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Associations between sense of community and wellbeing: A comprehensive variable and person-centered exploration

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Abstract

Aims: The study aims to better understand the relationship between sense of community (SOC) and wellbeing from multiple analytical perspectives, considering different aspects of wellbeing and individual contextual factors.

Methods: Four hundred and ninety-one adults from Québec, Canada, completed an online survey, and 296 also completed it a month later. We explored 1) cross-sectional associations between SOC and wellbeing, 2) latent profiles of people, underlying the association between SOC and wellbeing, and 3) cross-lagged relationships between SOC and wellbeing.

Results: Correlation and regression showed that SOC and wellbeing were related cross-sectionally, although the association with negative wellbeing was weaker. Latent profile analysis identified four profiles showing differing SOC-wellbeing associations. Cross-lagged analyses showed that over time, SOC only marginally predicted emotional wellbeing but that wellbeing systematically predicted SOC.

Conclusion: Researchers and psychologists should acknowledge the complexity of relationships between SOC and wellbeing using person-centered perspectives. Social justice and wellbeing promotion implications are discussed.

*These authors contributed equally to this study.

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KEYWORDS

cross-lagged analysis, eudaimonic, hedonic, latent profile analysis, person-centered analysis, sense of community, wellbeing

Sense of community and wellbeing are two core constructs in community psychology (Kloos et al., 2012; Prilleltensky, 2012; Sarason, 1974). However, their relationship has yet to be clarified, as directionality and causality in the relationship are often assumed in previous studies, based mostly on cross-sectional and variable-centered research. In this study, we utilize multiple types of quantitative analysis to explore that relationship from both variable-centered and person-centered perspectives, and using cross-sectional as well as longitudinal data to develop a more nuanced understanding of the relationship between these foundational constructs in our field.

1 | LITERATURE REVIEW

1.1 | The nature of wellbeing and sense of community

Promotion of wellbeing is a core value of community psychologists (Kloos et al., 2012). Cowen (1994) defined wellness as a concept encompassing several related positive phenomena, rather than simply the absence of illness, and he suggested that wellbeing can be promoted through multiple avenues including through social settings and by creating empowering conditions. Prilleltensky (2012) further refined the definition of wellbeing among community psychologists as “a positive state of affairs, brought about by the simultaneous and balanced satisfaction of diverse objective and subjective needs of individuals, relationships, organizations, and communities” (Prilleltensky, 2012, p. 2).

Similarly to community psychologists, the field of positive psychology (Seligman & Csikszentmihalyi, 2000) has contributed significantly to understanding and promoting the optimal functioning of individuals, groups, and institutions (Gable & Haidt, 2005). While the definition of wellbeing has been debated by several researchers in positive psychology (Kashdan, Biswas-Diener, & King, 2008; Ryan & Huta, 2009; Waterman, 2008), several agree (Henderson & Knight, 2012; Keyes & Annas, 2009; Ryan & Deci, 2001) that it includes both hedonic and eudaimonic aspects. Hedonic wellbeing refers to experiencing positive emotions and satisfaction with life (see Diener, 2000; Ryan & Deci, 2001, for examples of such subjective wellbeing research). In contrast, in the spirit of the work of the philosopher Aristotle, eudaimonic wellbeing refers to actualizing one's full potential and complete functioning, especially through a life that has meaning and through rewarding relationships with others (Ryan & Deci, 2001; Ryff, 1989; Waterman, 1993).

The positive mental health framework developed by Keyes (2005, see also Keyes and Simoes, 2012) is one of the most validated to date (Hone, Jarden, Schofield, & Duncan, 2014) and encompasses both hedonic and eudaimonic wellbeing in a single conceptualization (building on previous models, see Diener, 2000; Keyes, 1998; Ryff, 1989). Keyes's model includes the following three aspects of positive wellbeing: emotional (i.e., happiness, satisfaction, interest in life), psychological (e.g., self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, personal growth), and social wellbeing (social integration, social contribution, social coherence, social actualization, social acceptance) (Keyes, Fredrickson, & Park, 2012). Positive scores on these aspects of positive wellbeing have been shown to be negatively correlated with, but not to represent the mere opposite of measures of negative wellbeing, such as symptoms of depression, anxiety, and other mental health issues. Empirical research shows that positive wellbeing and negative wellbeing form two independent continuums (Coulombe et al., 2015; Coulombe et al., 2016; Keyes, 2005; Westerhof & Keyes, 2010), and as such, both should be considered in comprehensive explorations of wellbeing and targeted in wellbeing promotion initiatives.

The complete mental health model (Keyes, 2005) incorporates both positive and negative aspects of wellbeing, and not simply an individual's personal functioning. The model additionally includes one's functioning in society, in

line with community psychologists' emphasis on the social aspects of wellbeing (Cowen, 1994; Prilleltensky, 2012). However, to our knowledge, such a global perspective on wellbeing has rarely been used in published community psychology research and has never been applied to study the relationship between wellbeing and sense of community (SOC).

Similarly to wellbeing, SOC is central in community psychology (Kloos et al., 2012). It was in fact recently listed as one of the most important theoretical foundations in the field (Jason et al., 2016). The concept was formally introduced by Sarason (1974) as: "the perception of similarity to others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, the feeling one is part of a larger dependable and stable structure" (p. 157). It refers to a feeling that emerges from the interaction between the persons and their environment (Jason et al., 2016).

Several scholars across the years have strived to operationalize the construct of SOC but reaching no consensus (Chipuer & Pretty, 1999). Some scholars have defined it in terms of attachment to place-based communities, while others have defined it as relationships to abstract communities of people sharing, for example, similar characteristics (Jason et al., 2016). The complexity of the construct has led to researchers proposing multiple ways of conceptualizing what it entails (for various conceptualizations see: e.g., Bishop, Chertok, & Jason, 1997; Jason, Stevens, & Ram, 2015; Long & Perkins, 2003; McMillan & Chavis, 1986). Despite the lack of consensus, the definition introduced by McMillan and Chavis in 1986 is considered "the datum point for the majority of scholars interested in the investigation of [sense of community]" (Talò, Mannarini, & Rochira, 2014, p. 2).

McMillan and Chavis's (1986) model proposes that sense of community consists of the following four elements: 1) Membership: when one feels they belong and feels related to others in the community, 2) Influence: when one feels they make a difference in the community, and the community matters for its members, 3) Integration and fulfillment of needs: when one feels that resources derived from their membership to the community will satisfy their needs; 4) Emotional connection: when one believes that they share and will share experiences and history with members of the group. A Sense of Community Index (SCI; Chavis, Hogge, McMillan, & Wandersman, 1986) based on those four dimensions has been used and adapted extensively. Despite some support for the four-factor structure in a study conducted by Chipuer and Pretty (1999), the level of reliability found for each subscale was not optimal and a more recent study (Stevens, Jason, & Ferrari, 2011) suggested that the index is best used as a single indicator of an overall SOC construct.

1.2 | The relationship between wellbeing and sense of community

Within community psychology, the connection between SOC and wellbeing has been assumed to the point that it is taken for granted that interventions designed to improve SOC will also benefit wellbeing (Prilleltensky, 2012; Rappaport, 1987). We typically assume that with increased SOC, individuals will experience higher wellbeing and thus engage more frequently in efforts to improve their environment. This is supported both theoretically and empirically (Albanesi, Cicognani, & Zani, 2007; Davidson & Cotter, 1991; Prezza & Costantini, 1998), however, the dynamic relationship between SOC and wellbeing has not been deeply explored with attention to individual context and differences.

