

# The Children and Youth Planning Table's Belonging Survey: Validation and Recommendations

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## Table of Contents

<b>Table of Contents</b>	1
<b>Acknowledgements</b>	2
<b>Executive Summary of Recommendations</b>	3
<b>1. Background</b>	4
<b>2. Objectives</b>	5
<b>3. Methodology</b>	5
3.1 Procedures	5
3.2 Participants	6
3.3 Measures	6
<b>4. Results &amp; Recommendations: Community Belonging</b>	8
4.1 Descriptive & Missing Data	8
4.2 Q1: "How would you describe your sense of belonging to the community?"	9
4.3 Q2: "When you think of your sense of belonging to the community (i.e., when answering the last question), what first comes to mind when you see the word community?"	10
4.4 Q3: "Which picture best describes your sense of belonging within..."	11
4.5 Q4: "Thinking about your day-to-day interactions with those around you, please indicate your agreement with the following statements..."	12
4.6 Q5: "In the past year, have you experienced discrimination or been treated unfairly by others in your community because of..."	14
4.7 Q6: "We want to understand what it's like being part of your community. Indicate your agreement with the following statements: In my community..."	14
<b>5. Results &amp; Recommendations: Demographic Questions</b>	15
<b>6. Concluding Remarks</b>	17
<b>References</b>	19
<b>Appendix I. Descriptive and Missing Data Tables</b>	22
<b>Appendix II. Correlation Tables</b>	25

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## Executive Summary of Recommendations

<b>Community Belonging Questions</b>	
Q1: "How would you describe your sense of belonging to the community? Would you say it is..."	-Maintain. -Mandatory.
Q2: "When you think of your sense of belonging to the community (i.e., when answering the last question), what first comes to mind when you see the word community?"	-Remove.
Q3: "Feeling a sense of belonging usually involves feeling cared for and supported, having stable, mutually respectful relationships, and/or feeling a sense of membership. Which picture best describes your sense of belonging within..."	-Revise sub-questions to include only: (a) local neighbourhood, (b) city, (c) family, (d) friends, (e) the [program name]. -Reduce response scale from 7 to 6. -Optional.
Q4: "Thinking about your day-to-day interactions with those around you, please indicate your agreement with the following statements..."	-Reduce down to five sub-questions including: (1) I feel a strong emotional bond with at least one other person, (4) I have relationships where my competence and skill are recognized, (5) I feel part of a group of people who share my attitudes and beliefs, (6) I have people I can depend on to help me when I really need it, and (8) When I speak, I feel like someone in my life listens. - Mandatory
Q5: "In the past year, have you experienced discrimination or been treated unfairly by others in your community because of..."	-Rewrite into one question: "In the past year, have you experienced discrimination or been treated unfairly by others in your community because of who you are? (For example, because of your gender, culture, race, appearance, faith, sexual orientation, age, first language, a chronic illness or disability, your living situation, or another reason.)" -Revise to a 4-point response scale: Strongly disagree, Somewhat disagree, Somewhat agree, Strongly agree. -Mandatory.
Q6: "We want to understand what it's like being part of your community. Indicate your agreement with the following statements: In my community..."	-Continue to exclude from the community-level questions.
<b>Demographics Questions</b>	
Q7: "Do you identify as any of the following..."	-Maintain, while understanding identity is fluid. -Consider revising priority identities at regular intervals based on feedback from partners. -Mandatory.

## 1. Background

Belonging is a fundamental human need (Baumeister & Leary, 1995; Bowlby, 1988; Maslow, 2013) and describes a sense of having positive feelings about one's integration within a supportive, beneficial system that extends beyond oneself. For example, Hagerty et al. (1992) defined belonging as "the experience of a personal involvement in a system or environment, so that persons feel themselves to be an integral part of that system or environment" (p. 173).

Research has demonstrated that a strong sense of belonging is associated with numerous positive outcomes across the physical, mental, social, academic, and economic domains. In children and youth specifically, belonging has been found to be positively associated with well-being (Arslan 2018; Daley et al., 2018; King et al., 2018), life satisfaction (Daley et al., 2018; Huang, 2020; Yildiz, 2017), self-esteem (Ma, 2003), academic success (Hodges et al., 2018; Korpershoek et al., 2020; Vaz et al., 2015), and extra-curricular participation (Knifsend & Graham, 2012; Oberle et al., 2019; Zarob et al., 2017), among others. Belonging has also been found to be negatively associated with peer victimization, school work-related anxiety (Huang, 2020), emotional distress (Arslan, 2018), high school drop-out rates (Fine, 1991; Ma, 2003), and loneliness (Liu et al., 2014; Palikara et al., 2021; Yildiz, 2017). The ubiquity of these associations affirms the importance of young people feeling a sense of belonging. Yet Canadians, and particularly young Canadians, report feeling lonely and having a low sense of belonging (Statistics Canada, 2022a). A similar pattern has also been observed in Waterloo Region where 35.9% of youth respondents reported either a somewhat weak or a very weak sense of belonging to their community (CYPT, 2021).

The low level of reported belonging amongst young people, paired with the importance of belonging for positive development, has led many community service organizations to identify belonging as a key factor they aim to improve through their services and programming. This is the case for the more than 60 member organizations of the CYPT. These organizations support children and youth in Waterloo Region: a populous, fast-growing, and highly diverse area. Among the population of about 590,000, 29% of residents are racialized, 15% speak a non-official language most often at home, and 9.3% are low-income (Statistics Canada, 2022b).

In order for CYPT member organizations to improve their young participants' sense of belonging, these organizations need to be able to easily and reliably measure sense of belonging over time. However, assessing the effectiveness of a given program in achieving this aim is, at present, limited. It would be beneficial for organizations running such programs to have tools to enable them to measure belonging and their program's impact on belonging in a systematic manner informed

by extant research in the area. A recent review from Allen and colleagues (2021) identified measurement of belonging as a major challenge in the field.

There is no gold-standard tool for measurement, and few tools to measure belonging exist at the level of the community, despite core developmental theory (Bronfenbrenner, 1977) emphasising distal (i.e., community) level influences on youth. Rather, most measures assess belonging in more proximal contexts and relationships. For example, some tools measure belonging at school (see Slaten et al., 2016 for a review), among peers (Oberle et al., 2019), or family (Mavili et al., 2021).

