UNMET NEED FOR BELONGING AND LONELINESS IN DETERMINING LIFE SATISFACTION OF MAINLAND CHINESE NEW IMMIGRANTS IN HONG KONG

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This study collected questionnaire data from 175 new immigrants (one-way permit holders) from Mainland China to investigate the relationship between need for belonging, loneliness, and life satisfaction while living in Hong Kong. We aimed to test two mediation models: (1) mediating role of loneliness in the relationship between unmet need for belonging and life satisfaction, and (2) mediating role of sense of belonging in the relationship between loneliness and life satisfaction. Analyses revealed that loneliness was negatively correlated with life satisfaction and sense of belonging. Unmet need for belonging was positively correlated with loneliness. Sense of belonging had no significant correlation with life satisfaction. Regarding the first tested model, loneliness could significantly mediate the relationship between unmet need for belonging and life satisfaction. However, results for the second model did not support the hypothesis that sense of belonging can mediate the relationship between loneliness and life satisfaction.

Key words: Hong Kong, life satisfaction, loneliness, new immigrants, sense of belonging

INTRODUCTION

Background

Foreign immigrants arrive in a new country with different attitudes about integrating into the new society while preserving their original culture (Phinney et al., 2001). In Hong Kong, the term “mainland new immigrants” generally refer to people who are one-way permit holders (OWPHs) from Mainland China and have resided in Hong Kong for less than seven years. In 2017, there were 46,971 OWPHs who had newly arrived in Hong Kong, leading to an average of 127 new immigrants arriving in the city per day (Census and Statistics Department of Hong Kong Special Administrative Region [HKSAR], 2018).

Hong Kong is a society with aging population. The Hong Kong government projected that the proportion of elderly aged 65 or above would increase from 16.6% in 2016 to 31.1% in 2036, and to 36.6% in 2066 (Census and Statistics Department of HKSAR, 2017), indicating the population will continue to be aging in the near future. In order to alleviate the problem, the government has extended the welfare policy for attracting new immigrants in the recent years. With a large number of new immigrants

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entering Hong Kong, problems and conflicts have emerged. From the viewpoint of some local residents, new immigrants have been occupying social resources, dragging down the average wages, and causing various social problems (Yung, 2012); they worry about the harmful impacts of new immigrants on the city's economy. Many new immigrants consider those insulting languages and behaviors make them unhappy and stressful in their daily lives. From a local survey, 83% of new immigrant interviewees reported suffering from discrimination, and half of them felt sadness and depression (Oriental Daily, 2014). Their self-esteem remains low because their accents in spoken language deviate from that of the local people, and they concern local people laughing at them. New immigrants feel unhappy and are fed up with local residents' condescending attitude and sense of superiority (Yung, 2012). Because of the problems of low income and difficulty in adapting to the life in Hong Kong, many suffer severely from stress.

Chui (2014) reported that 20.6% to 24.2% of new immigrants felt lonely, and 10.9% to 15.6% of them had higher consciousness of isolated crisis than local residents. In fact, some new immigrants feel lonely in Hong Kong because they think local residents reject them, causing them reluctant to actively make friends with the local residents. As a result, they feel uncomfortable in the dimensions of sense of belonging and life satisfaction. The Hong Kong Council of Social Service (2017) invited 1,012 new immigrants to conduct a survey, and the results indicated only 36% of them had good life satisfaction in Hong Kong, and only 27% of them have high sense of belonging to the city. According to these statistics, the life satisfaction and sense of belonging in Hong Kong among new immigrants from Mainland China were obviously not high. The present study therefore aimed to explore in depth the relationship between sense of belonging, loneliness, and life satisfaction among new immigrants.

Literature Review

Sense of belonging. According to the definition given by Hagerty and colleagues (Hagerty et al., 1992), sense of belonging refers to "the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment" (p. 173). These authors also identified two dimensions of sense of belonging which include "valued involvement" (experiences that a person feels being valued, needed, and accepted by others), and "fit" (perception that a person feels fitting well into the system or environment). Arredondo (1984) stated that sense of belonging is a key to have a positive feeling on a person's own and on the others. It involves trust feeling and positive regard, and also making a commitment till the end of staying in a country. For the good of a society, it is hoped new immigrants will come to develop a sense of belonging (Chow, 2007).

Need to belong. McClelland (1987) developed an influential theory which suggested the existence of a psychological need for attribution (belonging) involves establishing and maintaining a positive relationship with another person or a group. In the famous book of "A theory of motivation," Maslow (1943) presented the five-stage hierarchy of needs, including physiological needs, safety needs, belongingness and love needs, esteem needs, and self-actualization needs. Belongingness and love needs include giving love to

others and accepting love from others. Maslow offered the theory of the need to belong, and referred the need for social interaction as one's participation in a certain organization or attachment in a group while enjoying a position in it and establishing emotional ties with others. Such a motivational force establishes and maintains positive emotional relationships with others, and is called affiliation motivation or intimacy motivation (Smith, 1992). McClelland (1961) also put forward his theory on three motivational forces that all humans have: achievement, affiliation, and power. In particular, the need for affiliation refers to looking for people to establish acceptable and desired relationships or obtaining other people's agreement.

