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The effect of social support and future time perspective on psychological well-being among Japanese adult immigrants in Canada across different ages

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Master's in Psychology of Intercultural Relations

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Department of Social and Organizational Psychology

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## Resumo

O presente estudo analisou as relações entre a aculturação, a perspetiva de tempo futuro (PTF), o apoio social e o bem-estar psicológico (i.e., satisfação com a vida, felicidade interdependente e depressão), considerando o papel da idade dos participantes. Especificamente, o estudo investigou as relações entre aculturação e PTF, o efeito moderador da idade na relação entre apoio social e bem-estar psicológico, e o efeito moderador da idade na relação entre PTF e bem-estar psicológico entre 165 imigrantes japoneses residentes no Canadá, através de um inquérito online. Os resultados indicam que a aculturação dominante está positivamente associada a PTF abertas e negativamente associada a PTF ambíguas, e que estas PTF medeiam a relação entre a aculturação dominante e o bem-estar psicológico. Além disso, verificou-se um efeito moderador da idade, uma vez que o apoio instrumental dos co-nacionais está positivamente relacionado com a felicidade interdependente entre os adultos mais velhos, mas não entre os adultos mais jovens. Além disso, o PTF limitado foi positiva e significativamente associado à depressão nos adultos mais velhos, mas não nos adultos mais jovens. Os resultados indicam que é fundamental ter em conta as diferenças relacionadas com a idade no apoio social, a perspetiva temporal futura e as preocupações futuras. Para além disso, é necessária mais investigação para identificar os tipos e as fontes de apoio social que predizem o bem-estar dos imigrantes com base na idade. Também se deve explorar mais a perspetiva temporal futura e as preocupações futuras dos imigrantes, tendo em conta a idade.

*Palavras-chave:* Aculturação, Apoio social, Imigrantes, Perspetiva temporal futura, Bem-estar, Diferença relacionada com a idade

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## **Abstract**

The current study examined the relationships between acculturation, future time perspective (FTP), social support, and psychological well-being (i.e., life satisfaction, interdependent happiness, and depression), with consideration of age-related differences. Specifically, the study investigated the relations between acculturation and FTP, the moderating effect of age in the relationship between social support and psychological well-being, and the moderating effect of age in the relationship between FTP and psychological well-being among Japanese immigrants residing in Canada ( $N=165$ ) through an online survey. The results indicated that mainstream acculturation was positively associated with open FTP and negatively associated with ambiguous FTP, and these FTP mediated the relationship between mainstream acculturation and psychological well-being as an exploratory study. Additionally, there was a moderating effect of age, as instrumental support from co-nationals was positively related to interdependent happiness among older adults, while it was not significantly related to interdependent happiness among younger adults. Furthermore, limited FTP was positively and significantly associated with depression in older adults but not in younger adults. This study also identified main themes of future concerns among immigrants. The results imply that it is crucial to consider age-related differences in social support, future time perspective, and future concerns. Support providers should take age-related differences into account when supporting immigrants. Additionally, more research is needed to identify the types and sources of social support that predict well-being of immigrants based on age. There should also be further exploration into the future time perspective and future concerns of immigrants, considering with age.

*Keywords:* Acculturation, Social Support, Immigrants, Future Time Perspective, Well-being, Age-related difference

PsycInfo Classification Categories and Codes:

3000 Social Psychology

2930 Culture & Ethnology





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## **Glossary of Acronyms**

FTP	Future Time Perspective
H1	Hypothesis 1
H2	Hypothesis 2
H3	Hypothesis 3
SWLS	Satisfaction With Life Scale
VIA	Vancouver Index of Acculturation
ISSS	Index of Sojourner Social Support
MFTP	Multidimensional Future Time Perspective
CI	Confidence Interval



