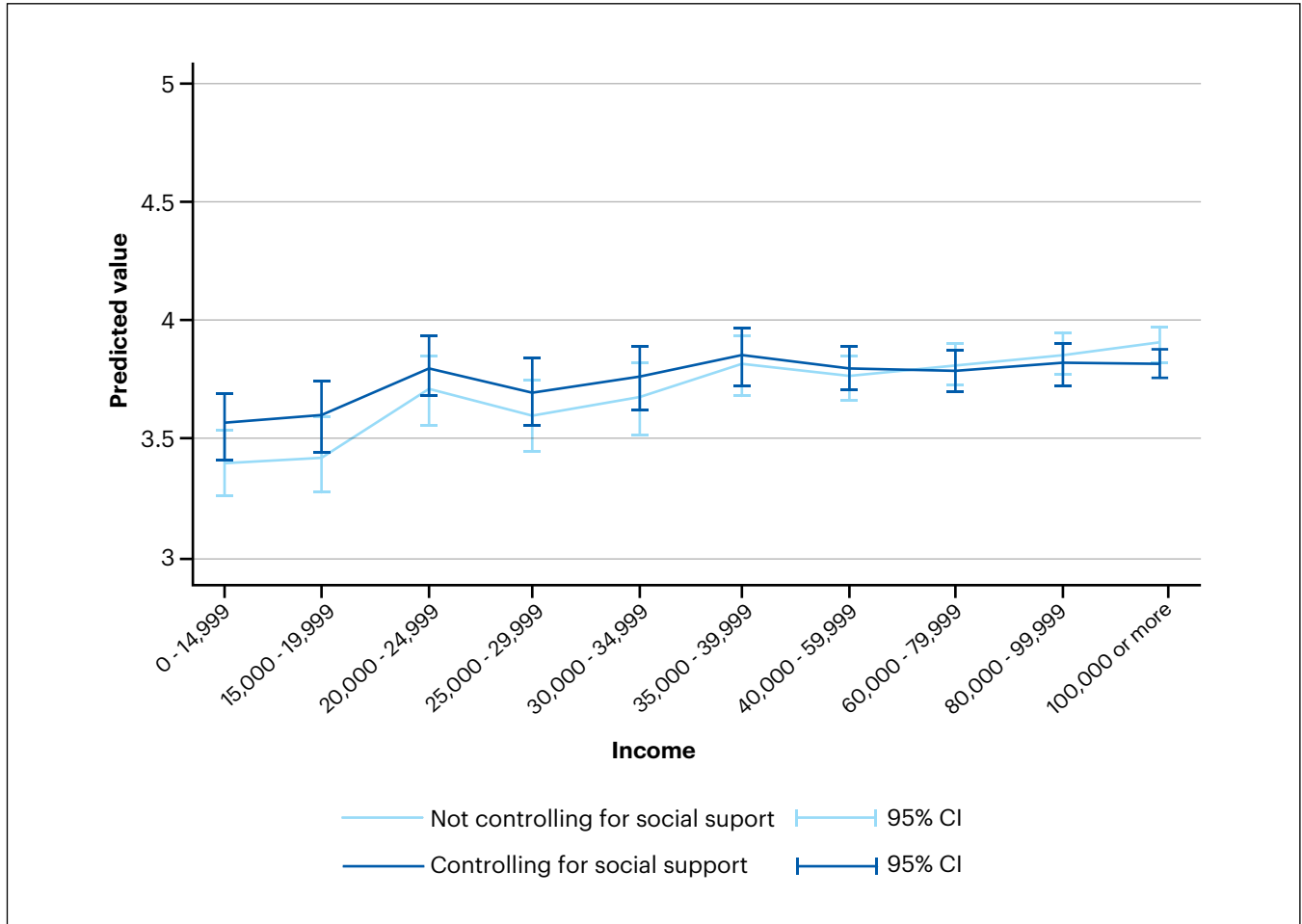
**Figure 7.** Association between life satisfaction and income, before and after controlling for social support