Unmet need for belonging. Stabb (1995) proposed when there is a discrepancy between ideal conditions of a person and the present reality, unmet needs arise. According to Mellor and his colleagues, the current measurements for belongingness could not validly measure the need for belongingness (Mellor et al., 2008); it seems an important omission may be that "unmet need for belonging" is a risk factor for loneliness, and loneliness is a risk factor of reduced well-being. In order to measure the relationship between loneliness and unmet need for belonging, they calculated the discrepancy in score between self-reported need to belong and satisfaction with personal relationships, which results in "unmet need for belonging." This idea was based on the "belongingness hypothesis" proposed by Baumeister and Leary (1995), which suggested that humans have pervasive drive (need) to form and maintain significant and stable relationship in foreseeable future; and that the need of belongingness is satisfied through satisfaction with social relationships (Mellor et al., 2008). When the need for belonging has been met, people would not express the need as strongly as those who have not met. This is also relevant to the three basic assumptions that Maslow (1943) mentioned in his theory of human motivation: (1) When people strive to survive, his needs can affect his behavior; however, when unmet needs are able to affect behavior, the fulfilled needs cannot be incentive tools. (2) Human needs are ordered from importance and hierarchy, from basic needs (e.g., food and living) to complex needs (e.g., self-actualization). (3) When people have attained the minimum satisfaction at a certain level, they would choose to seek for higher-level needs, which become the internal driving force for continued efforts.

Loneliness. Cognitive processes determine the manner people evaluate the situation they involve in. Perlman and Peplau (1981) took this as their starting point and suggested that personal control factors combined with personal perceptions are involved in evaluating the situation. Thus, loneliness can be defined as "the unpleasant experience that occurs when a person's network of social relations is deficient in some important way, either quantitatively or qualitatively" (Perlman & Peplau, 1981, p. 31). Also, from the cognitive approach, people would consider the values, norms, and standards gain in the personal life and society in which they involve. de Jong-Gierveld (1987) defined loneliness as a status that a person experiences the situation with certain unpleasant, or unacceptable lack of, intimate relationships. According to de Jong-Gierveld (1998), loneliness can be conceptualized in terms of three components: The core "deprivation" component (i.e., feelings of absence of close relationship), the "time" component (i.e.,

whether loneliness is changeable through time), and the emotional aspects (i.e., emotional feelings such as of sorrow, sadness). Weiss (1973) stated that loneliness is a common problem in humans, and the most typical situations that lead to loneliness include social involvement (Neto & Barros, 2000), living alone (Walton et al., 1991), and cultural isolation in immigrants (Kim, 1999).

Life satisfaction. According to Diener et al. (1985), life satisfaction refers to a cognitive judgement process which depends on the comparison of a person's circumstances with what he or she thinks to be the appropriate standard, and it involves a "successful aging" process (Neugarten et al., 1961). Life satisfaction is an overall assessment of feelings and attitudes about one's life in a particular time from negative ones to positive ones. In the Chinese culture, life satisfaction is sometimes seen as a general subjective satisfaction assessment in terms of food, clothing, housing, transportation, finance, and entertainment.

Satisfaction with personal relationships. In previous studies, many researchers attempted to study the factors related to a person's satisfaction with personal relationships. The factors of "adjustment" (Locke & Wallace, 1959), "functioning" (Honeycutt, 1986), and "well-being" (Acitelli, 1992) have been suggested to be central to relationship satisfaction. Furthermore, relationship experience is affected by positive and negative affects, and also by the extent to which a partner has fulfilled the most important needs of the individual (Rusbult et al., 1998).

The relationship between unmet need for belonging and life satisfaction. In order to investigate factors related to the life satisfaction among new immigrants, the present study measured unmet need for belonging as one of the constructs. Baumeister and Leary (1995) considered that when belongingness is seen as a basic need, the threat of social exclusion would influence one's personal cognition, emotional reaction, and behavior. As an analogy, if people feel hungry, their normal thoughts, feelings, and behaviors would be disrupted in order to fulfill the unmet needs for food as the primary goal. Therefore, it is reasonable to hypothesize unmet need for belonging might affect cognition and behavior.

Some previous research has shown that unmet need for belonging has negative relationship with life satisfaction. Researchers have reported that unmet needs among particular populations have negative association with people's reported quality of life (Bengtsson-Tops & Hansson, 1999; Wiersma & van Busschbach, 2001). Considering new immigrants in a country, their unmet need for belonging together with their negative experience, language, and cultural adaptation problems can likely affect their life satisfaction and cause them difficulty in integrating into the new society (Teixeira & Li, 2015).