## Introduction

There have been increased numbers in the mobility of people across countries worldwide. With the flow of global migration, the number of Japanese citizens emigrating from Japan to other countries has also increased in recent decades. The number of Japanese nationals living abroad was 1.3 million in 2022, and particularly the percentage of permanent residents has increased, rising 3.6% from the previous year to approximately 550000 (Ministry of Foreign Affairs, 2023). Focusing on different regions, North America accounted for about 37.7% of all Japanese emigrants, followed by Asia at 28.4% and Western Europe at 16.3%. Canada is the fifth country in the world with the largest number of Japanese immigrants (5.7%). Also, Canada is one of the most diverse countries in the world, with over 8.3 million immigrants or permanent residents in 2021, representing approximately 23% of the total population in Canada (Statistics Canada, 2022). This population includes around 10% of immigrant youths, 10.9% of younger adults aged 15 to 24, a majority (64.2%) of the core working age group aged 25 to 54, 3.6% of older immigrants aged 55 to 64. As individuals usually migrate at a younger age, they continue to age throughout the migration process. While migration may be seen as a long-term goal in their younger years, older migrants often face greater stress and real survival risks associated with their migration (Warnes & Williams, 2006). Like all-aged migrants, migration for older age brings risks by residing in the receiving countries with different languages, customs, institutions, and health care policies (Warnes & Williams, 2006). Migration and international mobility also pose the risk of social involvement problems and a reduction in social resources (Wu & Hart, 2002). Additionally, migration generates increasingly serious challenges to the future of social citizenship, social institutions, health problems, income, social networks, and the need care for their families living in their home countries (Ackers & Dwyer, 2004; Deneva, 2017; Warnes & Williams, 2006). Therefore, migration has progressively become a common aspect of contemporary society, raising inevitable concerns regarding the well-being of aging immigrants (Warnes & Williams, 2006).

During the process of migration, individuals experience acculturation and its related effects. Specifically, migration is associated with cultural identity and mental distress (Bhugra, 2005). In Canada, immigrants from Asia and the Pacific regions are more likely to face high levels of stress and emotional problems than those from North American and Europe (Ng & Zhang, 2020), possibly due

to the dissimilarity of cultures between Western and Eastern societies (Robert & Gilkinson, 2012). In order to address this mental health issue among immigrants, social support can act as a buffer against mental illness (Bhugra, 2005). Given the potential issues of aging as immigrants, it is important to gain an understanding of the social support types and sources relating to well-being of immigrants across different ages. Furthermore, especially for immigrants moving between nations, the way they perceive their future can be associated with their well-being, as they remain uncertain and concerned about their future. Hence, the primary objective of the current study was to examine the relationship of social support and future time perspective with psychological well-being of Japanese adult immigrants in Canada, considering different age groups.



## **1. Literature Review**

### **1.1 Acculturation**

Immigrants undergo the process of acculturation during migration. Acculturation is defined as a phenomenon that results from continuous initial contact between different cultural groups, with a subsequent change in the original cultural patterns of one or both groups (Redfield et al., 1936). Berry (2005) has developed the definition of acculturation as the dual process that represents a cultural and psychological change occurring through contact between two or more cultural groups and their individual members. Furthermore, acculturation was initially viewed as a unidimensional process in which migrants acquire the values, practices, and beliefs of their new host country and discard those of their heritage culture (Schwartz et al., 2010). In contrast, some other researchers have conceptualized acculturation as a bidimensional process in which individuals exposed to two cultures can incorporate two coexisting cultural identities to varying degrees by acculturating to the new mainstream culture while maintaining their heritage and traditional culture (e.g., LaFromboise et al., 1993; Ryder et al., 2000). As for the bidimensional model of acculturation, Berry (1992) established the acculturation model consisting of four modes, determined by the degree of culture maintenance and desirability of inter-ethnic contact. They are assimilation, when individuals discard their cultural identities and move into the mainstream culture; integration, which includes both maintenance of heritage culture and becoming an integral part of mainstream culture; separation, which values maintaining their original culture and avoiding interaction with others; and marginalization, when individuals lose cultural and psychological contact with both their heritage and mainstream society (Berry, 1992). Ryder et al. (2000) have developed the bidimensional measure of acculturation (Vancouver Index of Acculturation: VIA) to measure the degree to which individuals are engaged with the host or mainstream culture and the extent to which they maintain their heritage cultural orientation, and insisted that the bidimensional model, with independent heritage and mainstream dimensions of culture, comprised a more functional and valid model than the unidimensional one.