One of the foundational articles relating SOC and wellbeing found a relatively strong correlation between wellbeing and SOC, particularly between happiness and SOC, but weaker correlations between SOC, coping, and worrying (Davidson & Cotter, 1991). However, it has also been posited that SOC and wellbeing might reciprocally influence one another as they are likely to both impact people's relationship with their community (Campbell, Converse, & Rodgers, 1976; Glynn, 1981; Shaver & Freedman, 1976). Based on a previously established theory (McMillan & Chavis, 1986; Shaver & Freedman, 1976), Davidson and Cotter (1991) suggested that despite their study only examining correlation, there was a causal relationship from SOC to wellbeing. Their interpretation was that through community people satisfy social needs inherent to their happiness and therefore SOC truly

contributes to happiness beyond a simple influence of happiness on their subjective community evaluations (i.e., beyond a mere subjective “bias”).

Research has further developed and contextualized the relationship between SOC and wellbeing, but none to our knowledge has rigorously tested the assumptions of causality and directionality between several wellbeing constructs and SOC. Research has shown that the relationship between SOC and wellbeing does vary based on the specific setting under study, which would suggest that contextual factors influence the relationship between the two constructs (Prezza & Costantini, 1998). Also, several studies have explored SOC influences and the association between contextual factors and wellbeing (Albanesi et al. 2007; Farrell, Aubry, & Coulombe, 2004; Liao, Tu, & Lung, 2016; Liu, Liu, Feng, & Li, 2016; Zhang & Zhang, 2017) and differences and disparities in wellbeing according to group association (gender, sports, religions, Albanesi et al. 2007; transgender identity, Barr, Budge, & Adelson, 2016; nationality, Cicognani et al., 2008; for African American women, Cutrona, Russell, Hessling, Brown, & Murry, 2000; perceived discrimination, Ryff, Keyes, & Hughes, 2003) providing a more nuanced understanding of the link between SOC and wellbeing and emphasizing the importance of context in the relationship between the two constructs. However, none of the above-mentioned studies were designed to explore causality of the relationship (i.e., if wellbeing influences SOC or the reverse) nor did they explore how the dynamic relationship between wellbeing and SOC might differ among different individuals or groups.

A very limited number of longitudinal studies have investigated the relationship between SOC and wellbeing (Piliavin & Siegl, 2007; Prati, Albanesi & Pietrantonio, 2016; Zhang & Zhang, 2017). Zhang and Zhang (2017) found similar results to the above-mentioned cross-sectional results (i.e., SOC mediated the relationships between neighborhood environment and wellbeing, through its own association with wellbeing) and Piliavin and Siegl (2007) looked at the positive benefits of volunteering. Although Piliavin and Siegl (2007) did not explicitly consider the SOC construct, they found an interesting result: those who were less integrated experienced greater benefit to their wellbeing. In consideration of the complexity and variation in different conceptualizations of SOC, we cannot infer that participants did not feel a strong SOC for any community. However, at the very least, the study provides some precedent that one can experience wellbeing benefits even if they do not feel integrated in their community. It is also important to consider that this result may only apply to the specific context of volunteering. Nevertheless, the study provides some basis for our hypothesis that the relationship between SOC and wellbeing may be more complex and dynamic than generally assumed.

Finally, Prati et al. (2016) utilized a longitudinal, cross-lagged design to examine a reciprocal relationship between SOC and wellbeing, focusing specifically on the social wellbeing aspect of Keyes's (2005) model. They found that only certain social wellbeing components (social integration and social contribution) were predicted by SOC when controlling for baseline levels of SOC, and that only social integration predicted SOC when controlling for baseline social integration and social contribution. They offer straightforward interpretation of these results related to the community providing opportunities for one to meet their social needs and the potential positive feedback loop between SOC and wellbeing. However, since the social wellbeing construct is the most conceptually similar to SOC, more research is needed to examine the relationship between SOC and other aspects of wellbeing that are more distinct conceptually (e.g., emotional wellbeing, depression, etc.). In the present study, we use a greater variety of wellbeing measures including positive and negative wellbeing to understand the relationship between SOC from a comprehensive perspective.

In the past few decades of community and wellbeing research, researchers have largely assumed causality and directionality from SOC to wellbeing. It is tacitly assumed that SOC is linked to wellbeing and that in some way increased SOC benefits individual members of the community; however, a better understanding of the dynamic relationship and potential differences in the strength and direction of the relationship could provide additional insight toward improving wellbeing for individuals in communities that are diverse in terms of level of education, income, and other contextual factors. In the present study, we utilize person-centered analysis in addition to variable-centered analysis to consider those factors. Compared to variable-centered analysis, person-centered analysis provides the opportunity to explore unique patterns of relationships for different individuals or groups

(Meyer, Stanley, & Vandenberg, 2013). As opposed to mediation or moderation analysis utilized in some of the reviewed studies (e.g., Farrell et al., 2004; Liao et al. 2016), person-centered analysis is a more inductive and holistic exploration, based on the emergence of profiles present in the data.

2 | OBJECTIVES

The aim of the study is to better understand the relationship between SOC and wellbeing, from different perspectives. The specific objectives are to:

1. Examine the cross-sectional associations between SOC and different aspects of wellbeing, both with and without controlling for demographics;
2. explore emerging profiles of people showing different patterns of SOC and wellbeing, as well as the demographics (individual and contextual variables) associated with these profiles, and the strength of the association between SOC and wellbeing within each profile;
3. examine how SOC and wellbeing change and influence each other over a short time period.

3 | METHODS

3.1 | Procedure

The data were collected in Summer and Fall, 2017, as part of a larger online two-wave survey study related to wellbeing and green spaces, also including measures (used in the present article) related to the community environment. The study was approved by Wilfrid Laurier University's Research Ethics Board. Participants had to self-identify as a) being 16 years-old or more, b) residing in Québec, Canada, and c) speaking French, the most spoken language in that province. Participants were recruited through paid ads on Facebook, targeted to those who met the above-mentioned criteria, as well as ads distributed on online mailing lists in the province of Québec. The ads linked to a secure online survey platform (Qualtrics). Although the focus of the survey was mostly positive, participants were provided with phone number for mental health support on the online consent form. At the end of the first wave (Time 1; T1), participants had an option to provide their email addresses to be invited to participate in the second wave, 4 weeks later (Time 2; T2). Participants could opt to receive \$10 compensation in the form of an e-gift card for a coffee shop after completing each wave of the study. The data collection occurred over 4 months.

The database was cleaned to remove data from participants who completed less than 70% of the survey given that SOC and wellbeing scales were situated toward the end, with other measures related to green space use and perceived quality (not used in the present study) included before. In addition, participants who filled out the survey in less than 5 min were excluded as an indicator of potentially fraudulent respondent behaviors. We also removed fraudulent responses based on suspicious patterns of duplicate IP addresses.

3.2 | Participants

The final sample included 491 participants who completed T1 and 296 of those also completed T2 on average 33 days after T1. The overall sample ranged from 16 to 76 years old ($M = 33.0$, $SD = 13.4$), and mostly identified as women (76.6% women; 21.0 men; 2.2% nonbinary and other gender identities). The majority of participants were single (60.7%). The vast majority were born in Canada (88%) and they have been living in their current residence from less than 1 year to 62 years ($M = 10.7$, $SD = 10.8$). Their average education level was between a preuniversity college degree and a university short program degree ($M = 5.5$, $SD = 2.2$). The average household income level was between CAN\$60,000 and CAN\$69,999 before taxes ($M = 6.7$, $SD = 3.3$).

Households included two people on average ($M = 2.1$, $SD = 1.0$), including on average one person under 18 year old ($M = 0.7$, $SD = 1.1$).

Participants who only completed the T1 survey and not the T2 survey were not significantly different from those who completed both surveys on the main study variables (SOC, negative and positive wellbeing), however, their level of education was different, $t(368.33) = -2.32$, $p = 0.02$, with a mean 5.7 ($SD = 2.4$) for those who completed both in comparison to 5.2 ($SD = 2.1$) for those who only completed the T1 survey. Men were also less likely to have completed both surveys, representing 30.7% of T1-only completer respondents, compared to 15.5% of T1-and-T2 completers.