The relationship between loneliness and life satisfaction. Loneliness is one important factor related to life satisfaction. Generally, people who feel lonely have lower life satisfaction (Kapıkıran, 2013; Kim, 1997; Neto, 1995). However, the relationship among culture, loneliness, and life satisfaction can be complex, as it can be moderated by the cultural standards in the society (van Tilburg et al., 1998). Social network, social support, and the primary social relationships have also been found to be strongly related

to life satisfaction (Diener & Seligman, 2004; Wong et al., 2012). Particularly, in the situation of adverse economic conditions, social support is important to maintain life satisfaction (Park et al., 2012). When new immigrants arrive in the new country, they usually suffer from cultural barriers, negative attitudes of some local people, and difficulty in communication. These factors would hinder the relationships between the new immigrants and the local residents, especially for those immigrants without a stable social network (Martinovic et al., 2009). Thus, it is not surprising that new immigrants would face a higher risk of lacking social support and experiencing loneliness (de Vroome & Hooghe, 2014).

The relationship between unmet need for belonging and loneliness. Based on the theory of hierarchy of human needs (Maslow, 1943), loneliness is a response to unsatisfied social needs. When a person is born, they own the traits of keeping connected with people and seeking to fulfill their need for love. Unless these inherent needs in personal relationship of an individual are fulfilled, loneliness would occur. Weiss (1973) considered loneliness from two aspects, namely social loneliness and emotional loneliness. Social loneliness refers to unmet needs that people feel during the process of social integration; that means, social loneliness arises when individuals have common interests and activities with their friends but they do not feel they are one of the members in the group. It is common for new immigrants to feel such type of loneliness.

Yet, the cognitive approach (Peplau & Perlman, 1982), which is based on a model of discrepancy between the desired social relationship and the actual social relationship, would argue that loneliness arises not because inherent social interaction needs of human beings are not satisfied, but due to individuals not being satisfied with their current state of interpersonal relationship. In the other words, when individuals realize discrepancies between the personal relationship that they desired and the reality, loneliness would arise. In sum, although there are some differences between these two theories, some important ideas are in common: (1) loneliness is based on unmet needs in people's personal relationship; and (2) loneliness is an unpleasant emotional experience, but judgement is made only from the person's perspective.

However, studies on the relationship between unmet need for belonging and loneliness has been lacking in the literature. One previous study found that the discrepancy between satisfaction with personal relationship and the need to belong (which altogether represent the "unmet need for belonging" we refer to) is positively related to loneliness, among adults who were living alone or living with others; also, people living alone had a lower need to belong and less satisfaction with relationships than people living with others (Mellor et al., 2008).

The relationship between sense of belonging and life satisfaction. According to previous studies, sense of belonging and life satisfaction has a positive relationship (Haslam et al., 2009). Some previous research also found that low sense of belonging is associated with suicidal ideation and low life satisfaction (Hill, 2009). In new immigrants, difference in cultural background from the local people raises a lot of problems among new immigrants, such as in live experiences (Chow, 2007), and in psychological and sociocultural integration (Ward, 1996). The sense of belonging in new

immigrants is related to the process of redefining the social identity in the host country (Raijman & Geffen, 2018). Some of them who felt unwelcomed or discriminated might be dissatisfied with their life in the new place. Negative sense of belonging would arise, and life satisfaction would be influenced (Verkuyten, 2008).

Chow (2007) investigated the major factors affecting life satisfaction and sense of belonging among Hong Kong adolescent immigrants moving to Canada. In his study, 368 participants who came from high schools in Toronto took part in a questionnaire survey. Results showed that the sense of belonging and adaptation and acculturative stress were associated with life satisfaction. Raijman and Geffen (2018) reported that, among post-1990 immigrants in Israel, sense of belonging to the new society strongly affected their life satisfaction but not in the opposite direction. Using correlational, longitudinal, and experimental methods, Lambert and colleagues (Lambert et al., 2013) demonstrated that a person's sense of belonging predicts and enhances the perceived meaningfulness of life. Among college students, Civitci (2015) found that those who had higher college belonging and major belonging had lower perceived stress and higher life satisfaction, and college belonging significantly moderated the relationship between perceived stress and life satisfaction. These research findings generally support the predictive role of sense of belonging on satisfaction in life.

The relationship between loneliness and sense of belonging. Loneliness and sense of belonging are linked to one's subjective feelings. A considerable body of the literature focuses on different aspects of ownership and loneliness. For example, Hagerty et al. (1996) examined sense of belonging in relation to certain personal characteristics and indicators of social and psychological functioning (e.g., social support, conflict, loneliness, depression and anxiety). Their results showed that sense of belonging is closely related to both social and psychological functioning. In another study, Tomaka et al. (2006) examined the relations between social isolation, loneliness, and social support to health outcomes in elderly. Their results indicated that belongingness support was consistently associated to disease outcomes in general, and was negatively correlated with subjective isolation and subjective loneliness in particular. In the study developing their Sense of Belonging Instrument (SOBI), Hagerty and Patusky (1995) found that loneliness was associated with low sense of belonging in different subject groups including students, depressed patients, and nuns. Among children of migrant workers moving from rural areas into cities in Mainland China, loneliness was found to be the main psychological problem, and was related to high perception of discrimination and low sense of belonging (Liu et al., 2014). These findings illustrate the close theoretical relationship between loneliness and sense of belonging.