### **1.2 Acculturation and psychological outcomes**

Acculturation has been linked with mental health, as numerous previous studies reported the associations between acculturation and psychological outcomes. For instance, Shim et al. (2014)

reported the different relationships between acculturation and mental health outcomes among East Asian students with different levels of exposure to German culture. For international students from East Asian countries, acculturation with mainstream culture was associated with a low level of depressive symptoms, while maintaining the heritage culture was associated with a high level of depressive symptoms. However, no such relationship was found for second-generation students of East Asian descent. Given these results, acculturation is more serious in terms of acculturation-related mental health issues for international students facing life changes in their new country than for second-generation students who have been immersed in German culture since birth (Shim et al., 2014). Thus, it is crucial to consider and distinguish the different challenges encountered by first-generation immigrants (i.e., those who were born and raised outside the host culture and later immigrated in host country), who may experience acculturative stress, and second-generation immigrants (i.e., those who were born in the host culture), who may face bicultural stress or identity confusion (Baker et al., 2012). Acculturation, specifically mainstream acculturation might be significantly related to lower levels of depression, not only for international students but also for first-generation adult immigrants.

In terms of the impact of varied acculturation modes, many studies have focused on student groups. International students in the United States classified as integrated and assimilated appeared to have lower levels of acculturative stress (Sullivan & Kashubeck-West, 2015). Among Asian students in North America including both first-generation and second-generation individuals, the acculturation dimension related to the mainstream culture showed considerable effects on enhanced psychological adjustment, whereas there was no such association for the dimensions related to maintaining the heritage culture (Ryder et al., 2000). As for the research of adult immigrants, Choi et al. (2009) showed based on evidence that Korean immigrant women who were less acculturated to both mainstream and heritage culture demonstrated higher levels of depressive symptoms. Regarding first-generation younger adult Middle Eastern immigrants in Australia, both heritage and mainstream acculturation were associated with higher psychological well-being (Hashemi et al., 2019). Similarly, among first-generation Japanese immigrants in the United States, individuals with better acculturation to both mainstream and heritage culture tended to have a greater psychological adaptation (Ando,

2014). In the meta-analytic study, the expatriates (i.e., employees who were sent by companies on a cross-cultural work; first-generation immigrants) were more likely to have better adjustment when they have frequent interaction with host nationals and co-nationals (Hechanova et al., 2003).

Therefore, it can be maintained that achieving a balanced acculturation between mainstream and heritage culture is important for the psychological well-being of first-generation immigrants.

### **1.3 Acculturation related to age of immigration**

Numerous studies have shown that age is related to the acculturation process. Chinese adolescents who migrated to Canada at a younger age were significantly associated with being acculturated in Canadian practices and customs and showed lower stress levels related to acculturation than those who immigrated at an older age (Kuo & Roysircar, 2004). Likewise, Cheung et al. (2011) reported that individuals who immigrated at the younger age tended to have more sense of identifying with culture in Canada. On the other hand, higher acculturative stress was found to be correlated with immigration at an older age and shorter length of stay in Canada (Kuo & Roysircar, 2004). Older immigrants might face challenges in acculturating to their new host culture, which can result in their reporting of higher depressive symptoms (Choi et al., 2009). For older immigrants, there was a negative association between the duration of spending in Canada and identification with mainstream culture (Cheung et al., 2011). Cheung et al. (2011) implied that this could be attributed to growing frustration arising from the mismatch between the cultural traits they have specialized in and their new community's norms, a common ageing phenomenon that individuals generally become dissatisfied with the contemporary culture as they age. Thus, it is apparent that migration at a younger age and a longer duration of stay in host country were associated with mainstream acculturation and less acculturative stress and depression, while migration at an older age and a shorter length of stay in Canada were associated with low levels of mainstream acculturation and more acculturative stress and depression.