Given the need for a community belonging measurement tool, the CYPT's Measurement for Change working group (M4C) developed the Waterloo Region Belonging Survey - Youth Version (WRBS-Youth). The process began with the literature and items were created through consultation with M4C members and individuals from the University of Waterloo for use with youth aged 14 and older. The WRBS-Youth was then piloted with several community organizations and used in a larger validation study with online participants.

## 2. Objectives

The validation study was conducted in order to validate the WRBS-Youth - Community Belonging Subscale (CBS). This included examining internal consistency, convergent and discriminant validity, and the factor structure of the community belonging questions.

The present report aims to share key results of the validation study and provides recommendations for refining the survey for future use. Recommendations are focussed on the community belonging scale and demographic sections of the survey. The Program Belonging Subscale may be refined further in the future, once sufficient data is collected from the community.

## 3. Methodology

### 3.1 Procedures

Ethics approval for this online study was obtained from the University of Waterloo Research Ethics Board (ORE #44588). The purpose of the present study was to investigate the psychometric properties of the CBS in the Canadian population using two different samples: university students were recruited from a University of Waterloo participant database (SONA,  $n = 860$ ) and adults were recruited from an online recruitment platform (Prolific,  $n = 250$ ). Participants read an information letter containing details of the study purpose, the study design, and the data management plan, before signing up to participate. SONA participants completed the CBS measure within a larger questionnaire. Prolific participants

signed up for the study online and were redirected to a Qualtrics link where they read and signed the consent form. After providing consent, Prolific participants completed 7 measures that assessed the participant's feelings of belonging, loneliness, discrimination, self-esteem, and mental wellbeing. The prolific study took on average 10 minutes to complete. Demographic information was obtained from the respective recruitment source (i.e., either SONA or Prolific). After completing the study participants were thanked for their participation; Prolific participants were remunerated with GBP £3.25 (~CAD \$5.00) and SONA participants were remunerated with course credit.

**Summary:**

- 860 students from a local university consented to electronically complete the Community Belonging Subscale (CBS).
- 250 young adults from across Canada consented to electronically complete the CBS and six additional surveys.

### 3.2 Participants

A total of 1,110 participants completed the study: 860 (361 aged 20 or older, 494 aged 19 or younger, and 5 declined to answer; Woman = 623, Man = 206, Gender Queer/Non-conforming/Non-binary = 14, Other = 17) participants from SONA and 250 ( $M_{\text{age}} = 24.53$ ,  $SD = 3.28$ ; Woman = 143, Man = 96, Gender Queer = 7, Other = 4) participants from Prolific. The majority of SONA participants identified as White/European (34.19%), South Asian (23.49%), and East Asian (17.91%). Similarly, the majority of Prolific participants identified as White/Caucasian (49.60%), East Asian (17.60%), and South Asian (9.20%).

### 3.3 Measures

**Convergent Validity**

A survey is said to show convergent validity if it is statistically similar to surveys about similar constructs. The convergent validity of the CBS was assessed by examining the correlation between CBS and the General Belongingness Scale and the UCLA Loneliness Scale. The CBS was expected to be positively correlated with general belonging and negatively correlated with loneliness.

**General Belongingness Scale.** The General Belongingness Scale (GBS; Malone et al., 2012) consists of 12 items split into two subscales: acceptance/inclusion subscale (e.g., "I feel accepted by others") and rejection/exclusion subscale (items are reverse scored) (e.g., "I feel like an outsider"). Participants rated their agreement with each item on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with an option to "Decline to

answer”. Demonstrated to have strong validity and reliability in college student samples (Satici & Gocet, 2016). The internal consistency of the scale within the Prolific sample was excellent ( $\alpha = .94$ ).

**UCLA Loneliness Scale.** The UCLA Loneliness Scale Version 3 (LS; Russell, 1996) consists of 10 items, half of which were negatively worded (e.g., “How often do you feel that there are people who really understand you?”). Participants rated the frequency with which they experienced each item on a 4-point scale from 1 (*never*) to 4 (*always*), with an option to “Decline to answer”. The internal consistency of the scale has been demonstrated to be invariant across gender, race, ethnicity, and education among individuals suffering from opiate dependency (Britton & Conner, 2007). The internal consistency of the scale within the Prolific sample was excellent ( $\alpha = .91$ ).

### ***Discriminant Validity***

A survey is said to show discriminant validity if it is statistically dissimilar to surveys about constructs that should be unrelated. The discriminant validity of the CBS was assessed by examining the correlation between the CBS and the Need to Belong Scale, the Collective Efficacy measure, the Single Item Self Esteem Scale, and the Strength and Difficulties Questionnaire. The CBS was expected to be uncorrelated with one’s need to belong, collective efficacy, self-esteem, and mental health problems.

**Need to Belong Scale.** The Need to Belong Scale (NBS; Leary et al., 2013) consists of 10 items, 3 of which were reverse scored (e.g., “If other people don’t seem to accept me, I don’t let it bother me”). Participants rated the degree to which each item is true, or characteristic of them, on a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*), with an option to “Decline to answer”. The internal consistency of the scale has been demonstrated to be generally invariant across age and gender (Leary et al., 2013). The internal consistency of the scale within the Prolific sample was questionable ( $\alpha = .65$ ).

**Collective Efficacy.** The Collective Efficacy measure developed by Sampson and colleagues (CE; 1997) consists of two subscales, Informal Social Control and Social Cohesion and Trust, each containing 5 items. For the Informal Social Control subscale, participants rated the likelihood that their neighbours could be counted on to intervene in a variety of situations (e.g., “Children were spray-painting graffiti on a local building”) on a 5-point scale from 1 (*very likely*) to 5 (*very unlikely*), with an option to “Decline to answer”. For the Social Cohesion and Trust subscale, participants rated their agreement with statements about their neighbourhood (e.g., “People in this neighborhood can be trusted”) on a 5-point scale from 1 (*strongly agree*) to 5 (*strongly disagree*), with an option to “Decline to answer”. Note, “Decline



to answer” responses are recoded to the middle category during analyses per Sampson and colleagues (1997) coding instructions. Convergent and discriminant validity and internal consistency have been demonstrated at both the individual-level and the neighbourhood-level (Brisson & Altschul, 2011). The internal consistency of the scale within the Prolific sample was excellent ( $\alpha = .84$ ).