Objectives of the Present Study

Two theoretical models were tested in this study. In the first model, the role of loneliness as a factor mediating the relationship between unmet need for belonging and life satisfaction among new immigrants was investigated. At present, very limited research has been done on investigating the relationship between unmet need for belonging and loneliness in Asia. As mentioned, the study by Mellor et al. (2008)

examined a similar relationship between unmet need for belonging, life satisfaction and loneliness, in people who were living alone or living with others in the Western culture. The study found that people who were living alone felt lonely, and found a strong relationship between loneliness and unmet need for belonging. In the situation of new immigrants, lots of them suffer from problems due to cultural differences, economic difficulties, language barriers, and social interaction problems, producing a discrepancy between their ideals and the reality. Thus, new immigrants would have strong unmet need for belonging, and become easy to feel lonely, thus having low life satisfaction. Establishing a mediator model might help exploring whether new immigrants can improve their life satisfaction through resolving their loneliness.

The second model tested in the present study examined the importance of sense of belonging as a mediator among the relationship between loneliness and life satisfaction among new immigrants. The examination of this model in the present study was exploratory, while there are some previous findings that supported the close relationship between loneliness and sense of belonging, and between sense of belonging and life satisfaction, as reviewed in the previous two sections. While the literature (and our first model) identified loneliness as an important factor to life satisfaction, it is interesting to study further what factor might be influencing the effect that loneliness brings to life satisfaction. Given that sense of belonging is closely related to loneliness and life satisfaction, examining this mediator model might generate new understanding on how loneliness exerts its effect on life satisfaction of new immigrants.

The first and the second model we examined involve the variables “unmet need for belonging” and “sense of belong” respectively, that the reader might find confused at some point. In our view, while unmet need for belonging represents a class of human needs to be satisfied through good social relationships, sense of belonging represents a positive experience of personal involvement.

METHOD

Study Design

This study was conducted in the form of questionnaire study, and participants completed the questionnaire on an online platform, face-to-face with the researcher. According to the 2016 Thematic Report of the Census and Statistics Department of HKSAR (2016), new immigrants who arrived in Hong Kong for less than seven years mainly live in the districts of Sham Shui Po District, Yau Tsim Mong District, North District, Tsuen Wan District, Kwun Tong District, and Kowloon City District. Applying convenience sampling, the present study surveyed four areas in these districts to collect data from participants face-to-face in different housing estates. The surveyed areas included Kwun Tong, Sham Shui Po, Yuen Long and Sheung Shui (the last two belong to the North District). The researchers stood at the entrances of the housing estates and invited pedestrians who walked through to participate in the questionnaire study. Each potential participant who was willing, and readily available, to participate in the study was screened through the inclusion criteria and was then briefed about the general objectives and procedure of the study.

Participants

The target participants of this study were new immigrants who were OWPBs from Mainland China to

settle in Hong Kong. The participants of the study must meet three basic criteria: (1) the place of birth is Mainland China, (2) the nationality is "China" (and Hong Kong will be a place of permanent residence after they fulfill the legal requirement of residing in Hong Kong for seven years), and (3) the residents have lived in Hong Kong for less than seven years. However, people who come to work or study in Hong Kong with a working visa or a study visa were not regarded as "new arrivals in Hong Kong" in this study. In total, 182 new immigrants were invited to participate. All participants in provided informed consent for participation in the research.

Instruments

This study mainly used a close-ended questionnaire as the research tool. The contents of the questionnaire included: SOBI, Need to Belong Scale (NTBS), UCLA Loneliness Scale (ULS), Satisfaction With Life Scale (SWLS), Personal Wellbeing Index (PWI), and questions on demographic information about the participants such as age, educational level, occupation and monthly income.

Sense of belonging. Hagerty and Patusky (1995) developed the SOBI. The scale consists of 27 items, and includes two components: psychological state (SOBI-P) and antecedents (SOBI-A). SOBI-P (18 items) measures the values, importance, receptivity, and relationship of the individual in an environment. SOBI-A (9 items) measures the precondition of an individual's belonging to an environment or a group, namely, the individual's evaluation of the belonging desire and possibility of the group or environment. The study by Hagerty and Patusky (1995) employed the SOBI to measure the sense of belonging among college students and depression patients, and obtained good consistency coefficients. The internal consistency of SOBI was .93. After eight weeks, the group of college students was re-tested and the coefficient for test-retest reliability was .84. Exploratory and confirmatory factor analysis showed that the factor structure of the scale was valid.

In the present study, only the SOBI-P was used because the main focus was to understand the status of psychological belonging of the new immigrants, with the rationale of keeping the whole set of questionnaire short for the target participants (who generally had a relatively low level of education). The items were rated on a 4-point Likert scale (1 represents "strongly disagree," and 4 represents "strongly agree"), and the total score ranged from 18 to 72. A higher score represented a higher sense of belonging (Hagerty & Patusky, 1995). Sample items include "I would describe myself as a misfit in most social situations." and "In general, I don't feel a part of the mainstream of society." In the present study, our data indicated the Cronbach's alpha for SOBI-P was .887, demonstrating good reliability.