### **1.4 Social support for immigrants**

In order to address mental health issues associated with acculturation, it is crucial to understand the social support system surrounding immigrants. Social support is defined as an individual's perceptions of general or specific supportive behaviors from individuals in their social network,

which improves their functions or may mitigate them from adverse effects (Malecki, & Demaray, 2002). Social support can include a variety of sources, from very close family members, such as parents, spouses and children, to close friends, acquaintances, neighbors, members of organizations and colleagues, the community, and professionals (Kobayashi, 1997; Podsiadlowski et al., 2013). Additionally, support can be broadly classified according to its content into structural aspects, such as social integration, and functional aspects which include tangible practical support such as information, funds, and materials, as well as emotional support (Kobayashi, 1997). Tardy (1985) suggested a model of social support consisting of four types: emotional, instrumental, informational, and appraisal. Emotional support includes support of caring, trust, empathy, and love. Instrumental support involves helping behaviors such as providing one's time, skill and money. Informational support is related to advice or information, while appraisal support refers to appropriate guidance, evaluation and feedback such as "you are doing a great work" according to the condition and problems. The magnitude of social support was related to better self-rated health among foreign-born Chinese Americans and Korean Americans in the United States (Morey et al., 2021), and with higher life satisfaction among Asian Americans (Kim & Chu, 2011), indicating the importance of social support for immigrants' psychological and physical health. Moreover, international students in the United States who felt more connected to mainstream society and who were satisfied with their social networks showed less acculturative stress (Yeh & Inose, 2003). For Japanese women residing in Canada, social support (tangible support, belonging support, self-esteem support, and appraisal support) has a buffering effect on acculturative stress (Kimura, 1996).

The majority of people benefit from and rely on support from their existing social networks. However, immigrants, in particular, confront a unique challenge in establishing new social support networks as they physically leave their old networks in their country of origin and must form new connections and networks in their host country. These new networks may comprise co-nationals (individuals from the same cultural background), other international migrants (individuals in similar situations), or host nationals (local individuals) (Podsiadlowski et al., 2013). Regarding the variation of social support sources, many previous studies supported that social support from host nationals is vital to immigrants' mental health. For example, general international students in the United States

who mainly interacted with non-Americans reported more acculturative stress than those socializing with Americans (Poyrazli et al., 2004). In addition, these students exhibited less perceived social support and more acculturative stress than those who interacted equally with both groups, suggesting that interactions with host nationals helped international students experience better mental health outcomes (Poyrazli et al., 2004). For international immigrant women in Spain, the instrumental and informational support from host-nationals facilitated their understanding of the attitudes, culture, and habits of the host country, thereby predicting higher level of happiness (Dominguez-Fuentes, & Hombrados-Mendieta, 2012). On the other hand, Podsiadlowski et al. (2013) insisted that socioemotional support from host-nationals enhanced satisfaction with sojourn among English-speaking respondents residing in New Zealand. Furthermore, Sullivan and Kashubeck-West (2015) found associations between higher levels of social support, particularly including host nationals, and lower levels of acculturative stress, among the international students in the United States. Focusing on different modes of acculturation, both the assimilation and integration acculturation modes were associated with higher levels of support from host nationals, while integration was also associated with higher levels of support from other international students (Sullivan & Kashubeck-West, 2015).

Besides the social support from host nationals, social support with co-nationals or fellow members may also be effective in enhancing the positive mental health state of immigrants. Asian international students in Australia with more ties to other international students from different counties were more psychologically well-adjusted and had a greater sense of identifying with their heritage culture (Kashima & Loh, 2006). Lee et al. (2004) investigated the effect of social support on 74 Korean international students in the United States and suggested that social support (practical and emotional support) moderated the relationship between acculturative stress and mental health symptoms. Their findings implied that the negative impact of acculturative stress on mental health symptoms is mitigated when social support is highly available to the students. As an additional analyses, Lee et al. (2004) examined the buffering effect of 11 social support sources including five Korean culture sources (e.g., Korean friends, parents), one American culture source (e.g., American friends) and five intermediate sources (e.g., academic advisor), and revealed that support from parents, Korean friends, religious organizations, academic advisors, school services, and Korean