**Single Item Self Esteem Scale.** A single item self esteem measure developed by Robins and colleagues (SE; 2001) asked participants to rate their agreement with the question “Do you have high self esteem?” on a 5-point scale from 1 (*not very true of me*) to 5 (*very true of me*), with an option to “Decline to answer”. Good test-retest reliability and construct validity have been demonstrated along with measurement invariance for age and SES (Robins et al., 2001).

**Strengths and Difficulties Questionnaire.** The Strengths and Difficulties Questionnaire (SDQ) is a widely used measure of internalizing and externalizing problems (Goodman, 2001). We used two subscales, each with ten items: Internalizing Problems (IP), which includes emotional symptoms and peer problems, and Externalizing Problems (EP), which includes conduct problems and hyperactivity. Participants respond with the degree to which each statement on the measure applies to them on a 3-point scale from 0 (*not true*) to 2 (*certainly true*). The measure has demonstrated good internal reliability in other studies (e.g., Muris, Meesters, & van den Berg, 2003; Ortuño-Sierra et al., 2005) but some have found poor reliability, especially related to conduct and peer problems subscales (Capron, Thérond, & Duyme, 2007). The internal consistency of the scale within the Prolific sample was acceptable for IP ( $\alpha = .72$ ) and poor for EP ( $\alpha = .59$ ).

**Summary:**

- The 250 young adults from across Canada completed the CBS and other surveys about general belonging, loneliness, feeling a need to belong, collective efficacy, self-esteem, and mental health problems.
- We expected the CBS to be statistically *similar* to general belonging and loneliness. This would support the claim that the CBS measures community belonging.
- We expected the CBS to be statistically *dissimilar* to feeling a need to belong, collective efficacy, self-esteem, and mental health problems. This would support the claim that the CBS does *not* measure these constructs.

## 4. Results & Recommendations: Community Belonging

### 4.1 Descriptive & Missing Data

Descriptive data, including mean (*M*), standard deviation (*SD*), skew, and kurtosis were examined to identify issues of data quality. Ideally, skewness is less

than 3 and kurtosis is less than 10 (Kline, 1998). Only one item violated this standard (CBS5\_4). All items within the CBS were not normally distributed (failed the Shapiro-Wilk test of normality,  $p < .001$ ) thus Kendall tau nonparametric correlations were used to assess validity within the Prolific sample. Internal consistency of the CBS (excluding Question 2 and using a composite score for question 5) was good (for Prolific  $\alpha = .84$  and for SONA  $\alpha = .86$ ).

Patterns of missing data were also examined. More missing responses are expected for questions that are hard to understand or are not applicable to many respondents. Response rates varied widely by items (range: 0% to 82.2%). Among the Prolific sample, responses to CBS3 (i.e., the Venn diagram question) tended to have more missing data, perhaps because some of the listed contexts like school and extracurriculars were not applicable to a sample of young adults. Among the SONA sample, who participated for course credit, the baseline level of missing data was higher (11.74%) than the Prolific sample (9.85%), perhaps reflecting a decreased motivation to complete the survey. Missing data also tended to be higher for CBS5 (i.e., the discrimination question) for the SONA group.

Tables showing descriptive data and missing data for the two samples are included in Appendix I.

**Summary:**

- The average response for each CBS question and the pattern of answers (i.e., skew and kurtosis) were examined for any problems, such as all respondents answering at an extreme end of the scale. The results were generally un concerning.
- The percent of missing data was also examined. Missing data ranged from 0% to 82.2%. High levels of missing data indicate the question is hard to understand or not broadly applicable to respondents.

#### 4.2 Q1: “How would you describe your sense of belonging to the community?”

This single item question had good convergent validity as it showed moderate correlations with GBS ( $r = .42, p < .001$ ) and LS ( $r = -.39, p < .001$ ) in the expected directions. The item also had moderate discriminant validity, supported by weak correlations with NBS ( $r = .12, p = .02$ ), CE ( $r = -.15, p = .003$ ), and EP ( $r = -.14, p = .008$ ) which were noticeably lower than correlations with convergent validity measures. However, this item showed more substantial correlations with SE ( $r = .33, p < .001$ ) and IP ( $r = -.31, p < .001$ ) suggesting that it alone can not distinguish between all similar constructs.

**Question 1 Recommendation:** Maintain question. Mandatory.

**Rationale:** Responses to this question showed low levels of missing data, which suggests respondents felt the question was understandable and applicable to them, and the measure showed good convergent validity. We recommend this question be considered “mandatory” because results can be compared across other surveys locally (e.g., the Youth Impact Survey) and nationally (e.g., the Community Health Survey). However, data users should be cautioned that responses may reflect aspects of other constructs like self-esteem or internalizing problems.

4.3 Q2: “When you think of your sense of belonging to the community (i.e., when answering the last question), what first comes to mind when you see the word community?”

This question was only included for the Prolific sample. The open text responses were used to create a word cloud which is presented in Figure 1. Of 440 unique words used to answer this question, the most common nouns or verbs were people ( $n = 84$ ), group ( $n = 31$ ), neighbourhood/neighborhood ( $n = 26$ ), live ( $n = 23$ ), community ( $n = 22$ ), family ( $n = 21$ ), and friends ( $n = 20$ ).

**Question 2 Recommendation:** Remove question.

**Rationale:** This question collected qualitative data about how people interpret “sense of belonging to a community”; the results were intended to inform other aspects of the survey. Now that sufficient qualitative data has been collected, this question can be removed.

**Figure 1**

*Question 2 Word Cloud*



**Recommendation:** Reduce sub-items to include only: (a) local neighbourhood, (b) city, (c) family, (d) friends, (e) the [program name]. Reduce response scale from seven to six. Optional.

**Rationale:** The original question included ten contexts and showed good reliability ( $\alpha = .82$ ) which was replicated in the SONA sample ( $\alpha = .88$ ). To make the survey more efficient, we recommend reducing the number of contexts from ten down to five.