Need to belong. The NTBS (Leary et al., 2013) is a 10-item scale rated on a five-point scale (1 represents "strongly disagree," and 5 represents "strongly agree") measuring the extent of the desire of an individual for social acceptance and the aversion to social exclusion. The total score indicates the level of belonging needs, and a higher score indicates that the individual's affiliation needs are higher. Sample items include "I do not like being alone." and "My feelings are easily hurt when I feel that others do not accept me." Leary et al. (2013) invited college students in the United States to complete the NTBS and found that the average score of the students on the items was 4.2. At the same time, Leary and colleagues prepared and revised the affiliation need to be consistent within the scale with good reliability, generally greater than .80. In the present study, the Cronbach's alpha for NTBS was found to be .824, indicating good reliability.

Loneliness. The 20-item ULS (the third edition) was created by Russell in 1996, and reflects the loneliness caused by the gap between a person's desire for social interaction and the actual level (Russell, 1996). Each item is rated on a 4-point scale (1 represents "never," and 4 represents "always"). The higher the score, the higher the loneliness an individual feels. Sample items include "How often do you feel that there is no one you can turn to?" and "How often do you feel isolated from others?" Russell (1996) invited students, nurses, teachers, and elderly to complete the ULS, and the resulting Cronbach's alphas ranged from .89 to .94. In the present study, the Cronbach's alpha for ULS was .779.

Life satisfaction. The SWLS was created by Diener and colleagues in 1985. According to Diener et al. (1985), individuals evaluate their life satisfaction usually based on their general feelings about life. Based on this, the SWLS reflects the personal satisfaction of life based on a basic objective scale of 48 items. Ten factors were obtained by preliminary factor analysis procedure; but in order to further optimize the inventory, Diener et al. (1985) reduced the scale to 5 items. The scale was set on a 7-point scale (1 represents "strongly disagree," 7 represents "strongly agree"), and a higher total score indicates that the individual is more satisfied with the present state of life. Sample items include "In most ways my life is

close to my ideal.” and “So far I have gotten the important things I want in life.” Diener et al. (1985) invited 176 college students to complete the questionnaire, and the average score was 23.5. The two-month test-retest reliability coefficient of the questionnaire was .82, and the Cronbach’s alpha was .78 (Diener et al., 1985). In the present study, the Cronbach’s alpha for SWLS was .821, reflecting a good reliability.

Satisfaction with personal relationships. The present study attempted to assess satisfaction with personal relationships among new immigrants to Hong Kong, in terms of the PWI (International Wellbeing Group, 2013). The PWI is an item asking the respondent “How satisfied are you with your life as a whole?” This single item has been used since the index was first designed by Andrews and Withey (1976). The respondent gives a rating on a 10-point scale (0 representing “not satisfied with the personal relationships,” and 10 representing “complete satisfaction”).

Unmet need for belonging. As reviewed, Mellor et al. (2008) found a strong positive relationship between loneliness and unmet need. However, there has been no scale available to directly measure unmet need for belonging of people. Therefore, through referring to the previous research by Mellor et al. (2008) with the theoretical basis from Baumeister and Leary (1995), unmet need for belonging in the present study was computed by subtracting the score of “satisfaction with personal relationships” (the PWI score) from the score of NTBS, resulting in a measure of unmet need for belonging. Nevertheless, we concerned that simple subtraction of raw scores from two different scales without standardization could be problematic in terms of validity of the resultant score, due to different score ranges in each scale. So in the present study, we first calculated the standardized score for “need to belong” (NTBS) and “satisfaction with personal relationships” (PWI), and computed the difference between these two to represent the score of “unmet need for belonging,” i.e., $\text{Unmet need for belonging} = Z(\text{NTBS}) - Z(\text{PWI})$.

Data Analysis

IBM SPSS version 22.0 was used to analyze the data. Descriptive statistics were generated to summarize the scores of the measures employed. Pearson’s correlation coefficient was used to examine the strength of relationship among the measures of sense of belonging (SOBI), need to belong (NTBS), loneliness (ULS), life satisfaction (SWLS), satisfaction with personal relationships (PWI), and unmet need for belonging [$Z(\text{NTBS}) - Z(\text{PWI})$]. The two hypothesized mediation models were tested using mediation procedures with the PROCESS macro for SPSS (Model 4 with 5000 bias-corrected bootstrap resamples) (Hayes, 2017).

RESULTS

Descriptive Statistics and Correlation Analysis

Out of the 182 new immigrants invited to the study, 175 of them completed the questionnaire (response rate = 96.15%). Table 1 summarizes their demographic information and Table 2 presents the descriptive statistics of the main measures in this study.

Pearson correlation coefficients were computed to examine the strength of relationship among the main measures in this study. Table 3 presents the results of the correlation analysis.

Regarding the hypotheses on the possible relationship between the variables, from the Pearson’s correlation coefficients, loneliness was found to be significantly correlated with life satisfaction in a negative way ($r = -.303, p < .001$). In addition, unmet need for belonging was significantly correlated with loneliness in a positive way ($r = .289, p < .001$), while sense of belonging was significantly correlated with loneliness in a negative way ($r = -.188, p = .013$).