**Figure 8.** Association between stress and income, before and after controlling for social support



**Figure 9.** Association between mental health and income, before and after controlling for social support

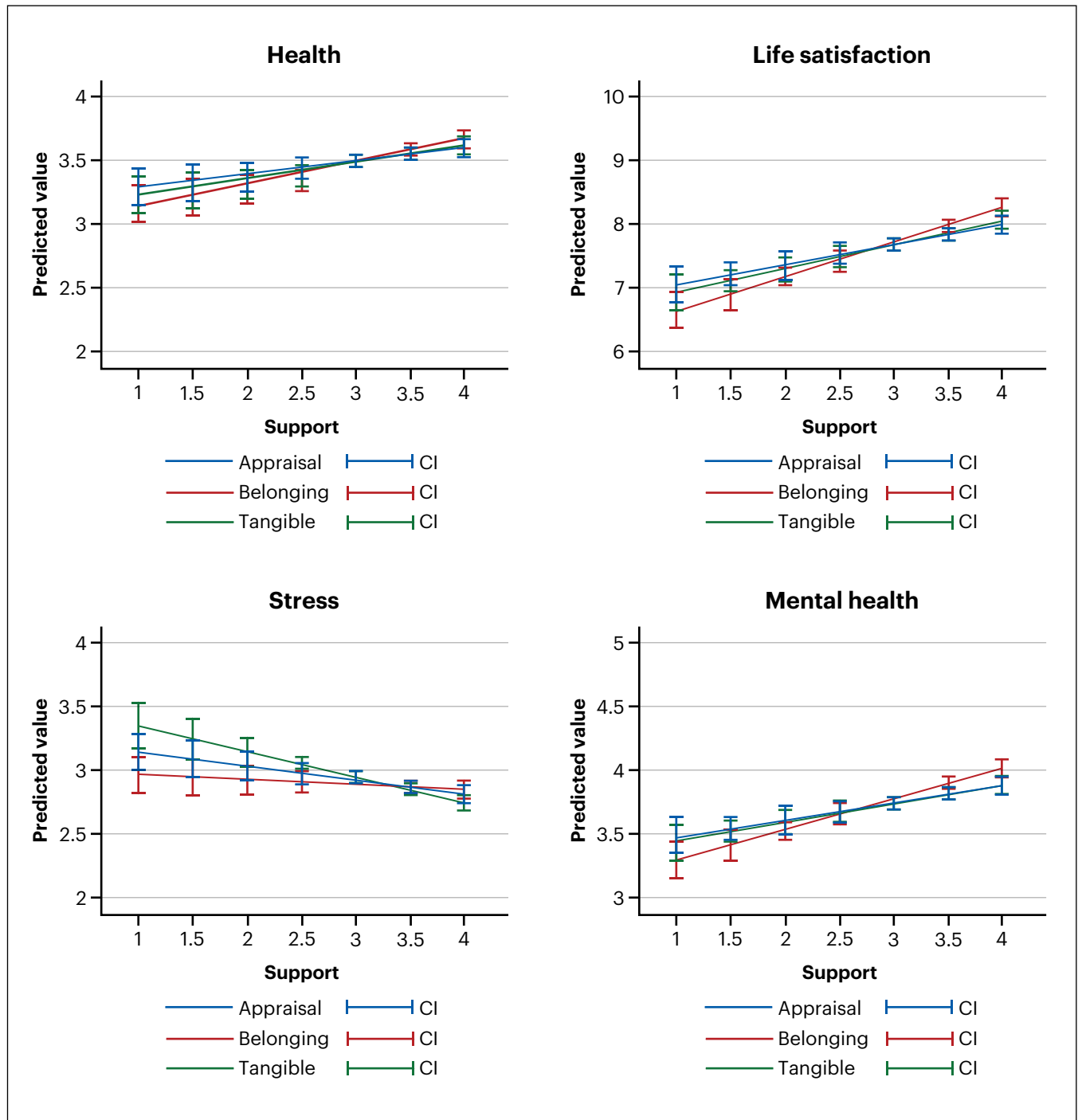


In all four cases, after calculating bootstrapped standard errors (a common statistical technique for estimating significance when other methods are not applicable), indirect effects were highly significant ( $p < .001$ ). Substantial portions of the association between income and well-being are mediated by social support in the GTA.

### Specific forms of social support

All three forms of social support were associated with all four forms of well-being. One exception was that belonging was not associated with stress ( $p=.157$ ). The associations with each outcome and each form of social support are shown in Figure 10. The essentially flat relationship between stress and belonging support is clearly visible. This is surprising since the association with belonging is stronger than the association with other forms of support for the other three well-being outcomes – although the confidence intervals clearly overlap, they cannot be statistically distinguished from each other at this level of confidence. Therefore, the forms of support all have similar associations with each well-being outcome.