This reduction:

- removes several contexts (e.g., faith-based group, volunteering, extracurriculars) which had a high degree of missing data (indicating many respondents found the context inapplicable to their lives),
- maintains the contexts most pertinent to community belonging (i.e., the local neighbourhood and city) and the partner organization (i.e., [program name]), and
- introduces two additional contexts (i.e., family and friends) that qualitative data suggest are important to feeling a sense of community belonging and that several piloting organizations expressed interest in learning more about.

Furthermore, we recommend reducing the response scale from a 7-point scale to a 6-point scale. This will support data interpretation and presentation, and a reduced response scale has been used successfully by others (see Figure 1. from Mashek, Cannaday, & Tangney, 2007). It will also promote full use of the scale as some items were not used (e.g., option 7 for “Your city” among the Prolific sample).

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Circle the picture that best describes your relationship with the community at large. (S = Self; C = Community at Large)



**Figure 1.** Sample six point response scale from Mashek, Cannaday, & Tangney, 2007.

4.5 Q4: “Thinking about your day-to-day interactions with those around you, please indicate your agreement with the following statements...”

Inter-item correlations within Question 4 were appropriate, ranging from .39 to .74. Regarding item-total correlations, item 5 (“I feel part of a group of people who share my attitudes and beliefs.”) and item 7 (“I feel safe expressing my thoughts and opinions to others.”) were the weakest ( $r$  ranging from .65 to .66) and item 3 (“There is someone I could talk to about important decisions in my life.”) and item 8 (“When I speak, I feel like someone in my life listens.”) were the strongest ( $r_s = .80$ ). A

composite score representing individuals' average response to items in Question 4 was used in correlations to assess validity. This composite score had strong convergent validity as it showed moderate correlations with GBS ( $r = .50, p < .001$ ) and LS ( $r = -.52, p < .001$ ) in the expected directions. The composite score also demonstrated acceptable discriminant validity, as evidenced by weak correlations with SE ( $r = .33, p < .001$ ), CE ( $r = -.17, p < .001$ ), and IP ( $r = -.21, p < .001$ ) and non-significant correlations with NBS and EP ( $ps > .15$ ). Correlations with discriminant validity measures were substantially lower than those with convergent validity measures, suggesting that this question can distinguish between similar concepts.

**Recommendation:** Reduce sub-items down to five:

- (1) I feel a strong emotional bond with at least one other person,
- (4) I have relationships where my competence and skill are recognized,
- (5) I feel part of a group of people who share my attitudes and beliefs,
- (6) I have people I can depend on to help me when I really need it, and
- (8) When I speak, I feel like someone in my life listens.

**Rationale:** The original question included eight statements and demonstrated strong psychometric properties ( $\alpha = .92$ ) that were replicated in the SONA sample ( $\alpha = .92$ ). A principal component analysis with these items extracted a single component that explained 65% of variance within the items and contained strong loadings. Follow-up principal axis factoring supported a single factor solution that explained 60% of variance, with item loadings ranging from .67 to .84. Given the strong psychometric properties of the items, the wording of the items was assessed to identify items to remove.

- Both Item 2 “I have close relationships that provide me with a sense of emotional security and wellbeing.” and item 1 “I feel a strong emotional bond with at least one other person” reference an emotional bond. Given that item 1 is more readable for younger populations, we recommend removing item 2.
- Both Item 3 “There is someone I could talk to about important decisions in my life.” and item 6 “I have people I can depend on to help me when I really need it.” reference an agent or agents that can be depended on during times of need. We recommend maintaining item 6: its wording is more broad, encompassing the relationship described in item 3, and the item shows a slightly more normal distribution of data.
- Both item 7 “I feel safe expressing my thoughts and opinions to others” and item 5 “I feel part of a group of people who share my attitudes and beliefs.” reference ability to share one’s thoughts. Given that item 7 had the lowest factor loading, we recommend removing this item.

The psychometric properties of this scale remained strong after item reduction was applied: good internal consistency (for Prolific  $\alpha = .88$  and for SONA  $\alpha = .86$ ); inter-

item correlations ranged from .51 to .68; item-total correlations were all greater than .60; and validity correlations were of similar magnitude to the original scale.

4.6 Q5: “In the past year, have you experienced discrimination or been treated unfairly by others in your community because of...”

Due to the large amount of missing data there were only 37 valid cases. Considering this small sample size, analyses on individual items were not conducted beyond descriptives. A composite score representing the sum of individuals’ responses—with missing, not applicable, and declined to answer responses recoded as 0—was used in correlations to assess validity. This composite score had good convergent validity supported by weak correlations with GBS ( $r = .28, p < .001$ ) and LS ( $r = -.26, p < .001$ ) in the expected directions. The composite score also had moderate discriminant validity, as evidenced by weak correlations with IP ( $r = .18, p < .001$ ) and EP ( $r = .24, p < .001$ ) and non-significant correlations with NBS, SE, and CE ( $ps > .19$ ); thus indicating that it can differentiate between many but not all related constructs.

**Recommendation:** Simplify to a single item (see below) with a 4-point rating scale. Consider deciding on a cutoff score that would warrant a follow up survey.

**5. In the past year, have you experienced discrimination or been treated unfairly by others in your community because of who you are?** (For example, because of your gender, culture, race, appearance, faith, sexual orientation, age, first language, a chronic illness or disability, your living situation, or another reason.)

**Response scale:** Strongly disagree, Somewhat disagree, Somewhat agree, Strongly agree.

**Rationale:** The original question included ten contexts, many of which were skipped or deemed not-applicable by respondents, particularly for “Your living situation (e.g., housing, income of parent/caregiver)”, “Your physical appearance”, and “Your first language”. Using a single item will make the survey more parsimonious. In larger samples, data from a single item can still be filtered by social identity to investigate experiences of discrimination among specific identity groups. Reports of high levels of discrimination could warrant a follow-up survey to investigate the circumstances of the discrimination.

4.7 Q6: “We want to understand what it’s like being part of your community. Indicate your agreement with the following statements: In my community...”