Table 1. Demographic Information of the Participants ($N = 175$)

	<i>n</i>	%
<i>Gender</i>		
Male	76	43.4%
Female	99	56.6%
<i>Age</i>		
18–24 years old	60	34.3%
25–29 years old	52	29.7%
30–39 years old	51	29.1%
40–49 years old	11	6.3%
50–59 years old	1	0.6%
<i>Time since arrival in Hong Kong</i>		
< 1 year	28	16.0%
≥ 1 year and < 3 years	93	53.1%
≥ 3 years and < 7 years	54	30.9%
<i>Educational level</i>		
Primary	2	1.1%
Secondary	26	14.9%
Associate degree	35	20.0%
College or bachelor's degree	82	46.9%
Master's or above	30	17.1%
<i>Occupation</i>		
Administrative staff	21	12.0%
Clerk	33	18.9%
Craftsman	23	13.1%
Housewife	34	19.4%
Salesman	28	16.0%
Student	36	20.6%
<i>Monthly income in Hong Kong dollars</i>		
\$0	37	21.1%
\$1–3,000	11	6.3%
\$3,001–5,000	16	9.1%
\$5,001–7,000	12	6.9%
\$7,001–9,000	17	9.7%
\$9,001–11,000	33	18.9%
\$11,001–13,000	20	11.4%
\$13,001–15,000	11	6.3%
> \$15,000	18	10.3%

Table 2. Descriptive Statistics of the Main Measures in This Study ($N = 175$)

<i>Measure</i>	Minimum	Maximum	Mean	<i>SD</i>
<i>Sense of belonging (SOBI)</i>	24	66	44.93	9.22
<i>Need to belong (NTBS)</i>	18	45	33.95	4.25
<i>Loneliness (ULS)</i>	25	69	45.70	6.47
<i>Life satisfaction (SWLS)</i>	10	35	22.81	5.42
<i>Personal wellbeing (PWI)</i>	1	10	7.06	1.68
<i>Unmet need for belonging</i>	-3.50	3.71	0	1.26

Table 3. Pearson Correlation Coefficients for the Main Measures in This Study

<i>Measure</i>	1	2	3	4	5
1. <i>Sense of belonging (SOBI)</i>					
2. <i>Need to belong (NTBS)</i>	.048				
3. <i>Loneliness (ULS)</i>	-.188*	.006			
4. <i>Life satisfaction (SWLS)</i>	.003	.091	-.303***		
5. <i>Satisfaction with personal relationships (PWI)</i>	.116	.210**	-.357***	.176*	
6. <i>Unmet need for belonging</i>	-.053	.628***	.289***	-.067	-.628***

* $p < .05$, ** $p < .01$, *** $p < .001$.

Mediation Tests

Testing loneliness as a mediator between unmet need for belonging and life satisfaction. For testing the first model (Fig. 1), unmet need for belonging, loneliness, and life satisfaction were treated as independent variable, mediator, and dependent variable respectively and were entered into the model through PROCESS. Simple linear regression results indicated that the strength of predictive relationship of unmet need for belonging on loneliness (Path A in Fig. 1) was significant [unstandardized $b = 1.490$, $t(173) = 3.978$, $p < .001$; analysis of variance (ANOVA) model summary: $F(1, 173) = 15.823$, $p < .001$, $R^2 = .084$]. For the strength of predictive relationship of unmet need for belonging and loneliness on life satisfaction, multiple regression results revealed that unmet need for belonging was not a significant predictor of life satisfaction (path C': unstandardized $b = 0.097$, $t(172) = 0.296$, $p = .767$) when loneliness (path B: unstandardized $b = -0.260$, $t(172) = -4.083$, $p < .001$) was entered into the model [ANOVA model summary: $F(2, 172) = 8.763$, $p < .001$, $R^2 = .092$]. The direct effect of unmet need for belonging on life satisfaction reported in PROCESS output was: Effect = .097, $SE = .328$, 95% confidence interval [CI; -.550, .744]; the indirect effect was: Effect = -.387, $SE = .154$, 95% CI [-.734, -.129] (which does not include the value zero).

Fig. 1. Mediation Model 1: Loneliness as a Mediator Between Unmet Need for Belonging and Life Satisfaction

Note. b represents the unstandardized regression coefficient.

Fig. 2. Mediation Model 2: Sense of Belonging as a Mediator Between Loneliness and Life Satisfaction

Note. b represents the unstandardized regression coefficient.

Sobel test (Sobel, 1982, 1986) also indicated significant reduction in the effect of the independent variable (unmet need for belonging) after including the mediator (loneliness) in the model ($Z = 2.849, p = .004$). Therefore, these results imply a significant mediation effect. The results indicated that when loneliness was fixed in the model, unmet need for belonging could no longer significantly predict life satisfaction, thus supporting a complete mediation role of loneliness in the relationship.