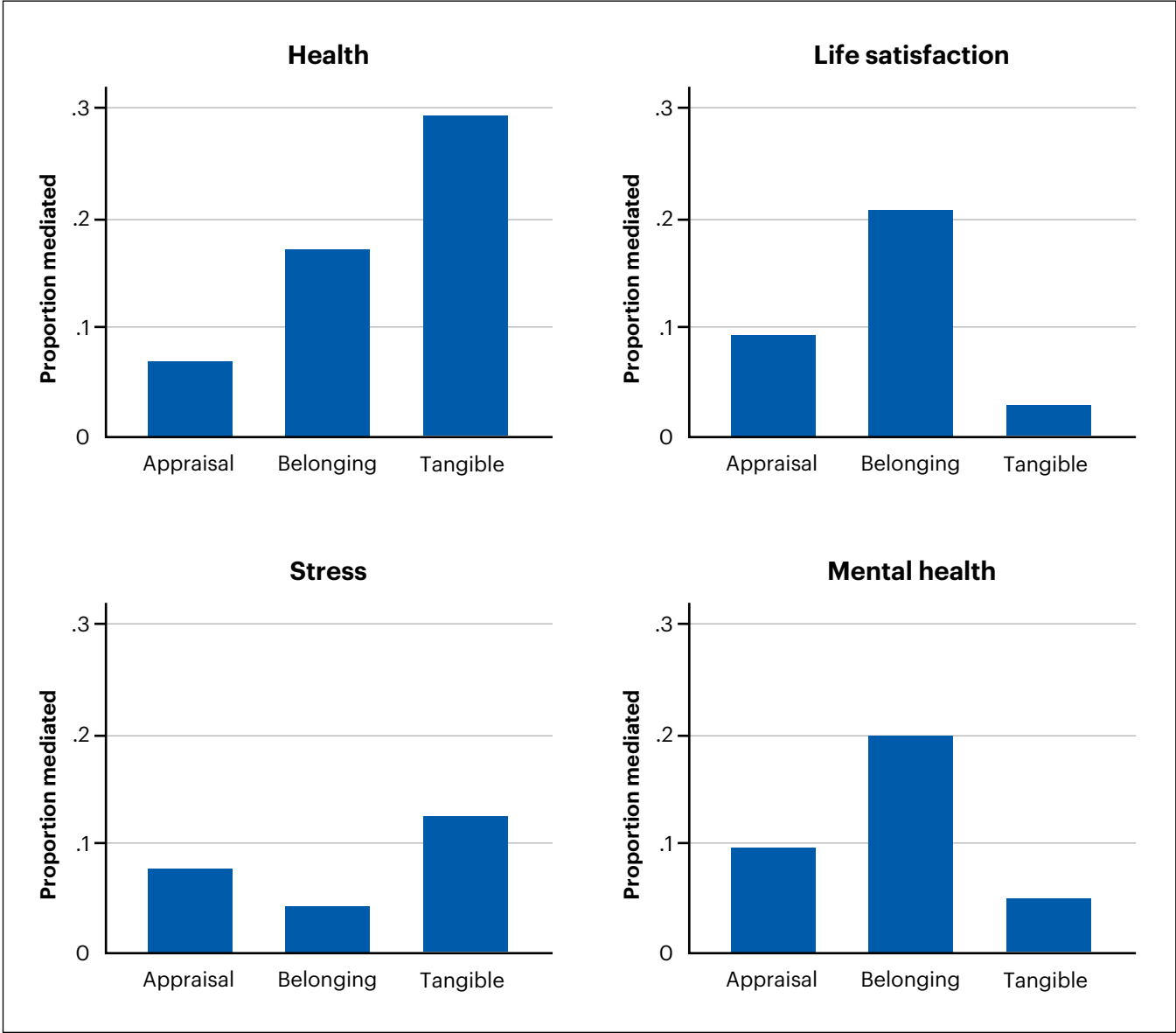
**Figure 10.** Associations between specific forms of social support and forms of well-being



Mediation analyses were carried out for all forms of social support, in terms of how they reduced the association between all forms of well-being. Figure 11 shows the result of this investigation. The height of each bar indicates the proportion of the association between income and well-being mediated by social support – the taller the bar, the more that this form of social support mediates the association between income and that form of well-being.

Different forms of social support were implicated in different mediation processes. For health and stress, tangible support mediated more of the association between income and well-being than belonging, or appraisal support. For life satisfaction and mental health, belonging was the largest mediator of the association between income and well-being.