Inter-item correlations were appropriate ranging from .42 to .68. Regarding item-total correlations, item 2 (“Everyone is valued equally”) and item 3 (“People help

each other”) were the weakest ( $r$  ranging from .59 to .64) and item 1 (“Everyone is made to feel welcome”) and item 5 (“I get help when I need it”) were the strongest ( $r$  ranging from .68 to .69). A composite score, representing an individual's average response to items in Question 6, was used in correlations to assess validity. This composite score had good convergent validity supported by weak correlations with GBS ( $r = .39, p < .001$ ) and LS ( $r = -.33, p < .001$ ) in the expected directions. However, this composite score had poor discriminant validity, as evidenced by moderate correlations with SE ( $r = .27, p < .001$ ), CE ( $r = -.23, p < .001$ ), IP ( $r = -.26, p < .001$ ), and EP ( $r = -.19, p < .001$ ). A non-significant correlation with NBS ( $p = .89$ ) was also observed. Overall, these results suggest that this question cannot distinguish well between related constructs.

**Recommendation:** Continue to exclude from the CBS.

**Rationale:** The internal consistency of Question 6 was good ( $\alpha = .84$ ) and was replicated in the SONA sample ( $\alpha = .86$ ). However, Question 6 was included as a potential alternative to Question 5 so if recommended changes to Question 5 are adopted, Question 6 will not be unnecessary. Within the analyses, items from Question 6 were strongly correlated with items in Question 4, suggesting that this question may not tap into a unique component of community belonging. Removing this question will reduce redundancy within the scale and facilitate data collection by reducing the amount of time needed to complete the survey.

## 5. Results & Recommendations: Demographic Questions

To reduce participant burden, the CBS asks about several social identities at once. Participants are instructed to check off any listed social identity that applies to them and must actively indicate “yes” otherwise they are considered to not hold the identity. For the Prolific sample, some of these identities are also documented in their Prolific profile, which provides an opportunity to check the CBS Social Identities question against existing demographic data including country of birth and earliest language spoken. We can also compare the average socioeconomic status (SES) score for participants who classify themselves as “low income” and those who do not.

For the “Born outside Canada” identity, there was 59.5% agreement between the CBS and the Prolific account (see Table 1 for full details). This level of agreement is low. We anticipated that low agreement might result from respondent apathy, with participants failing to actively indicate they are born outside Canada on the CBS despite reporting it on their profile ( $n = 55, 22\%$ ). However, a similarly large proportion of respondents actively selected the “Born outside Canada” identity despite reporting being born *in* Canada on their Prolific profile ( $n = 46, 18.4\%$ ),



suggesting that this is not an issue of attentiveness or motivation to answer the question. An alternative explanation is that respondents may interpret the identity of being “Born outside Canada” as being separate from their literal birth country.

**Table 1:** Agreement between CBS and Prolific Profile for Birth Country

CBS Response	Prolific Profile Report	Total (%)
Born in Canada	Born in Canada	135 (54%)
Born in Canada	Born outside Canada	55 (22%)
Born outside Canada	Born in Canada	46 (18.4%)
Born outside Canada	Born outside Canada	14 (5.6%)

For the “Did not speak English from birth” identity, there was a 69.6% agreement between the CBS and Prolific account, which asked respondents about their “earliest language(s)” (see Table 2 for full details). This level of agreement is adequate, given the slight difference in terminology used between the CBS and Prolific, and the imprecise nature of “speaking” a language. As above, the pattern of responses does not suggest that disagreements are caused by low participant motivation.

**Table 2:** Agreement between CBS and Prolific Profile for English as a First Language

CBS Response	Prolific Profile Report	Total (%)
Learned English from birth	Earliest language includes English	161 (64.4%)
Learned English from birth	Earliest language excludes English	45 (18%)
Did not learn English from birth	Earliest language includes English	31 (12.4%)
Did not learn English from birth	Earliest language excludes English	13 (5.2%)

Finally, respondents could identify as “Low income” and also answered a question about their SES. 71.6% did not actively identify as “Low income” and gave an average response of 3.1 on the SES question, where 3 = “Meet needs with a little left”. The remaining 28.4% of respondents ( $n = 71$ ) identified as “Low income” and had an average response of 2.2 on the SES question, where 2 = “Just meet basic needs”. These findings, along with the overall pattern of responses (presented in Table 3 below), suggest that the “Low income” social identity is a useful proxy for SES. However, data users should be aware that identifying as “Low income” does not necessarily mean an individual is struggling to meet their basic expenses nor does not identifying as “Low income” necessarily mean an individual is living comfortably.

**Table 3: Agreement between CBS and Socioeconomic Status Question**

Reported Socioeconomic Status	Low income (%)	Not low income (%)
Don't meet basic expenses	11 (4.4%)	3 (1.2%)
Just meet basic expenses	35 (14%)	34 (13.6%)
Meet needs with a little left	22 (8.8%)	73 (29.2%)
Live comfortably	3 (1.2%)	66 (26.4%)
Decline to answer	0 (0%)	3 (1.2%)
<b>Total</b>	<b>71 (28.4%)</b>	<b>179 (71.6%)</b>

**Recommendation:**

- Maintain the question.
- When interpreting responses, remember that answers reflect respondents' self-identification. Identity is fluid and may not be tied to expected external markers. (For example, someone might not *identify* as being "Born outside Canada" despite having a birth country other than Canada.)
- Consider revising priority identities at regular intervals based on feedback from partners.

## 6. Concluding Remarks

The objective of this study was to investigate the psychometric properties of the CBS within Canadian samples and offer recommendations to make the survey more parsimonious. Various sources of evidence support the reliability and validity of the CBS, including the internal structure, adequate internal consistency of the questions, and significant associations with related constructs. However, poor discriminant validity was observed for the majority of the CBS questions, indicating questions about community belonging may also be assessing elements of an individual's need to belong, self esteem, collective efficacy, and/or mental wellbeing and data users are advised to keep this in mind when interpreting and drawing conclusions from the CBS.

To make the survey more parsimonious, we recommend:

- Removing question 2, "When you think of your sense of belonging to the community (i.e., when answering the last question), what first comes to mind when you see the word community?" as qualitative data is no longer needed to inform scale development and maintenance requires time-consuming analyses;

- Reducing the number of items in question 3 down to 4 and reducing the response scale from 7 to 6 to encourage full scale use and data interpretation;
- Reducing the number of items in question 4 from 8 to 5, removing items that are redundant or do not accounting for unique variance;
- Rewrite question 5 to be a single item with a larger response scale;
- Continuing to exclude question 6 from community-level questions;
- And maintaining demographic questions to allow for consideration of differences between various identities.