Testing sense of belonging as a mediator between loneliness and life satisfaction. For testing the second model (Fig. 2), a similar procedure was done. Loneliness, sense of belonging, and life satisfaction were treated as independent variable, mediator, and dependent variable respectively and were entered into the model through PROCESS. Simple linear regression results indicated that the strength of predictive relationship of loneliness on sense of belonging (Path A in Fig. 2) was significant [unstandardized $b = -0.268, t(173) = -2.515, p = .013$; ANOVA model summary: $F(1, 173) = 6.325, p = .013, R^2 = .035$]. For the strength of predictive relationship of loneliness and sense of belonging on life satisfaction, multiple regression results revealed that loneliness remained to be a significant predictor of life satisfaction (path C': unstandardized $b = -0.263, t(172) = -4.250, p < .001$) when sense of belonging (being not significant in predicting life satisfaction; path B: unstandardized $b = -0.033, t(172) = -0.761, p = .447$) was entered into the model [ANOVA model summary: $F(2, 172) = 9.034, p < .001, R^2 = .095$]. The direct effect of loneliness on life satisfaction reported in PROCESS

output was: Effect = -0.263 , $SE = .062$, 95% CI $[-.385, -.141]$; the indirect effect was: Effect = $.009$, $SE = .014$, 95% CI $[-.020, .037]$ (which includes the value zero). Sobel test also indicated the mediation effect by sense of belonging was not significant ($Z = 0.728$, $p = .466$). Since sense of belonging could not significantly predict life satisfaction in the multiple regression, the second mediation model was not supported.

DISCUSSION

The objectives of the present study were to investigate the relationships between loneliness, unmet need for belonging, life satisfaction, and sense of belonging; and also to test the mediation role of loneliness in the relationship between unmet need for belonging and life satisfaction, and that of sense of belonging in the relationship between loneliness and life satisfaction. Some of these tested relationships were supported by the present results.

In this study, unmet need for belonging had a significant positive relationship with loneliness, which was consistent with previous literature (Andersson, 1998; Mellor et al., 2008). Unmet need for belonging reflects one of the many things that a human is needful. A human's needs depend on what he or she has got and what he or she lacks, and only the unmet needs can affect behavior (Maslow, 1943). There is limited information in the literature about unmet need for belonging. According to the "belongingness hypothesis" originally proposed by Baumeister and Leary (1995), unmet need for belonging was suggested to be satisfied through satisfaction in social relationships, which in turn can buffer against loneliness. As suggested by Mellor et al. (2008), unmet need for belonging can be conceptualized as subtracting satisfaction with personal relationships from the need to belong. One can consider the several types of new immigrants with different levels of unmet need for belonging as follows. First, some new immigrants may have a high level of need to belong, and when this need is not satisfied well through satisfactory social relationships (e.g., when they lack good communication and interaction with friends and acquaintances), their unmet need for belonging, and thus loneliness, would be high. Second, some new immigrants may have a low need to belong, so even if they do not have good satisfaction in social relationships (e.g., when they do not have enjoyable friendship in the new local community but they do not need friends), they are still fine and have a low unmet need for belonging; thus, their loneliness remains low. Third, some new immigrants may have a high level of need to belong, and such need is well satisfied through good social relationships (e.g., they may have many friends and acquaintances, and enjoy the current state of interaction with their them), causing them a low unmet need for belonging which reduces the emergence of loneliness. Fourth, new immigrants who have a low need to belong while having good satisfaction in social relationships might be best protected against loneliness. Different people own different behaviors based on their different states of needs.

Our results also revealed that the higher loneliness of new immigrants, the lower satisfaction with their life. Rokach (2016) suggested that the higher loneliness, the lower

life satisfaction; and the lower positive emotions, the higher negative emotions. His research also found that relationship with partner and welfare index are negatively correlated with loneliness. Regarding gender difference, Ozben (2013) measured the social skills, life satisfaction, and the relationship for loneliness among Turkish boys and girls. The results found that the social interaction and life satisfaction among female students were significantly higher than that of male students, and their loneliness level was significantly lower than that of male students. Social skills and life satisfaction were found to be negatively correlated with loneliness too. In the present study, new immigrants who have fewer social interactions with others might feel lonelier, leading to their negative emotions and lower satisfaction with life as the consequence.

Loneliness was found to be negatively correlated with sense of belonging in the present study. A previous study analyzed the impact of loneliness, life satisfaction, and sense of belonging of older adults living in the community and in care facilities (Prieto-Flores et al., 2011). Loneliness was found to be influenced by the living environment of people, and life satisfaction was suggested to determine a positive sense of belonging, which leads to lower loneliness. Although few studies in the literature focus specifically on the relationship between loneliness and sense of belonging, the negative relationship between these two factors can be found from studies on different populations.