3.3 | Measures

3.3.1 | Sense of community

SOC in relation to the neighborhood of residence (an area self-defined by participants) was measured by a 12-item French version (Saïas, Loomis, & Beck, submitted) of the Brief Sense of Community Index (Chavis et al. 1986; Chavis, Lee, & Acosta, 2008). Each item was assessed on a scale from 1 (*Don't agree at all*) to 5 (*Entirely agree*) covering the four aspects of SOC from McMillan and Chavis (1986): membership (e.g., feeling at home), influence (e.g., capacity for residents to solve problems in the neighborhood), integration and fulfillment of needs (e.g., shared values and expectations with neighbors), and shared emotional connection (e.g., intention to live in the neighborhood for a long time). Based on their analysis, the authors of the French validation of the survey (Saïas et al., submitted) recommended the creation of a single indicator with answers to all items representing a unidimensional construct, in line with Chipuer and Pretty (1999). Thus, we calculated an average overall score, and it was highly consistent, $\alpha = 0.87$ for T1 and $\alpha = 0.88$ for T2.

3.3.2 | Negative wellbeing

The Patient Health Questionnaire-9 (PHQ-9; Kroenke & Spitzer, 2002) and the Generalized Anxiety Disorder-7 scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) were used to measure self-reported depression and anxiety symptoms, respectively, on a scale of 1 (*Never*) to 4 (*Almost every day*). These short screener measures (respectively 9 and 7 items) have both been shown appropriate (i.e., adequate sensitivity and specificity) to measure symptom severity and to screen for a potential diagnosis (Kroenke, Spitzer, Williams, & Löwe, 2010). Although the GAD-7 was developed for generalized anxiety symptoms, it has been demonstrated to be adequate to measures other common anxiety issues, including social and panic symptoms (Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007).

Because for T2 the survey was made shorter to reduce burden for participants, the PHQ4 scale (four items, Kroenke, Spitzer, Williams, & Löwe, 2009) was used for that measurement wave, integrating two items from the PHQ-9 and two items from the GAD-7. That screening scale has been shown to be associated with important measures such as disability and impairment. For analysis using only T1 data, an average score was calculated with all items of the PHQ-9 ($\alpha = 0.88$), and another average score was calculated for all items of the GAD-7 ($\alpha = 0.90$). For analysis involving both T1 and T2 measures, the global score averaging the PHQ4 items was used; it demonstrated high reliability for T1 ($\alpha = 0.83$) and T2 ($\alpha = 0.85$).

3.3.3 | Positive wellbeing

Wellbeing was measured using the French version (used by Statistics Canada, 2011) of the Mental Health Continuum-Short Form (Keyes, 2002; Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011; Salama-Younes, 2011) including 14 items, asking participants to rate the frequency to which they have experienced three manifestations of emotional wellbeing (e.g., "happy", "interested in life"), six manifestations of psychological

wellbeing (e.g., “that you liked most parts of your personality,” “that your life has a sense of direction or meaning to it”), and five manifestations of social wellbeing (e.g., “that people are basically good”, “that you had something important to contribute to society”), on a scale from 1 (*Never*) to 6 (*Everyday*). The scale has been validated in several studies (Keyes, 2005; Keyes et al., 2008; Westerhof & Keyes, 2010), and although the three wellbeing subscales (emotional, psychological, and social) are related, previous factor analysis has confirmed their structural distinctiveness (Keyes et al., 2008; Lamers et al., 2011). We computed an average score for each subscale. Reliability was excellent: $\alpha = 0.91$ for T1 and $\alpha = 0.89$ for T2 for emotional wellbeing, $\alpha = 0.88$ for T1 and $\alpha = 0.89$ for T2 for psychological wellbeing, and $\alpha = 0.84$ for T1 and $\alpha = 0.86$ for T2 for social wellbeing.

3.3.4 | Demographics

Participants were asked their age, gender, education level, marital status, household income before taxes, length of residence in their current neighborhood, number of people overall in the household, number of children under 18-years old in the household, and country of birth. Although some participants identified as nonbinary or with gender identities not listed in the question, and it would have been valuable to look at the experiences of these participants, their very small number overall prevented us from doing so because there would be insufficient statistical power to detect any differences in the relationship between SOC and SWB for those individuals. Thus, unfortunately only participants identifying as men or women were included in the analysis controlling for gender, with women coded as 1 and men coded as 2. Marital status was recoded so 1 indicated single and 2 indicated married or common-law status. More information about the coding of the other demographic variables is listed in the notes under Table 1.

3.4 | Analysis plan

To achieve *Objective 1*, cross-sectional relationships between SOC and aspects of wellbeing (emotional, psychological, and social wellbeing, anxiety, depression) at T1 were examined through bivariate correlation in SPSS (v.24; IBM corporation, 2016). Then, in the same software, each aspect of wellbeing was used as an individual dependent variable in a multiple regression, with SOC as the independent variable, controlling for the demographic variables first. After each model was tested, the nonsignificant control variables were removed, and the results presented below include only the significant controls in each model.

To achieve *Objective 2*, latent profile analysis was performed in the MPlus (v.7; Muthén & Muthén, 1998–2010) software. The analysis allows to statistically identify profiles of participants based on their distinctive patterns on the chosen indicators. In our analysis, we included each aspects of wellbeing and SOC at T1 as the indicators, and we ran the analysis to identify whether there were profiles of participants for which these indicators formed different patterns. Compared to other person-centered analyses, such as cluster analysis, latent profile analysis has the advantage of being model-based and multiple statistical indices and tests, considered together, allow for rigorous comparison of models with increasing numbers of profiles in order to identify the number of profiles emerging in the data (DiStefano & Kamphaus, 2006; Morin, Morizot, Boudrias, & Madore, 2011; Pastor, Barron, Miller, & Davis, 2007). We ran six models, from one to six profiles. We specified the following parameters to prevent the analysis from converging on a local solution: 3,000 sets of random starts, 100 iterations, and 100 best sets of starting values for final stage optimization (Morin, 2016). Indicators were retrieved from the software output for each model: the Akaike Information Criterion (AIC), the Consistent AIC (CAIC), the Bayesian Information Criterion (BIC), and the sample-size adjusted BIC (SSA-BIC). When comparing the models, lower values on these indices tend to indicate better fit. In addition, the output provides the results of three tests (Vuong-Lo-Mendell-Rubin Likelihood Ratio, VLMR; Adjusted Lo-Mendell-Rubin Likelihood Ratio, ALMR; and Bootstrap Likelihood Ratio Test, BLRT). When significant, the test indicates that the currently tested model is more adequate than the model with one fewer profile. We also considered how many people were classified in each profile, because models

including one or more profiles with less than 5% the sample should be considered for rejection (Hamza & Willoughby, 2013). The selection of the final model considered the statistical indices retrieved from the software output and the tests, as well as the theoretical substance of the results. The software also provides the value for entropy (between 0 and 1), which is the accuracy of the classification. Although informative, it should not be considered to select the final model (Morin, 2016; Tein, Cox, & Cham, 2013).

After the final model was selected, the analysis was re-run to examine the associations between each demographic variable and the probabilities for participants to be a member of each profile, adding the BCH auxiliary command for the continuous demographics and the DCAT auxiliary command for binary/categorical demographics (Asparouhov & Muthén, 2014). Finally, each participant was assigned by the Mplus software their most likely profile membership (i.e., the one to which they have the highest probability of belonging to). Using this variable, for each profile, we ran a simple correlation analysis between SOC and each aspect of wellbeing, to examine the association between the two constructs within each profile.