Moving forward, the *Waterloo Region Belonging Survey - Youth Version* can continue to be improved in several ways. First, the test-retest reliability of the CBS can be examined and this information will be added to this report as an addendum (expected Winter 2023). Second, after a large community sample has been collected, the “Program Belonging Subscale” should be examined for reliability and factor structure. The CBS may also be examined in this context to assess generalizability to local communities. Finally, as communities are constantly changing, we encourage frequent updates to the social identities included in the CBS, using feedback from programs, to ensure the measure captures the information most needed by data users.

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## Appendix I. Descriptive and Missing Data Tables

**Descriptive Statistics from SONA Sample**

Item		<i>M</i>	<i>SD</i>	Variance	Skewness	Kurtosis
CBS1	How would you describe your sense of belonging to the community?	5.78	0.78	0.60	-0.15	-0.45
CBS3_1	Your local neighbourhood.	3.06	1.73	3.01	0.54	-0.72
CBS3_2	Your city.	3.03	1.66	2.76	0.54	-0.60
CBS3_3	Your workplace.	4.25	1.80	3.25	-0.31	-0.85
CBS3_4	Your faith-based group.	3.30	2.05	4.19	0.34	-1.24
CBS3_5	Your cultural group(s).	4.11	1.90	3.62	-0.12	-1.10
CBS3_6	School.	4.07	1.62	2.61	0.03	-0.76
CBS3_7	Extracurriculars.	3.77	2.06	4.22	0.05	-1.30
CBS3_8	Community programs.	3.15	1.95	3.80	0.37	-1.14
CBS3_9	Place of volunteering.	3.53	1.98	3.92	0.11	-1.26
CBS3_10	Online groups.	4.08	1.92	3.69	-0.12	-1.11
CBS4_1	I feel a strong emotional bond with at least one other person.	3.56	0.75	0.56	-1.82	2.85
CBS4_2	I have close relationships that provide me with a sense of emotional security and wellbeing.	3.46	0.77	0.60	-1.50	1.91
CBS4_3	There is someone I could talk to about important decisions in my life.	3.54	0.74	0.55	-1.74	2.70
CBS4_4	I have relationships where my competence and skill are recognized.	3.41	0.77	0.59	-1.23	1.04
CBS4_5	I feel part of a group of people who share my attitudes and beliefs.	3.25	0.81	0.65	-0.88	0.20
CBS4_6	I have people I can depend on to help me when I really need it.	3.44	0.78	0.61	-1.40	1.53
CBS4_7	I feel safe expressing my thoughts and opinions to others.	3.23	0.86	0.75	-0.90	-0.01
CBS4_8	When I speak, I feel like someone in my life listens.	3.30	0.81	0.66	-1.04	0.52
CBS5_1	Your gender identity.	0.76	0.43	0.18	-1.24	-0.45
CBS5_2	Your cultural background.	0.72	0.45	0.20	-1.01	-0.99
CBS5_3	Your racial background.	0.64	0.48	0.23	-0.56	-1.69
CBS5_4	Your physical appearance.	0.81	0.39	0.15	-1.59	0.53
CBS5_5	Your faith-based group.	0.88	0.33	0.11	-2.34	3.49
CBS5_6	Your sexual orientation.	0.75	0.43	0.19	-1.17	-0.63
CBS5_7	Your age.	0.91	0.29	0.09	-2.77	5.70
CBS5_8	Your first language.	0.88	0.32	0.10	-2.37	3.61
CBS5_9	A chronic illness or disability.	0.88	0.33	0.11	-2.34	3.49
CBS5_10	Your living situation (e.g., housing, income of parent/caregiver).	0.80	0.40	0.16	-1.49	0.24
CBS6_1	Everyone is made to feel welcome.	3.07	0.73	0.53	-0.59	0.40
CBS6_2	Everyone is valued equally.	2.96	0.78	0.60	-0.29	-0.49
CBS6_3	People help each other.	3.18	0.69	0.48	-0.61	0.49
CBS6_4	I am treated with respect.	3.24	0.65	0.42	-0.65	0.99
CBS6_5	I get help when I need it.	3.09	0.72	0.52	-0.60	0.43

**Descriptive Statistics from Prolific Sample**

Item		<i>M</i>	<i>SD</i>	Variance	Skewness	Kurtosis
CBS1	How would you describe your sense of belonging to the community?	2.41	0.75	0.56	0.27	-0.20
CBS3_1	Your local neighbourhood.	2.79	1.38	1.89	0.76	0.10
CBS3_2	Your city.	2.92	1.34	1.79	0.44	-0.57
CBS3_3	Your workplace.	4.12	1.75	3.07	-0.28	-0.79
CBS3_4	Your faith-based group.	2.52	1.86	3.44	0.86	-0.68
CBS3_5	Your cultural group(s).	3.53	1.68	2.84	0.25	-0.79
CBS3_6	School.	3.70	1.76	3.11	0.00	-0.95
CBS3_7	Extracurriculars.	3.11	1.94	3.75	0.53	-0.87
CBS3_8	Community programs.	2.61	1.68	2.83	0.87	-0.13
CBS3_9	Place of volunteering.	2.89	1.84	3.37	0.62	-0.77
CBS3_10	Online groups.	4.08	1.68	2.84	-0.15	-0.87
CBS4_1	I feel a strong emotional bond with at least one other person.	3.46	0.75	0.56	-1.34	1.33
CBS4_2	I have close relationships that provide me with a sense of emotional security and wellbeing.	3.30	0.79	0.63	-1.03	0.62
CBS4_3	There is someone I could talk to about important decisions in my life.	3.47	0.76	0.58	-1.47	1.76
CBS4_4	I have relationships where my competence and skill are recognized.	3.32	0.73	0.54	-0.95	0.76
CBS4_5	I feel part of a group of people who share my attitudes and beliefs.	3.12	0.81	0.65	-0.68	0.00
CBS4_6	I have people I can depend on to help me when I really need it.	3.34	0.80	0.64	-1.12	0.75
CBS4_7	I feel safe expressing my thoughts and opinions to others.	3.11	0.83	0.68	-0.68	-0.09
CBS4_8	When I speak, I feel like someone in my life listens.	3.18	0.81	0.65	-0.76	0.06
CBS5_1	Your gender identity.	0.20	0.40	0.16	1.52	0.30
CBS5_2	Your cultural background.	0.22	0.41	0.17	1.39	-0.08
CBS5_3	Your racial background.	0.32	0.47	0.22	0.78	-1.40
CBS5_4	Your physical appearance.	0.09	0.29	0.08	2.83	6.06
CBS5_5	Your faith-based group.	0.14	0.35	0.12	2.08	2.33
CBS5_6	Your sexual orientation.	0.21	0.41	0.16	1.46	0.13
CBS5_7	Your age.	0.10	0.30	0.09	2.68	5.24
CBS5_8	Your first language.	0.12	0.33	0.11	2.33	3.47
CBS5_9	A chronic illness or disability.	0.17	0.37	0.14	1.81	1.28
CBS5_10	Your living situation (e.g., housing, income of parent/caregiver).	0.21	0.41	0.17	1.48	0.21
CBS6_1	Everyone is made to feel welcome.	2.85	0.61	0.37	-0.44	0.81
CBS6_2	Everyone is valued equally.	2.69	0.68	0.47	-0.05	-0.20
CBS6_3	People help each other.	3.04	0.62	0.38	-0.74	2.15
CBS6_4	I am treated with respect.	3.04	0.54	0.29	-0.45	2.37
CBS6_5	I get help when I need it.	2.92	0.58	0.34	-0.37	1.00