student organizations were the most prominent sources. This study indicated that support from Korean cultural sources (co-nationals) played a significant role in mitigating the effect of acculturative stress on mental health symptoms, since most of the pronounced sources were Korean-based support sources, with the exception of the advisors and school services. In interdependent cultures, such as those in East Asia, individuals are expected to value the relationship and maintain harmony within their group (i.e., family and friends) (Markus & Kitayama, 1991). This cultural concept might explain that social support from existing relationships (i.e., Korean parents and friends) or support from those with the same cultural backgrounds (interdependent culture) is important for reducing the effect of acculturative stress on psychological symptoms for Korean international students. Therefore, social support from co-nationals or fellow members would be beneficial for maintaining the positive well-being and reducing the depression among immigrants, especially those from interdependent cultures.

Based on these findings, it is evident that many studies have demonstrated that social support plays a crucial role in the mental health of international students, but research on adult immigrants has been lacking. In studies regarding social support, approximately 28% of studies focused on social support among first-generation immigrants, although the research related to specific sources of support and social interaction were often understudied (Bierwiazek & Waldzus, 2016). On the other hand, social resources were commonly explored in research on international students (60%), with social support being the most frequently examined resource. According to the matching/specificity hypothesis (Viswesvaran et al., 1999), when the right kind of support from the right source of support is matched to the specific stressors being faced, the burden of this stressor is reduced, and well-being is enhanced. Similarly, Podsiadlowski et al. (2013) indicated the importance of specifically examining the types and sources of perceived social support that has effect on immigrants' satisfaction with their migrating experience. Thus, there is a need to investigate the relationship between each type and source of perceived social support and psychological well-being of first-generation adult immigrants.

### **1.5 Age-related differences in social support**

Several studies examining social support have found differences in structure and nature of social networks and social support across age groups. During the period of adolescence, support from

friends, teachers, and parents plays a significant role in shaping their experiences and outcomes (Martínez et al., 2011). Younger individuals and middle-aged adults tended to receive instrumental support from their family rather than emotional support, while they were more inclined to gain emotional support from their friends rather than instrumental support (Fukuoka & Hashimoto, 1997). The support from friends was likely to decrease from younger to middle age and from middle to older adulthood (Levitt et al., 1993). As age increases, older adults are inclined to exhibit much less contact with friends, but relatively stable contact with family (Shaw et al., 2007). Barnes et al. (2004) also reported the decline in social networks as people get older over time. When adults lived into older age, they were more likely to receive tangible and informational support (Shaw et al., 2007). Lee et al. (1996) demonstrated that among older Korean immigrants in the U.S., family members were the most primary source of instrumental support, whereas friends were crucial source of emotional support. Regarding satisfaction with social support, individuals' satisfaction decreases with older age (Trouillet et al., 2009). This decline can be attributed to a discrepancy between the expected amount of emotional support and the actual emotional support received, even though older individuals highly prioritize their emotional well-being as a short-term goal (Shaw et al., 2007). Emotional support was more related to the mental health of older immigrants than instrumental support (Lee et al., 1996). The support from family members, particularly emotional support was the most significant predictor of life satisfaction among Chinese older adult (Yeung & Fung, 2007). In the Japanese population, particularly in middle-aged and older Japanese women, social isolation and lower level of perceived social support were associated with self-reported lower levels of health (Wang et al., 2005). In sum, the size of social networks increases until middle age and gradually decrease from late middle age to older age as peripheral relationships are excluded from the network (English & Carstensen, 2014). Hence, it is important to explore the types and sources of age-appropriate social support, as the expected support varies with age.