To achieve *Objective 3*, the data from participants who had completed both the T1 and T2 survey was used. For each aspect of wellbeing considered individually, we tested a cross-lagged path analysis model to examine the directionality of the relationship between that aspect of wellbeing and SOC. The initially proposed model was a typical cross-lagged analysis model (Martens & Haase, 2006), including autoregressive pathways between wellbeing at T1 and wellbeing at T2, as well as autoregressive pathways between SOC at T1 and SOC at T2, to control for the stability in variables across time. In addition, wellbeing and SOC were correlated at T1 and at T2. Then, the proposed model included a unidirectional pathway from SOC at T1 to wellbeing at T2, and another one from wellbeing at T1 to SOC at T2. Examining if one or both of these pathways are significant when testing the model helped with identifying whether both SOC and wellbeing have an effect on each other, or if one has an effect but not the other one.

Finally, the tested model also included pathways between the demographic variables and SOC and wellbeing at T1 and T2, to control for demographic effects. The output provided by the Mplus software when testing the model allowed us to examine the parameter estimates for each of the paths in the proposed model. Nonsignificant parameters were removed one by one, testing the new model after each deletion, until all parameters were significant (or marginally significant). The final fit of the improved model was assessed using the following guidelines: Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) ≥ 0.95 ; Root Mean Square Error of Approximation (RMSEA) ≤ 0.06 (Hu & Bentler, 1999). Some flexibility was accepted, given that other researchers accept values of CFI and TLI ≥ 0.90 and RMSEA ≤ 0.08 (see Brown, 2015). The Standardized Root Mean Square Residual (SRMR) was reported, although we did not base our decision on its value given its sensitivity to sample size (Marsh, Hau, & Wen, 2004). The results presented below focus on the final improved model for each aspect of wellbeing, after having removed nonsignificant pathways and nonsignificant control variables.

4 | RESULTS

4.1 | Preliminary analysis

Table 1 shows the descriptive results for all variables included in the analysis. All main variables had minimal rates of missing values (lower than 5%). Given the overall low missing value percentage (De Vaus, 2002; Tabachnick & Fidell, 2013) for the main study variables, no data were imputed. Further, the analysis conducted in Mplus is using the full information maximum likelihood algorithm, which is deemed one of the most robust ways of dealing with missing values (Newman, 2014); this process does not impute missing values but instead uses all the available information from all participants when estimating the models (Schlomer, Bauman, & Card, 2010). Given the low missing value percentage, for analysis in SPSS, list-wise deletion was applied. Age had more missing values, which was not a concern given that it is not treated as the main variable of interest in the analysis, not affecting the main study findings. Indices of kurtosis and skewness were under ± 2 (considered a rule-of-thumb cut-off for normality,

TABLE 1 Description of sample at Time 1

	n	M	SD	Min	Max	Skewness	Kurtosis
Main variables							
Sense of community	484	3.30	0.69	1.17	4.83	-0.20	-0.39
Emotional wellbeing	490	4.76	1.07	1	6	-1.18	0.98
Psychological wellbeing	488	4.45	1.07	1	6	-0.72	-0.01
Social wellbeing	489	3.35	1.23	1	6	-0.10	-0.98
Anxiety	491	1.86	0.71	1	4	0.98	0.43
Depression	489	1.74	0.63	1	4	0.98	0.37
Demographics							
Age	427	33.03	13.43	16	76	1.00	0.16
Education level ^a	488	5.45	2.21	1	9	-0.42	-0.94
Household income ^b	479	6.69	3.30	1	12	0.01	-1.24
Length of residence	491	10.73	10.75	0	62	1.43	2.34
People in household	481	2.11	0.96	0	6	0.85	1.54
Children in household	477	0.65	1.10	0	5	1.79	2.73
Born in Canada	489	88.19%					
Gender (women)	479	76.57%					
Marital status (single)	484	60.69%					

Note. Categorical variables display the percentage of the sample in the indicated category.

^aEducation level: 5: full college degree and 6: Short university program (certificate).

^bHousehold income level: 6: CAN\$50,000–59,999 and 7: CAN\$60,000–\$69,999.

Lomax & Hahs-Vaughn, 2012) for all variables except length of residence in the neighborhood and number of children in the household, whose distribution was only slightly leptokurtic. However, the indices of skewness for these two variables were well below the conservative rule-of-thumb recommended by Kline (2016) as posing a problem for structural equation modeling, and as such, we chose not to perform any transformations.

4.2 | Cross-sectional regression and correlation analysis

Correlation (see Table 2) and multiple regressions (see Table 3) were performed on the larger, T1 sample. Significant correlation was found between SOC and each wellbeing construct (emotional, psychological, and social wellbeing, anxiety, depression) with the strongest relationship between SOC and social wellbeing. In the regression

TABLE 2 Pearson correlation coefficients between the main study variables at Time 1

Variable	M	SD	1	2	3	4	5	6
1. Sense of community	3.30	0.69	-					
2. Emotional wellbeing	4.76	1.07	0.23 ^c	-				
3. Psychological wellbeing	4.45	1.07	0.25 ^c	0.69 ^c	-			
4. Social wellbeing	3.35	1.23	0.40 ^c	0.44 ^c	0.62 ^c	-		
5. Anxiety	1.86	0.71	-0.12 ^b	-0.49 ^c	-0.41 ^c	-0.25 ^c	-	
6. Depression	1.74	0.63	-0.13 ^b	-0.61 ^c	-0.49 ^c	-0.31 ^c	0.74 ^c	-

^a $p \leq 0.05$.

^b $p \leq 0.01$.

^c $p \leq 0.001$.

TABLE 3 Regression with each wellbeing aspect as the dependent variable using Time 1 data

Independent variables	Emotional		Psychological		Social		Anxiety		Depression	
	B	β	B	β	B	β	B	β	B	β
Intercept	3.04 ^c		3.16 ^c		-0.16		2.59 ^c		2.68 ^b	
Entered at Step 1										
Age	-	-	-	-	-	-	-0.01 ^c	-0.26	-0.01 ^c	-0.25
Gender	-	-	-	-	0.40 ^b	0.13	-	-	-	-
Education level	0.09 ^c	0.19	-	-	-0.12 ^c	0.21	-	-	-0.04 ^b	-0.15
Marital status	0.24 ^a	0.11	0.38 ^c	0.17	-	-	-0.17 ^a	-0.11	-	-
Income	-	-	-	-	-	-	-0.03 ^b	-0.13	-0.03 ^c	-0.17
Entered at Step 2										
Sense of community	0.35 ^c	0.23	0.35 ^c	0.23	0.73 ^c	0.41	-0.07	-0.06	-0.08	-0.09
R ² Step 2	R ² = 0.110 ^c		R ² = 0.093 ^c		R ² = 0.203 ^c		R ² = 0.139 ^c		R ² = 0.151 ^c	
Δ R ²	Δ R ² = 0.050		Δ R ² = 0.050		Δ R ² = 0.166		Δ R ² = 0.004		Δ R ² = 0.007	

^a $p \leq 0.05$.^b $p \leq 0.01$.^c $p \leq 0.001$.

analysis, negative wellbeing (anxiety and depression) was no longer significantly associated with SOC after controlling for demographic variables (for anxiety: age, marital status, income; and for depression: age, education level, income). Emotional, psychological, and social wellbeing were each associated with SOC even after controlling for the significant demographic variables for each model (for emotional wellbeing: education level and marital status; and for psychological wellbeing: marital status; and for social wellbeing: education level and gender).

4.3 | Latent profile analysis

Latent profile analysis was performed to identify emerging profiles based on patterns of different SOC-wellbeing dynamics, and to identify the individual characteristics that uniquely characterize each profile. We examined the indicators of fit of multiple latent profile models ranging from one to six profiles. Table 4 displays the statistical indices for each model. The model with four profiles was selected as the final model based on the statistical indices, and on the decrease (i.e., elbow) in relative improvement of fit between models 4 and 5. The probabilities of a member of each profile being categorized into each profile are displayed in Table 5.