**Percentage of Missing Data**

Item		Prolific	SONA
CBS1	How would you describe your sense of belonging to the community?	0.40%	1.51%
CBS3_1	Your local neighbourhood.	0.00%	2.21%
CBS3_2	Your city.	0.40%	1.98%
CBS3_3	Your workplace.	11.20%	16.51%
CBS3_4	Your faith-based group.	34.40%	21.98%
CBS3_5	Your cultural group(s).	7.20%	11.51%
CBS3_6	School.	17.20%	2.44%
CBS3_7	Extracurriculars.	24.80%	13.26%
CBS3_8	Community programs.	24.40%	19.19%
CBS3_9	Place of volunteering.	30.40%	19.65%
CBS3_10	Online groups.	3.20%	7.44%
CBS4_1	I feel a strong emotional bond with at least one other person.	1.20%	2.67%
CBS4_2	I have close relationships that provide me with a sense of emotional security and wellbeing.	0.80%	3.02%
CBS4_3	There is someone I could talk to about important decisions in my life.	1.20%	3.14%
CBS4_4	I have relationships where my competence and skill are recognized.	2.40%	2.91%
CBS4_5	I feel part of a group of people who share my attitudes and beliefs.	0.40%	3.95%
CBS4_6	I have people I can depend on to help me when I really need it.	0.40%	3.37%
CBS4_7	I feel safe expressing my thoughts and opinions to others.	0.00%	3.26%
CBS4_8	When I speak, I feel like someone in my life listens.	0.40%	3.60%
CBS5_1	Your gender identity.	9.60%	17.79%
CBS5_2	Your cultural background.	7.60%	16.51%
CBS5_3	Your racial background.	7.20%	15.81%
CBS5_4	Your physical appearance.	26.80%	21.98%
CBS5_5	Your faith-based group.	6.40%	15.81%
CBS5_6	Your sexual orientation.	5.20%	13.26%
CBS5_7	Your age.	4.00%	12.91%
CBS5_8	Your first language.	11.20%	21.51%
CBS5_9	A chronic illness or disability.	6.00%	17.79%
CBS5_10	Your living situation (e.g., housing, income of parent/caregiver).	80.80%	81.63%
CBS6_1	Everyone is made to feel welcome.	1.20%	3.72%
CBS6_2	Everyone is valued equally.	1.20%	3.60%
CBS6_3	People help each other.	1.20%	3.60%
CBS6_4	I am treated with respect.	2.80%	4.53%
CBS6_5	I get help when I need it.	3.20%	5.12%



## Appendix II. Correlation Tables

**Inter-Item Correlation Matrix (Prolific Sample)**

Item	CBS1	CBS3_1	CBS3_2	CBS3_3	CBS3_4	CBS3_5	CBS3_6	CBS3_7	CBS3_8	CBS3_9	CBS3_10	CBS4_1	CBS4_2	CBS4_3	CBS4_4	CBS4_5	CBS4_6	CBS4_7	CBS4_8	CBS5	CBS6_1	CBS6_2	CBS6_3	CBS6_4
CBS1																								
CBS3_1	0.256																							
CBS3_2	0.354	0.558																						
CBS3_3	0.238	0.197	0.310																					
CBS3_4	0.251	0.173	0.176	0.236																				
CBS3_5	0.189	0.257	0.281	0.234	0.509																			
CBS3_6	0.293	0.351	0.339	0.365	0.133	0.355																		
CBS3_7	0.168	0.287	0.244	0.291	0.296	0.265	0.543																	
CBS3_8	0.266	0.239	0.247	0.296	0.274	0.372	0.342	0.509																
CBS3_9	0.296	0.374	0.329	0.255	0.225	0.396	0.313	0.433	0.554															
CBS3_10	0.199	0.251	0.346	0.103	0.179	0.289	0.309	0.233	0.192	0.304														
CBS4_1	0.292	0.135	0.009	0.236	0.082	0.171	0.160	0.122	0.175	0.153	0.117													
CBS4_2	0.308	0.077	0.016	0.267	0.059	0.071	0.176	0.128	0.120	0.097	0.094	0.728												
CBS4_3	0.188	0.136	0.158	0.244	0.004	0.082	0.176	0.122	0.149	0.079	0.145	0.602	0.753											
CBS4_4	0.275	0.213	0.093	0.266	0.017	0.070	0.204	0.131	0.119	0.123	0.234	0.580	0.605	0.591										
CBS4_5	0.416	0.201	0.249	0.303	0.094	0.235	0.367	0.231	0.260	0.196	0.308	0.476	0.527	0.517	0.556									
CBS4_6	0.314	0.134	0.106	0.264	0.075	0.090	0.186	0.175	0.186	0.097	0.191	0.603	0.656	0.710	0.603	0.623								
CBS4_7	0.375	0.163	0.243	0.307	0.108	0.136	0.261	0.095	0.174	0.221	0.277	0.373	0.506	0.570	0.438	0.628	0.644							
CBS4_8	0.352	0.136	0.152	0.216	0.044	0.082	0.192	0.071	0.110	0.117	0.081	0.453	0.625	0.662	0.491	0.552	0.712	0.717						
CBS5	0.075	-0.015	0.094	-0.026	0.071	0.228	0.021	0.119	0.144	0.200	0.117	-0.121	-0.123	-0.170	-0.068	-0.110	-0.181	-0.130	-0.136					
CBS6_1	0.444	0.222	0.173	0.056	0.008	0.199	0.268	0.092	0.242	0.230	0.226	0.137	0.156	0.100	0.280	0.220	0.165	0.197	0.082	0.058				
CBS6_2	0.399	0.059	0.241	0.046	0.143	0.124	0.130	0.061	0.079	-0.005	0.106	0.103	0.130	0.075	0.213	0.112	0.168	0.137	0.147	0.079	0.594			
CBS6_3	0.260	0.133	0.153	0.077	-0.068	0.200	0.239	0.142	0.179	0.125	0.100	0.231	0.153	0.178	0.305	0.277	0.296	0.170	0.256	0.070	0.485	0.422		
CBS6_4	0.291	-0.029	0.144	0.181	-0.019	0.103	0.255	0.042	0.003	-0.032	0.214	0.174	0.315	0.256	0.316	0.377	0.258	0.314	0.333	-0.109	0.456	0.461	0.488	
CBS6_5	0.344	0.063	0.147	0.074	0.035	0.241	0.309	0.105	0.084	0.099	0.236	0.264	0.327	0.266	0.411	0.505	0.395	0.373	0.414	-0.055	0.492	0.398	0.531	0.685