The social relationships change with increasing age has been explained by socioemotional selectivity theory (Carstensen, 1992). This theory proposed that the reduced social interactions in later life result from a lifelong selection process in which individuals strategically form their social networks in order to maximize social and emotional benefits while minimizing social and emotional

risks (Carstensen, 1992). Within the framework of the socioemotional selectivity theory, aging adults intentionally reduced certain social connections, while prioritizing the maintenance of relationships with others, especially intimate individuals (Carstensen, 1992). Underlying this selective decline in social ties is the fact that as people get older and begin to recognize their time limitation and their place in the life cycle, short-term emotional goals become increasingly more important than long-term goals (e.g., Carstensen, 1992; Shaw et al., 2007). Therefore, this theory allows older people losses certain social interaction and gain more interaction from their selective close ties for their positive life outcomes.

Although many studies have investigated the social support for immigrants, no studies centered on age-related differences in the relationship between social support and well-being of immigrants. According to the socioemotional selectivity theory, as people age, they seek emotional goals to enhance their well-being. Therefore, emotional support might lead to greater well-being in older adults. It is vital to investigate whether the socioemotional selectivity theory explains this relationship in immigrants and which sources of support are associated with well-being at each age.

### **1.6 Future time perspective**

Based on socioemotional selectivity theory, humans can monitor lifetime and adjust time horizons with increasing age, thereby making the right choices for their remaining lifespan and pursuing emotionally meaningful goals (e.g., Carstensen, 2006; Carstensen et al, 1999). One of the important and integral parts of this theory is future time perspective (FTP) in suggesting that individuals' time perspective evolves (Grühn et al., 2016). FTP is one component of a personal lifetime and relates to how individuals view their future (Brothers et al., 2014). FTP can be characterized as an individual's perceptions and expectations about their future, particularly the degree to which they perceive the future as open-ended and containing opportunities, or as limited and closed (Brothers et al., 2014; Carstensen et al, 1999). This is relevant to the shifts of goals people hold. When individuals perceive the future limited, they prioritize emotional goals, whereas they prioritize expansive goals when they view the future as open (Przepiorka et al., 2021). FTP was also associated with the selection and pursuit of social relationships and personal networks, with the reduction of personal network size



being most pronounced when individuals perceived that they were nearing the end of their life span (Lang, 2000). Therefore, FTP corresponded with the process of aging (Cate & John, 2007).

As a measurement of FTP, Carstensen and Lang (1996) developed a scale with a one factor structure. Initially, FTP was conceptualized as a continuum consisting of a single structure ranging from perceiving time as infinite to perceiving it as finite. However, a later study has proposed that the perception of time perspective is more complex multidimensional structure than the one structure of the bipolar continuum and has indicated that future time perspective comprises two factors: opportunities and limitations (Cate & John, 2007). Furthermore, Brothers et al. (2014) insisted that the scales (e.g., Cate & John, 2007) overlooked the possibility that individuals may consider their future as ambiguous. Individuals experience a sense of ambiguity towards the future when there is uncertainty surrounding the attainment of life goals and plans, and this uncertainty differs across generations, ranging from undecided career paths and unstable income among the younger population, to concerns about retirement preparations, declining health, and the loss of loved ones among the middle-aged and older people (Shiraishi & Horiuchi, 2022). Thus, Brothers et al. (2014) developed the Multidimensional Future Time Perspective (MFTP) scale, which has a three-factor structure with open, limited, and ambiguous to measure multiple generations over a lifetime.

From previous studies, age-related differences in FTP have been found. Perceiving the future as open was negatively associated with age, while perceiving the future as limited was positively associated with age (Brothers et al., 2014). With participants in the U.S., younger adults tended to perceive the future more openly, whereas older adults were more likely to view the future more limitedly, which was consistent with socioemotional selective theory (Brothers et al., 2014). Additionally, younger adults felt their future was more ambiguous than middle-aged and older adults (Brothers et al., 2014). Likewise, middle-aged people in the U.S. perceived more on future opportunities than limited time, while those aged approximately 60 focused on limited time and fewer future opportunities (Strough et al., 2016). In the study conducted in Japan, however, younger and older people tended to perceive the future as more open than middle-aged group (Shiraishi & Horiuchi, 2022). Moreover, older people perceived the future as more limited but less ambiguous than younger and middle-aged adults, but there was no significant difference between younger and

middle-aged adults. In sum, there is a tendency toward less openness and more ambiguity, particularly among middle-aged adults. This finding indicated that middle-aged individuals are the generation with the least hope for the future under the current society in Japan (Shiraishi & Horiuchi, 2022). Given these various results on age-related differences in FTP, it is possible that the perception of FTP across various age groups may vary at the cultural and social level.