Figure 1 and Table 6 display the resulting mean values on SOC and on each wellbeing variable for each latent profile and shows clear differentiation in these variables between the profiles. These profiles were further characterized with demographic data based on the mean value (e.g., mean age) of continuous variables or probability (e.g., probability of being living with someone) of categorical variables, as shown in Table 7, highlighting the significant demographic differences between profiles. By considering this set of variables, we start to get a picture of the four characteristically different profiles, their SOC, and their global wellbeing. We provide a label for each profile, based on the work from Keyes and Lopez (2002) on positive and negative aspects of wellbeing and mental health, to facilitate the profiles' presentation and the discussion, although we acknowledge that it is difficult to fully capture with a single expression the complexity of the holistic pattern obtained in each profile.

Profile 1: "Low sense of community, consistently moderate wellbeing" consists of individuals with the lowest sense of community and moderate levels of positive wellbeing, and average levels of anxiety and depression. Along with Profile 3, they tended to be older. Their wellbeing did not significantly correlate with their sense of

TABLE 4 Fit of the compared latent profile models (Time 1 data) with increasing numbers of profiles ($n = 491$)

Number of profiles (k)	LL	FP	AIC	BIC	CAIC	SSA-BIC	p-value VLMR	p-value ALMR	p-value BLRT	Entropy	Profile with < 5% of sample
1	-3750.27	12	7524.57	7574.93	7586.93	7536.84	-	-	-	-	No
2	-3336.61	19	6711.21	6790.95	6809.95	6730.64	0.004	0.004	0.000	0.874	No
3	-3217.23	26	6486.47	6595.57	6621.57	6513.05	0.007	0.007	0.000	0.856	No
4	-3128.02	33	6322.03	6460.52	6493.52	6355.78	0.044	0.046	0.000	0.883	No
5	-3128.02	40	6232.65	6400.51	6440.51	6273.55	0.012	0.013	0.000	0.818	No
6	-3076.32	47	6191.41	6388.54	6435.64	6239.46	0.241	0.249	0.000	0.816	No

Note. AIC: Akaike Information Criteria; ALMR: Adjusted Lo-Mendell-Rubin Likelihood Ratio Test for $k-1$ profiles versus k profiles; BIC: Bayesian Information Criteria; BLRT: Bootstrapped Likelihood Ratio Test for $k-1$ profiles versus k profiles; CAIC: Consistent AIC; LL: log likelihood; FP: number of free parameters; SSA-BIC: Sample-Size-Adjusted BIC; VLMR: Vuong-Lo-Mendell-Rubin Likelihood Ratio Test for $k-1$ profiles versus k profiles

TABLE 5 Average latent profile probabilities for most likely latent profile membership (row) by latent profile (column) ($n = 491$)

	Profile 1	Profile 2	Profile 3	Profile 4
Profile 1	0.896	0.046	0.038	0.020
Profile 2	0.057	0.887	0.037	0.020
Profile 3	0.030	0.010	0.960	0.000
Profile 4	0.010	0.030	0.000	0.961

community, as shown in Table 8 (graphical representation, Figure 2), based on correlation analysis between these two variables conducted in each profile.

Profile 2: “Average sense of community, mixed wellbeing” consists of individuals with average SOC, moderate to high positive wellbeing (although close to the sample average), concomitant with relatively high negative wellbeing. They tended to have the shortest length of residence, least education, and least income. They were more likely to be living with someone than participants in other profiles. Along with Profile 4, they tended to be younger. Their wellbeing did not significantly correlate with their SOC.

Profile 3: “Higher sense of community, flourishing wellbeing” consists of individuals with the highest sense of community, although only slightly above the neutral point on the answering scale, and the highest positive wellbeing, and the lowest negative wellbeing. They were the least likely to be living with someone. They also tended to have the highest level of education and income, and had along with Profile 1 and Profile 4, a higher length of residence. Along with Profile 1, they tended to be older. Their SOC correlated significantly with their emotional, psychological, and social wellbeing.

Profile 4: “Lower sense of community, languishing wellbeing” consists of individuals with lower SOC (similar to Profile 1), the lowest positive wellbeing, and the highest negative wellbeing. Along with Profile 2, they tended to be younger. Their wellbeing did not significantly correlate with their SOC.

The profiles did not differ significantly in terms of individuals’ gender, the number of people and children in their households, or whether they were born in Canada or not.

4.4 | Cross-lagged analysis

Multiple cross-lagged models were produced to test the relationship between SOC and each wellbeing aspect at two points in time. The final models, showing adequate fit (see Figure 3, including fit indices, as well as parameters



FIGURE 1 Plot of the standardized means of the latent profiles on indicators ($n = 491$) compared to the overall sample mean. Note. Number between brackets indicate the number of participants classified in each profile based on most likely latent profile membership

estimates for the significant or marginally significant variables), demonstrate that SOC at T1 predicted emotional wellbeing (effect only marginally significant) at T2, but did not predict psychological, social, or negative wellbeing at T2. However, in each model, the wellbeing variable at T1 did predict SOC at T2, although it was only marginally significant for negative wellbeing. In addition, SOC at T1 strongly predicted SOC at T2 and each wellbeing variable at T1 strongly predicted T2, showing relative stability over the course of the 1-month period.

5 | DISCUSSION

Our initial correlation and regression analysis supported previous research suggesting that SOC and wellbeing are linked (e.g., Davidson & Cotter, 1991). Each of the wellbeing aspects (emotional, psychological and social wellbeing, as well as anxiety and depression) significantly correlated with SOC, with anxiety and wellbeing having the weakest negative correlations, and social wellbeing having the strongest positive correlation. In the regression models,

TABLE 6 Comparison of the latent profiles on the profile variables using Time 1 data ($n = 491$)

Indicators	Profile 1 M (SE)	Profile 2 M (SE)	Profile 3 M (SE)	Profile 4 M (SE)
Sense of community ^a	2.97 (0.09)	3.28 (0.09)	3.45 (0.05)	3.04 (0.09)
Emotional wellbeing ^b	4.27 (0.19)	4.66 (0.12)	5.35 (0.04)	2.59 (0.16)
Psychological wellbeing ^b	3.35 (0.24)	4.34 (0.12)	5.12 (0.05)	2.93 (0.13)
Social wellbeing ^b	2.42 (0.15)	3.29 (0.16)	3.91 (0.09)	2.31 (0.15)
Anxiety ^c	1.76 (0.07)	2.78 (0.15)	1.47 (0.03)	2.81 (0.12)
Depression ^c	1.75 (0.06)	2.38 (0.13)	1.38 (0.03)	2.79 (0.10)

^aScores from 1 (*Don't agree at all*) to 5 (*Entirely agree*).

^bScores from 1 (*Never*) to 6 (*Everyday*).

^cScores from 1 (*Never*) to 4 (*Almost every day*).