**Figure 11.** Specific forms of social support, and mediation of the association with each form of well-being



## Interactions

There were few statistically significant interactions. Support was more strongly associated with health and life satisfaction for women than men. Support was also less strongly associated with life satisfaction for higher-income respondents, compared to lower-income respondents.

Turning to the three specific forms of social support, there were also relatively few significant interactions. Appraisal support was more strongly associated with health for higher-income respondents, compared to lower-income respondents. Appraisal support was also more strongly associated with life satisfaction for African/Caribbean/Black respondents, compared to European respondents; tangible support was less strongly associated with life satisfaction for African/Caribbean/Black respondents, compared to European respondents. Belonging was less strongly associated with stress for higher-income respondents, compared to lower-income respondents. Appraisal support was less strongly associated with mental health in Peel and Halton, compared to Toronto.

The lack of any pattern in these interactions, as well as their being few in number, suggests that the consequences of social support for well-being are largely consistent across social groups.

## Discussion

In this paper, we observed associations between income and social support, which appeared to mediate associations between income and four different forms of well-being.

The findings showed that different forms of social support seem more or less important in the link between income and well-being. Tangible social support mediated the association between income and health, and income and stress, to a greater degree than other forms of support. Conversely, belonging was the strongest mediator of the association between income and life satisfaction, and income and mental health.

These differences suggest that different policy initiatives may have different implications for specific forms of well-being, depending on what kinds of social support they build. That is to say, reducing the harmful effects of low income on stress and health might require interventions that provide people with tangible assistance, but interventions aimed at reducing the harmful effects of low income on life satisfaction and mental health might instead require a focus on people's sense of belonging.

In terms of how to increase these various forms of social support, care must be taken to address both macro-level factors (e.g., socio-economic inequality) and meso-level factors (e.g., availability of local community centers). One of the reasons for this two-pronged approach is that as shown in this paper social support does not emerge at random but predictably in response to differences in material resources (i.e., income). This may be because people in lower-income positions may encounter acute stressors and crisis events that lead them to mobilize their social networks for intense provision of support, sometimes burning out connections that could have provided a greater volume of support over a much longer period of time, leaving them with less support to help with other challenges.<sup>6</sup>

Less free time, a lack of access to social spaces, and a greater need for relying upon family may also contribute. Therefore, structural interventions that work upstream and directly improve the financial standing of lower-income persons would have positive consequences for the well-being of GTA residents, including direct effects on their health and indirect effects by helping to cultivate the conditions for better access to social support.

In brief, we can and should work to build formal forms of support, but we also need to build a city where it is easier to do the kinds of things that people already do to support one another. This requires investigating how existing programs could be improved to promote helpful social relationships, but also creating conditions where civil and domestic social life can flourish. The recommendations above may be a helpful starting point for this project.

## Limitations

The data used in this study have shortcomings that this project was unfortunately, unable to overcome. Chief among these is that sampling biases likely shaped who participated in the survey, and this may skew the sample towards people who are relatively well-connected socially, healthy, and not marginalized. This likely reduces the strength of the associations documented here because the data is missing people with the lowest levels of social support and well-being. The data also did not adequately recruit people across different racialized communities, and language barriers likely prevented many people from participating, since the survey was only available in English. Future work should seek stronger sampling frames and higher response rates in order to ensure the voices of everybody are heard in these projects, as well as potentially increasing the number of respondents per census tract in order to estimate neighbourhood effects.

## Conclusion

This report carried out an analysis of income, social support, and well-being in the GTA in order to investigate how much of the association between income and well-being is due to differences in access to social support by income. We can and must do both to build a city where everyone can reach their full potential. Now more than ever we must work to stop the growth of health inequity – at root and branch – or disparities are likely to worsen.