The present results identified no significant relationship between life satisfaction and sense of belonging among the new immigrants to Hong Kong. This is in contrast with a previous study which showed that for children who were new immigrants to Canada, life satisfaction and sense of belonging were related in a positive way (Reitz et al., 2009, p. 43). This may be related to the fact that Canadian immigrants have long-term identities. The reason can also be analyzed from several perspectives. First, the scale for sense of belonging used in the present study (SOBI) had only been available in foreign languages; and there is a lack of a validated Chinese version of the scale which can be more suitably applied to the local society. Secondly, some of the participants reported that they were puzzled about the questions when filling in the part of the questionnaire regarding the sense of belonging scale. For example, in regard to the questions "Wonder if I really fit," "Described myself as a misfit," "People accept me," "Working on fitting in," and "Important that my opinions are valued" in the scale, some participants thought that these topics were very pessimistic to them, and thought that the aim of the questionnaire was to measure depression rather than sense of belonging. In the initial study of creating the SOBI (Hagerty & Patusky, 1995), the scale was used on target groups of college students and depressive patients. In fact, some of the items in the scale appeared like detecting depression as what participants in the present study said about. Another possibility that led to the non-significant correlation is that, new immigrants might be more likely the people in the Hong Kong population that have their sense of belonging toward the lower end, resulting in a floor effect in using the measurement. We suggest future studies to explore or develop other possible choices of measurement for sense of belonging that can be more suitably applied to populations of new immigrants. Nevertheless, although the correlation between sense of belonging and life satisfaction was not significant in the present study, loneliness had significant negative correlation with both of them, which

might indirectly suggest that the two may go toward the same direction when loneliness is taken into account.

Finally, regarding the two mediation models tested, in the first model, loneliness was shown to be a complete mediator to influence the relationship between unmet need for belonging and life satisfaction among the new immigrants. This is consistent with the earlier model by Mellor et al. (2008) which showed the relationships among the three variables in people who lived alone and people who lived with others in Australia. For the model in the present study, the results implied that when new immigrants have unmet need for belonging, whether they subjectively feel lonely would be critical in determining their subjective feeling of satisfaction with life. Therefore, from the intervention point of view, the community could help new immigrants to adjust to the new society and boost up their satisfaction with life through enhancing their social bonds, thus minimizing their subjective feeling of loneliness.

In the second model we tested, sense of belonging could not mediate the relationship between loneliness and life satisfaction. This might be related to the high similarity in nature of the scales selected for measuring sense of belonging and life satisfaction. The SWLS focuses on personal opinions toward one's life, while the SOBI-P focuses on one's psychological sense of belonging in general. Some participants in the present study reported confusion about some of the items in the SOBI-P questionnaire. Future studies could attempt to delineate whether one's sense of belonging or unmet need for belonging would be the important factor that possibly mediates such relationship.

Finally, the reader should be cautious about limitations of the present study. One limitation lies on the calculation of the score for unmet need for belonging. The present study followed the method of Mellor et al. (2008) to calculate the score for unmet need for belonging by subtracting the score of satisfaction with personal relationships (PWI) from that of need to belong (NTBS). Although the present study employed an additional procedure of standardizing the two scores before subtraction, it can still be argued that the validity of the resulting score that represented unmet need for belonging could be questionable, since the constituent scores of satisfaction with personal relationships and need to belong would not be located on the same axis. As an analogy, the quantities of weight and height do not lie on the same axis because of their difference in nature, and the score obtained by a subtraction between them could be confusing in terms of what it represents. Therefore, the unmet need for belonging score computed by subtraction between scores of satisfaction with personal relationships and need to belong might have issues in validity, especially if we consider from the viewpoint of its quantitative properties. In fact, when we tried to replace unmet need for belonging with satisfaction with personal relationships in Model 1, we found that loneliness could also significantly mediate the relationship between satisfaction with personal relationship and life satisfaction, with indirect effect = .318, $SE = .131$, 95% CI [.098, .607]. So, the indirect effect of loneliness between unmet need for belonging and life satisfaction reported in the Results section might possibly be representing the indirect effect of loneliness between satisfaction with personal relationships and life satisfaction. Based on the present measure of unmet need for belonging, it is unclear about the respective contributions of need to belong and

satisfaction with personal relationship on the resultant unmet need for belonging score. While Mellor et al. (2008), with their theoretical origin from Baumeister and Leary (1995), provided the early conceptual idea on the construct of unmet need for belonging, future studies should examine this concept in depth from the psychometric perspective and develop a more rigorous quantitative measure for it.

Conclusion

This study mainly examined the relationships among need to belong, loneliness, life satisfaction, and sense of belonging in new immigrants to Hong Kong. Loneliness was a significant mediator that influences the relationship between unmet need for belonging and life satisfaction of new immigrants. If we consider the tendency of reacting towards unmet need for belonging can be different among different people, future investigations should look into whether personality has a role in influencing one's satisfaction with life through its effects on one's need to belong, loneliness, and perceived interpersonal relationships. In the present study, we employed a single general question of the PWI to measure participants' overall satisfaction with personal relationships, from which the unmet need for belonging was calculated. It would also be interesting and important for future studies to explore further which aspects of social relationship would be particularly influential to people's unmet need for belonging.

AUTHOR'S CONTRIBUTION

R.A. and C.Z. conceptualized and designed the study. C.Z. collected the research data. R.A. analyzed and interpreted the data. R.A. and C.Z. wrote up the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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