TABLE 7 Associations between participants' demographic characteristics and latent profiles using Time 1 data (n = 491)

Characteristics	Profile 1 M (SE)	Profile 2 M (SE)	Profile 3 M (SE)	Profile 4 M (SE)	χ^2	Significant differences, $p \leq 0.05$
Age	M = 34.83 (1.73) P = 0.84 (0.05)	M = 27.00 (1.46) P = 0.69 (0.07)	M = 35.24 (0.93) P = 0.80 (0.03)	M = 26.99 (1.56) P = 0.73 (0.07)	36.88 ^c 3.59	P3 > P4; P3 > P2
Gender (women)	M = 10.41 (1.36) M = 5.22 (0.27)	M = 6.79 (1.11) M = 4.39 (0.32)	M = 11.59 (0.70) M = 5.84 (0.13)	M = 10.68 (1.27) M = 5.03 (0.28)	13.48 ^b 22.75 ^c	P1, P3, P4 > P2 P3 > P2, P4
Length of residence	M = 5.22 (0.27) P = 0.70 (0.06)	M = 4.39 (0.32) P = 0.84 (0.05)	M = 5.84 (0.13) P = 0.51 (0.03)	M = 5.03 (0.28) P = 0.78 (0.06)	32.82 ^c	P1, P2, P4 > P3
Education level ¹	M = 2.04 (0.13) M = 0.49 (0.12)	M = 2.37 (0.16) M = 0.92 (0.18)	M = 2.08 (0.06) M = 0.68 (0.07)	M = 2.13 (0.13) M = 0.48 (0.14)	3.24 5.33	
Marital status (single)	M = 6.29 (0.43) P = 0.87 (0.04)	M = 5.42 (0.41) P = 0.85 (0.05)	M = 7.16 (0.20) P = 0.89 (0.02)	M = 6.33 (0.46) P = 0.90 (0.04)	16.26 ^b 0.72	P3 > P2
Number of people in household						
Number of children in household						
Income level ^b						
Born in Canada						

Note. M: Mean; P: Probability

¹Education level: 4: college short program and 5: full college degree.

²Household income level: 5: CAN\$40,000–\$49,999, 6: CAN\$50,000–\$59,999, and 7: CAN\$60,000–\$69,999.

^a $p \leq 0.05$.

^b $p \leq 0.01$.

^c $0.000 \leq p \leq 0.001$.

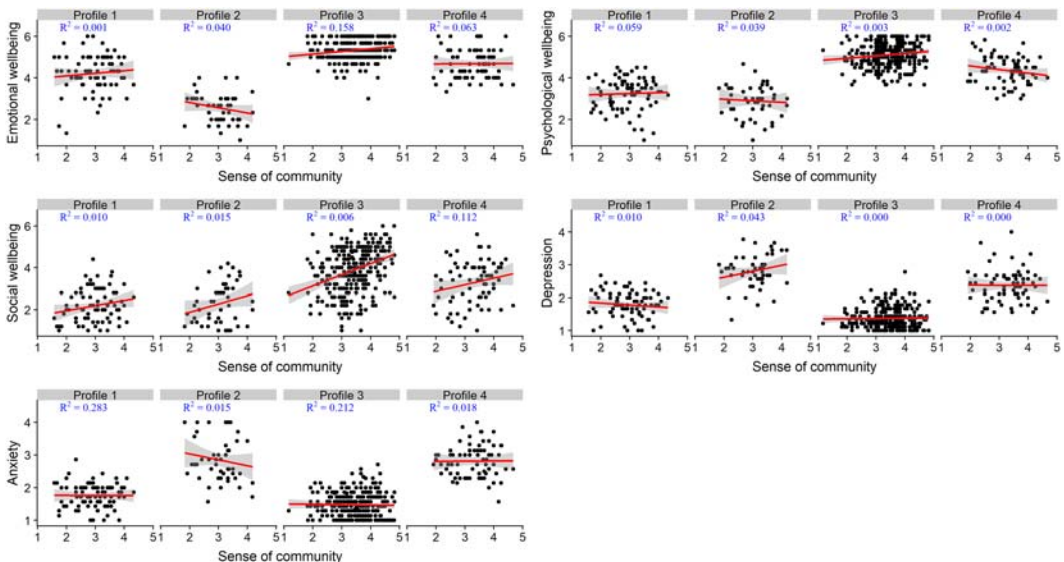
TABLE 8 Pearson correlation coefficients between the main study variables and sense of community for each latent profile at Time 1

Variable	Profile 1 (n = 82)	Profile 2 (n = 74)	Profile 3 (n = 284)	Profile 4 (n = 51)
Emotional wellbeing	0.09	-0.21	0.18 ^b	0.01
Psychological wellbeing	0.04	-0.06	0.14 ^a	-0.17
Social wellbeing	0.20	0.24	0.34 ^c	0.20
Anxiety	-0.01	-0.16	-0.02	0.01
Depression	-0.10	0.21	0.02	-0.00

^a $p \leq 0.05$.^b $p \leq 0.01$.^c $p \leq 0.001$.

anxiety and depression were not associated with SOC when controlling for demographics. Demographic controls also explained variance in emotional, psychological, and social wellbeing. The results suggest that while there is an overall trend suggesting a relationship between SOC and wellbeing, demographic factors are significant variables that need to be considered in research examining that relationship.

In addition to the above-mentioned and most-often used variable-centered analyses, latent profiles provided innovative insight on whether there were different relationships between SOC and wellbeing aspects among subgroups within the sample, acknowledging that participants' demographics might create unique and important interrelationships between the variables, rather than simply controlling for the demographics. This analysis revealed that there are indeed different relationships between SOC and wellbeing among different groups of individuals. However, we do not suggest that the four latent profiles that have emerged through our analysis should be considered comprehensive or representative of all populations. The exact nature of the profiles themselves should be validated in future studies and explored across different cultural contexts, but the results are important because they suggest a complex and nuanced relationship between SOC and wellbeing that is not context-independent and not universally positive. Rather, myriad socioecological factors including environmental, cultural, and idiosyncratic contexts are likely to create a unique and dynamic relationship between people's SOC and

**FIGURE 2** Scatter plots with regression lines between each aspect of wellbeing and sense of community for each latent profile at Time 1

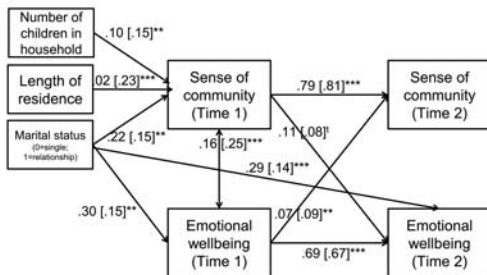
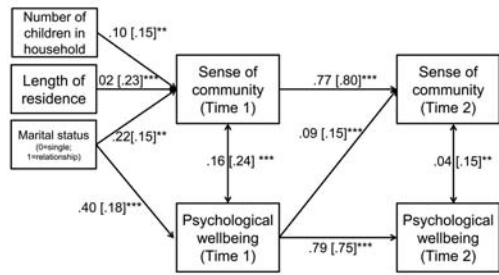
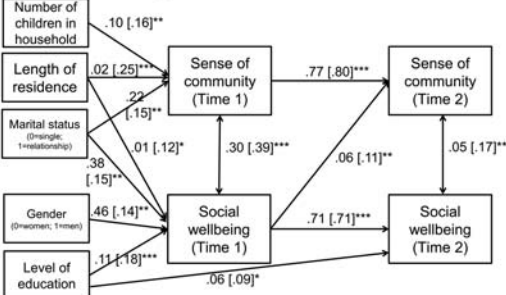
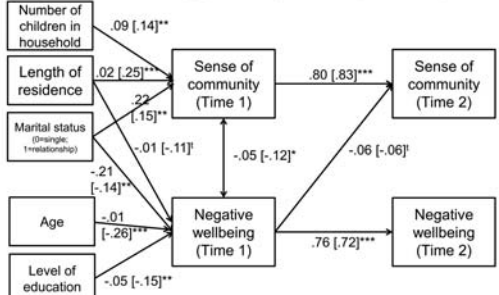
Emotional wellbeingModel fit: $\chi^2(8)=13.35$, $TLI=.98$; $CFI=.99$; $RMSEA=.05$ (90% CI [.00,.09]); $SRMR=.03$ **Psychological wellbeing**Model fit: $\chi^2(9)=8.47$, $TLI=1.00$; $CFI=1.00$; $RMSEA=.00$ (90% CI [.00,.06]); $SRMR=.02$ **Social wellbeing**Model fit: $\chi^2(13)=9.54$, $TLI=1.01$; $CFI=1.00$; $RMSEA=.00$ (90% CI [.00,.04]); $SRMR=.02$ **Negative wellbeing (anxiety and depression)**Model fit: $\chi^2(15)=13.15$, $TLI=1.01$; $CFI=1.00$; $RMSEA=.00$ (90% CI [.00,.05]); $SRMR=.02$

FIGURE 3 Final cross-lagged model analysis examining the relationships between each aspect of wellbeing and sense of community across time. Numbers represent unstandardized estimates, in addition to standardized ones presented in brackets. $^{\dagger}p \leq 0.10$, $^*p \leq 0.05$, $^{**}p \leq 0.01$, $^{***}p \leq 0.001$

multiple aspects of their wellbeing. As such, community psychologists must reflexively and critically attend to context in the unique settings in which we work.