## Appendix: Technical details

### Measures

**Well-being.** There were four different measures of well-being considered in this study.

- Health was measured using a single item asking “*In general would you say your health is excellent, very good, good, fair, or poor?*”
- Life satisfaction was measured by asking “*Using a scale of 0 to 10, where 0 means ‘very dissatisfied’ and 10 means ‘very satisfied’ how do you feel about your life as a whole right now?*”
- Stress was measured by asking “*Thinking about the amount of stress in your life, would you say that most days are not at all stressful, not very stressful, a bit stressful, quite a bit stressful, extremely stressful?*”
- Mental health was measured by asking “*In general would you say that your mental health is excellent, very good, good, fair, or poor?*”

**Social support.** Social support was measured using a short (12 item) form of the Interpersonal Support Evaluation List (ISEL), designed to measure social support in the general population, as well as functional aspects of social networks, as opposed to structural features (i.e. kinds of help one can access, as opposed to, for instance, number of friends).<sup>43</sup> The ISEL is a combination of multiple kinds of support: tangible support, belonging, and appraisal support, each with sub-scales in the ISEL.<sup>44</sup> The full scale of the ISEL, using all three domains, had a Cronbach’s alpha value of 0.83. The alpha values for appraisal, tangible, and belonging sub-scales are 0.66, 0.60, and 0.68 respectively.

**Income.** Income was measured by asking “*What was your total household income before taxes last year? Please stop me when I reach the right category?*” The respondent was then given ten incremental categories from 0-14,999 to 100,000 and more.

**Controls.** Analyses control for gender, education, sexual orientation, age, ethnic origin, marital status, whether the respondent is born in Canada, and region. Analyses also included an age squared term to account for non-linearities.

### Analysis

This paper fit multivariate mediation models, in order to calculate the portion of the association between income and each well-being measure that is mediated by social support. A simplified diagram for this approach is shown in Figure 2. Models were fit using multiple imputation with chained equations; outcome measures were included in imputation models, but only cases with non-missing information on the outcome were included in the estimation models, to reduce the possibility of generating artificial associations between predictors and outcomes. Indirect effects were calculated using the product of coefficients method.

To calculate standard errors for indirect effects, bootstrap samples were generated from the unimputed data, then missing values were imputed from the bootstrap sample, and multiple imputation analyses were run in each of the bootstrap samples.<sup>45</sup> Twenty imputed datasets were produced for each analysis, and for calculating correct standard errors, 50 repetitions (thus, 1,000 datasets total).

The ISEL scale was then separated into its subcomponents, and mediation analyses were carried out for each of the three domains (appraisal, tangible, and belonging). Mediation models were fit for all three domains simultaneously, with correlated error terms for the three equations with social support domains as outcomes, in order to account for the fact that all three sub-domains are part of a larger construct.

Furthermore, interactions between social support and female gender, ethnic origin, income, and region were tested, in equations predicting well-being, controlling for all other factors including income. This was an exploratory exercise without testing any specific theory. These interactions were tested for the complete ISEL scale, as well as each sub-scale.

Analyses were weighted using post-stratification raked weights, using gender, age, and income. For more detail see the recent Window on Well-being report.<sup>27</sup>

**Table 1:** Sample characteristics

	Unweighted N	Unweighted Pct	Weighted N	Weighted Pct
<b>Gender</b>				
Male	3,398	41.09	3,990	48.55
Female	4,843	58.57	4,228	51.44
Else	28	0.34	1	0.01
<b>Education</b>				
Less than high school	593	7.29	469	5.73
High school	1,143	14.06	1,040	12.69
Vocational certificate	2,742	33.73	2,765	33.73
BA or more	3,651	44.91	3,923	47.86
<b>Income</b>				
0 - 15,000	278	5.00	488	5.94
15,000 - 20,000	235	4.23	326	3.97
20,00 - 25,000	262	4.71	243	2.96
25,000 - 30,000	259	4.66	327	3.97
30,000 - 35,000	241	4.34	324	3.94
35,000 - 40,000	240	4.32	326	3.97
40,000 - 60,000	818	14.72	1137	13.83
60,000 - 80,000	776	13.96	1,057	12.86
80,000 - 100,00	687	12.36	894	10.88
100,000 +	1,761	31.69	3,096	37.67
<b>Ethnicity</b>				
European	5,174	65.23	5,090	63.08
African/Caribbean/Black	407	5.13	446	5.53
East Asian/Southeast Asian	280	3.53	324	4.01
South Asian	480	6.05	544	6.74
Else	1,591	20.06	1,664	20.63
<b>Born in Canada</b>				
No	3,024	36.94	2,911	35.44
Yes	5,162	63.06	5,304	64.56
<b>Married</b>				
No	3,300	40.62	3,231	39.46
Yes	4,824	59.38	4,957	60.54
<b>Orientation</b>				
Heterosexual	7,049	94.54	7,293	93.86
Homosexual	163	2.19	207	2.66
Bisexual	155	2.08	178	2.3
Else	89	1.19	92	1.18

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