**Inter-Item Correlation Matrix (SONA Sample)**

Items	CBS1	CBS3_1	CBS3_2	CBS3_3	CBS3_4	CBS3_5	CBS3_6	CBS3_7	CBS3_8	CBS3_9	CBS3_10	CBS4_1	CBS4_2	CBS4_3	CBS4_4	CBS4_5	CBS4_6	CBS4_7	CBS4_8	CBS5	CBS6_1	CBS6_2	CBS6_3	CBS6_4	
CBS1																									
CBS3_1	0.333																								
CBS3_2	0.324	0.587																							
CBS3_3	0.341	0.378	0.354																						
CBS3_4	0.339	0.365	0.388	0.340																					
CBS3_5	0.323	0.366	0.356	0.274	0.600																				
CBS3_6	0.422	0.372	0.405	0.336	0.269	0.354																			
CBS3_7	0.385	0.324	0.404	0.418	0.361	0.350	0.539																		
CBS3_8	0.358	0.421	0.470	0.327	0.474	0.389	0.436	0.662																	
CBS3_9	0.382	0.381	0.428	0.423	0.424	0.325	0.368	0.567	0.708																
CBS3_10	0.289	0.312	0.291	0.313	0.295	0.323	0.376	0.366	0.399	0.374															
CBS4_1	0.245	0.083	0.036	0.163	0.017	0.083	0.133	0.094	0.024	0.088	0.224														
CBS4_2	0.320	0.147	0.106	0.174	0.145	0.144	0.202	0.205	0.159	0.192	0.211	0.655													
CBS4_3	0.159	0.048	0.042	0.125	0.013	0.059	0.085	0.087	0.004	0.059	0.135	0.667	0.689												
CBS4_4	0.287	0.051	0.028	0.139	0.096	0.086	0.081	0.154	0.113	0.134	0.114	0.557	0.630	0.612											
CBS4_5	0.311	0.182	0.139	0.209	0.162	0.172	0.147	0.190	0.153	0.189	0.201	0.425	0.514	0.476	0.504										
CBS4_6	0.297	0.154	0.056	0.170	0.125	0.107	0.185	0.160	0.080	0.100	0.146	0.604	0.659	0.634	0.607	0.517									
CBS4_7	0.294	0.192	0.096	0.186	0.163	0.168	0.149	0.167	0.133	0.167	0.157	0.425	0.576	0.547	0.523	0.487	0.611								
CBS4_8	0.348	0.213	0.092	0.199	0.132	0.180	0.221	0.198	0.143	0.137	0.176	0.521	0.625	0.583	0.519	0.494	0.672	0.680							
CBS5	0.043	0.029	-0.021	0.061	-0.045	0.042	0.057	-0.004	-0.059	-0.045	-0.009	0.113	0.056	0.073	0.024	0.042	0.088	0.033	0.071						
CBS6_1	0.347	0.258	0.218	0.191	0.253	0.223	0.231	0.210	0.206	0.223	0.209	0.182	0.256	0.191	0.140	0.228	0.261	0.254	0.299	0.132					
CBS6_2	0.334	0.273	0.223	0.186	0.238	0.172	0.193	0.206	0.185	0.194	0.234	0.168	0.225	0.142	0.150	0.175	0.239	0.234	0.314	0.054	0.702				
CBS6_3	0.367	0.229	0.209	0.211	0.270	0.240	0.259	0.238	0.211	0.240	0.228	0.199	0.284	0.171	0.139	0.238	0.287	0.246	0.318	0.096	0.633	0.593			
CBS6_4	0.369	0.257	0.224	0.275	0.261	0.237	0.254	0.248	0.260	0.263	0.257	0.183	0.305	0.206	0.203	0.302	0.309	0.314	0.328	0.079	0.655	0.590	0.668		
CBS6_5	0.387	0.257	0.187	0.220	0.219	0.194	0.233	0.239	0.213	0.247	0.190	0.213	0.358	0.219	0.251	0.261	0.360	0.377	0.380	0.063	0.630	0.583	0.651	0.701	



**CBS Discriminant and Convergent Validity**

	CBS1	CBS3	CBS4	CBS5	CBS6
GBS	.42**	.28**	.50**	-.20**	.39**
LS	-.39**	-.26**	-.52**	.13**	-.33**
NBS	.12*	.13**	.03	.05	-.01
CE	-.15**	-.22**	-.17**	.06	-.23**
IP	-.31**	-.22**	-.21**	.18**	-.26**
EP	-.14**	-.08	.07	.24**	-.19**