5.1 | Complex profiles of sense of community and diverse wellbeing indicators

In this section, we provide a description and reflection on the profiles from our analysis and we explore possible explanations for the differing patterns in each profile, as a heuristic process, which may inform praxis in future research and interventions. However, we would further caution against the direct deductive application of the results to other contexts.

As opposed to simple correlation and regression analysis, in the latent profile analysis, the correlation between SOC and wellbeing remained significant in only one of the profiles: Profile 3: “Higher sense of community, flourishing wellbeing”. That profile showed only positive wellbeing measures to be significantly related to sense of community, and not anxiety and depression. This group was also characteristically higher in wellbeing. Although their sense of community was the highest, it was close to the average. This profile includes the largest number of participants and represents a positive association between wellbeing and sense of community that is in line with previous research (Albanesi et al. 2007; Davidson & Cotter, 1991; Prati et al., 2016; Prezza & Costantini, 1998). The results in Profile 4: “Lower sense of community, languishing wellbeing” also are entirely in line with this positive association suggested by previous research, with people experiencing low SOC also concomitantly experiencing lower indicators of positive wellbeing and higher indicators of negative wellbeing.

The flourishing results observed in profile 3 could be related to the tendency for its members to have higher education, to earn more money, and to be living with someone (i.e., not single). In line with Maslow’s hierarchy of

human needs (Maslow, 1943), such social and material resources may aid in the satisfaction of the basic needs of these individuals (i.e., safety, home), leaving more time and mental space for them to engage in the community and develop a beneficial SOC. In turn, it is also possible that their positive wellbeing state reinforces participants' perceptions of a positive SOC, in line with research on the Broaden-and-Build Theory of Positive Emotions suggesting an upward spiral between positive emotions, health, and perceived social connections (Kok et al., 2013).

It is interesting to note, however, that in Profile 3, social wellbeing was not as high as the other aspects of wellbeing (although the highest compared to other profiles), and their SOC was only moderately high. The relatively low level of social wellbeing and SOC is consistent with evidence from the Canadian context that community and social participation rates have been declining, at least between the 1990s and the 2010s (Turcotte & Gaudet, 2015). In 2013, people in Québec were reporting the lowest rates, compared to the other provinces of the country, of monthly participation to group activities (Turcotte, 2015). In this context, the fact that even with a relatively lower level of SOC, participants in Profile 3 were flourishing on several indicators is intriguing, suggesting that a very high level of SOC might not be essential to reap some of its benefits.

The two other profiles highlight more complex patterns of indicators. In Profile 1: "Low sense of community, consistently moderate wellbeing", low SOC was experienced concomitantly with moderate wellbeing indicators, highlighting that people can experience average levels of wellbeing even in the presence of a low SOC. However, this result might be explained by unmeasured confounding factors, potentially including other forms of beneficial social interactions (e.g., through social media and in online spaces) that are not located in their neighborhood of residence, and thus not captured by the SOC measure that was used. Another hypothesis is that participants in this profile had a specific personality profile (e.g., introversion) leading to lower SOC (Lounsbury & DeNeui, 1996).

Profile 2: "Average sense of community, mixed wellbeing" is also interesting to interpret. Given the relatively high level of negative wellbeing of the participants in this profile (with average depression levels high enough to be considered positive for screening purposes, Löwe, Kroenke, & Gräfe, 2005), it is useful to consider the literature on the recovery of people living with depression and mental illnesses (Coulombe et al., 2016; Provencher & Keyes, 2010, 2013) to interpret that profile. This literature highlights the possibility for people facing mental health difficulties (i.e., negative wellbeing) to experience relatively high levels of positive wellbeing despite those challenges. As part of their recovery process including the restoration of social roles, people with that profile are likely to engage in energizing and fulfilling social activities such as volunteering (Coulombe et al., 2016; Provencher & Keyes, 2013). The average level of SOC concomitant with moderately high positive wellbeing found in Profile 2 seems to portray that phenomenon.

Compared to Profile 3 (i.e., profile with the most flourishing pattern of wellbeing indicators), participants in Profile 2 were also younger and thus were in a different stage in life. They tended to have resided for a shorter period of time in their community than members of Profile 3, which is in line with statistics related to residential mobility of younger people (Statistics Canada, 2018). Residential mobility is related to lower commitment to groups and communities (Oishi, Talhelm, Lee, Komiya, & Akutsu, 2015), and is associated with negative wellbeing impacts (Oishi, 2010). This may have played a role in the indicators' pattern of Profile 2 participants.

Overall, across the profiles, the strength of the relationship between wellbeing and SOC seems to vary among individuals with characteristically different scores on these two constructs. Despite linear correlations being significant at the sample level, within each profile, relationships between SOC and wellbeing may be nonlinear or even discontinuous. For example, for individuals with very low wellbeing, SOC might have a lesser impact on wellbeing because their psychological state precludes any benefit, while people who already experience higher levels of wellbeing may be able to benefit more from their SOC, for example, through exercising their agency and proactively accessing community supports and resources.

The profile results suggest a nuanced relationship between SOC and wellbeing, and call into question the assumption that high SOC is essential for high positive wellbeing and low negative wellbeing. In fact, our cross-lagged results suggest that the relationship tends to be stronger in the opposite direction (from wellbeing to SOC).

5.2 | Directionality of the associations between wellbeing and sense of community

The cross-lagged analysis provided further insight on the relationship between SOC and wellbeing over a short time period and it sheds some light on the questions about directionality raised by the latent profile analysis and by a previously published cross-lagged analysis focused on social wellbeing (Prati et al., 2016). While we did see that SOC and wellbeing remain fairly stable over a short time period (1 month), change in SOC was marginally associated with later change in emotional wellbeing, but none of the other wellbeing aspects. However, we saw that change in all the wellbeing aspects, however relatively weakly, was associated with later change in SOC.

These results are partially consistent with Prati et al. (2016), however they created cross-lagged models for each component of social wellbeing (not including the other dimensions of wellbeing, i.e., emotional, psychological, and negative wellbeing). In comparison, given that we included these other aspects, we considered the full social wellbeing construct as one indicator, making a direct comparison difficult with the work of these researchers. Prati et al. (2016) found that only social integration predicted SOC, and SOC predicted social integration and social contribution and noted the unexpected result that the other components of social wellbeing did not predict and were not predicted by SOC. We found similarly limited results using the full social wellbeing construct, which suggested that social wellbeing predicts SOC, but SOC does not predict social wellbeing. Notably, as we have already mentioned, SOC and social wellbeing are conceptually similar constructs, which motivated us to also explore the relationships between SOC and emotional, psychological, and negative wellbeing. Compared to previous research, the inclusion of these different aspects of wellbeing provided a fine-grained perspective on how SOC relates to a comprehensive set of wellbeing indicators. Overall, the pattern of relationships was similar between SOC and the different indicators, whether they are positive or negative indicators. However the cross-lagged analysis with emotional wellbeing suggested a relationship from SOC to wellbeing and this highlights the importance of considering several indicators, including positive ones like emotional wellbeing for a full picture.

5.3 | Recommendations

Combined, our results suggest that the dynamic relationships between SOC with emotional, psychological, and social wellbeing, as well as with anxiety and depression, are not as well understood as previously assumed (e.g., Davidson & Cotter, 1991; McMillan & Chavis, 1986; Shaver & Freedman, 1976). There are contextual factors that seem to influence the strength and even presence of the relationship, and there is likely bidirectional causality between SOC and wellbeing. Although there are certainly myriad positive benefits of having a strong SOC (Chavis & Wandersman, 1990; Prilleltensky, 2012; Rappaport, 1987), our findings suggest improved SOC would not always improve wellbeing; these two constructs appear not to be linked for everyone. It could be that idiosyncratic goals and aspirations uniquely important among different individuals in diverse communities would predict wellbeing more accurately. One's own goals and aspirations likely encompass varying degrees of relationship with their community and this might influence the importance of SOC for their wellbeing. For example, those with more individualistic goals, may be less socially, psychologically, and emotionally impacted by their SOC (see Little, 2014; Little & Coulombe, 2015).

Based on the findings, we make the following two recommendations:

- 1) Community researchers and program evaluators should embrace more person-centered measures of wellbeing in addition to community-related variables when conducting researches and evaluating interventions. Whether due to unique identities, demographics, needs, goals or aspirations, or other social or emotional differences, there are likely many who would not benefit from wellbeing supporting interventions designed for a general population. Although not conducted with people explicitly with marginalized identities, our results underline inequalities and differences in wellbeing-profiles based on income and educational level. Participants (i.e., Profile 3) for whom wellbeing was correlated with SOC had the highest income and education level, and they were the most flourishing participants at T1. This raises the following question: Is it possible that general

populational interventions focused on improving SOC would have no impact, or even increase wellbeing inequities for the most marginalized subgroups, if their specific needs and aspirations are not adequately considered? For example, for those with developmental or neurological differences and those experiencing mental health issues such as mood and anxiety disorders. Although we included anxiety and depression measures, our sample participants overall scored relatively low on both.

Even in community research aimed to improve wellbeing for marginalized or oppressed individuals, variable-centered analysis likely further marginalizes a subset of any group whose experience of wellbeing is distinctly idiosyncratic, underrepresented, or marginal within the group (i.e., multiply marginalized). As long proposed by intersectional, Black feminist, and queer social justice researchers, interventions should be designed to benefit the most marginalized individuals in society and such efforts would likely “trickle up” to benefit others (e.g., Cho, Crenshaw, & McCall, 2013; Combahee River Collective, 1995; Spade, 2015). In contrast, interventions designed based on an understanding of a socially dominant group should not be expected to “trickle down” to benefit the most marginalized individuals.

We suggest that further investigation of the links between wellbeing and SOC should utilize person-centered methodologies within an ecological model to understand the unique wellbeing-related needs and experiences of a diverse sample of individuals in the context of their community with particular attention to marginalized and multiply marginalized individuals. One person-centered methodology that has been promising in the literature and in our own previous work is Personal Projects Analysis (PPA) (Little, 1983; Little, 2014). Personal projects are extended sets of personally salient actions in context. They consist of concerns, aspirations, or goal-oriented activities aiming at achieving or avoiding a future state of affairs (Little, 2014; Little & Coulombe, 2015). Although personal projects are considered idiosyncratic, broadly conceived, they are enacted in various domains of life, including the interpersonal and communal domains (Little, 2014; Little & Coulombe, 2015). An advantage of using the PPA is that it focuses on qualitative and personally salient goals and aspirations, instead of relying only on items predetermined by researchers, like traditional measurement scales of people's wellbeing and appraisal of their life contexts, including their community (Little, 2014; Little & Coulombe, 2015).

- 2) For individuals whose wellbeing is not significantly dependent on SOC, improved SOC is likely to have other positive benefits. For example, associations between SOC and objective wellbeing indicators or between community engagement and SOC were not examined here. It could be that as a social construct, SOC might contribute to wellbeing to a greater degree based on the meaning that one associates with community. As indicated before, there has been much debate around the definition of one's community in wellbeing research (Jason et al., 2016). In the current study, the focus was on the neighborhood community, self-defined by participants. It may be that in future research people should be asked about their feeling toward the community that matters the most to themselves or their projects.

From a social justice perspective, improving SOC could be a path toward reducing marginalization and increasing civic engagement (Chavis & Wandersman, 1990; Prilleltensky, 2012; Rappaport, 1987). We consistently see that proximity and increased social interaction with individuals we perceive as different increases our familiarity with them and therefore reduces our prejudice (Allport, 1954; Pettigrew, 1998; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). Furthermore, as we have suggested the possibility that the relationship between SOC and wellbeing may be nonlinear or discontinuous, it is possible that there is a threshold where significantly higher levels of SOC would improve wellbeing.

5.4 | Limitations

There are several possible limitations that need to be acknowledged. The study used a convenience sample collected as part of a larger study, which had a geographical focus on the province of Québec, Canada. The sample was skewed significantly toward women participants (>75%) and although we controlled for gender or examined its effects in several of the models, this may have biased the data. Further, more demographic variables (such as ethnicity, sexual orientation, or diverse gender identities) and in particular scales related to personality and

neurodiversity (i.e., in acknowledgment of neurological or neurodevelopmental difference or disability; Singer, 1999) might have also been revealing. As mentioned in the discussion, we recognize that while the survey design and our analysis have revealed a more nuanced relationship between wellbeing and SOC over a short-term period, a longer period of time between T1 and T2 measurement waves (previous research was based on a 2-month period; Prati et al., 2016, while it was one month in our case) or a greater number of measurement waves may reveal more changes in each of the variables of interest, allowing to discover more significant relationships. Future cross-lagged analysis should include latent variables rather than only observed variables (to take into account measurement errors), which was not possible given our reduced longitudinal sample size.

The typical biases of survey research such as social desirability, recall bias, and response bias might also have influenced the results. There is also the possibility that there were some unique characteristics of those who completed the survey at both T1 and T2, rather than T1 only. Although the former did not differ from the latter in terms of the main study variables, people with higher education and women were more likely to have participated in both measurement waves, which might have skewed some of the findings. Further, it became clear that many participants excluded from the analysis provided fraudulent responses to receive compensation multiple times. The e-gift-card compensation encouraged some individuals to provide nonvalid answers, that we were able to filter out whenever there was indication of potentially fraudulent responses.

Finally, the survey was conducted with participants in Québec, Canada. It is possible that there are cultural or sociopolitical factors uniquely shaping the relationship between SOC and social wellbeing for our participants, as members of a nondominant language group within Canada. Their situation also potentially interacts with the fact that French is however the dominant language in the province of Québec, creating a unique cultural situation for them (Sioufi & Bourhis, 2018).

Our study is one of the first to use a combination of several quantitative approaches to study wellbeing and SOC, and as such, it holds a heuristic value, highlighting complexities in the ways these two constructs are related. However, future research should expand our analysis by including more marginalized and diverse groups (e.g., in terms of languages, ethnicities, socioeconomic background, etc.) and using more diverse recruitment means in order not to exclude people who do not have access to internet.

6 | CONCLUDING REMARK

Our findings highlight intriguing patterns underlying the relationship between SOC and wellbeing, varying based on different demographics and between cross-sectional and longitudinal research. Rather than taking these results to suggest that SOC is not as important as previously assumed, we believe that they indicate a need for better understanding the dynamic relationship between SOC and wellbeing. A mixed methods or qualitative approach may shed more light on the unique and individual dynamic relationship between people's wellbeing and their SOC. Community psychologist need to have access to more empirical information related to that relationship to better design community interventions if they want to successfully improve both SOC and wellbeing, sometimes through independent, sometimes through synergistic pathways.

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