Furthermore, FTP might be related to acculturation. However, few studies have investigated how acculturation affects FTP. In the U.S., ethnically diverse immigrant workers with integrated acculturation were primarily future-time oriented compared to those with segregated acculturation (Lee, & Flores, 2019). This result suggested that individuals with higher level of acculturation to both mainstream and heritage culture may have higher FTP than those with lower level of acculturation to mainstream and heritage culture. Nevertheless, this study did not specify which FTP was associated with acculturation. It is essential to further investigate which FTP (open/limited/ambiguous) is related to acculturation level to understand FTP in immigrant samples.

### **1.7 Future time perspective and well-being**

Considering socioemotional selectivity theory proposing that individuals are more motivated to pursue emotionally meaningful goals and invest in psychological and social resources to optimize their emotional well-being with increasing age (Carstensen et al., 2011), older adults who perceive their future as more limited would be likely to exhibit higher levels of subjective well-being by selecting qualified social network. In contrast to this theoretical speculation, a limited FTP was found to have contrasting effects on socioemotional functioning (Grühn et al., 2016). Specifically, a limited FTP was associated with higher levels of negative affect and more depressive symptoms, as well as lower levels of life satisfaction, positive affect, empathy, positive emotions, and willingness to experience joy, implying that limited FTP is a predictor of negative and maladaptive aspect of emotional functioning, regardless of age (Grühn et al., 2016). Allemand et al. (2012) reported that open-ended FTP predicted higher subjective well-being. Individuals of all ages perceiving their future as open-ended were more likely to have a better subjective well-being than those individuals who perceived their future as limited (Allemand et al., 2012). Similarly, there is evidence showing that perceiving the future as open and more opportunities was positively related to psychological well-

being, regardless of age. Demiray and Bluck (2014) demonstrated that both younger and middle-aged adults who viewed the future as open experienced higher levels of psychological well-being. In summary, perceiving the future as open is likely to be positively related to subjective well-being, while perceiving the future as limited tends to be negatively related to subjective well-being. As for viewing the future as ambiguous, there has not been much research focused on this aspect. Ambiguous situations are one that tends toward novelty, complexity, and insolvability (Budner, 1962). Negative attitudes toward ambiguity, especially anxiety, were strongly associated with psychological maladjustment (Nishimura, 2007). When the future is uncertain, individuals may tend to focus on the past and engage in regrets and counterfactual thinking (Stolarski et al., 2018). Given these facts, it is possible that those who view the future as ambiguous are more likely to have lower levels of subjective well-being. Especially for immigrants, their future is uncertain and ambiguous, as they tend to view their current condition as temporary (Cwerner, 2001). Future ambiguity would seriously deteriorate their well-being, since they have more enormous challenges of future goals and problems to deal, such as citizenship, health problems, and the need care for their family of heritage country than those in native habit or residents without international mobility (Ackers & Dwyer, 2004; Deneva, 2017). Therefore, immigrants have more tendency to be ambiguous about the future, and this might relate to their psychological well-being.

Regarding the age-related differences in the relationship between FTP and psychological outcomes, Zhang et al. (2023) reported that age had moderating effects of extension and constraint on life satisfaction. Particularly, the association between extension and life satisfaction was more pronounced in younger individuals than in older adults, while the negative effect of constraint on life satisfaction was stronger in older adults than younger counterparts (Zhang et al., 2023). Thus, it is apparent that age moderates the effect of open and limited FTP on well-being. However, it remains unclear whether similar results apply to the immigrant samples and underdeveloped of ambiguous aspect of FTP. Since younger individuals have more time and choices to make in the future, they are more likely to perceive the future as ambiguous than older adults, and as a result, the effect of ambiguous FTP on psychological well-being might be likely to be stronger among younger adults

than among older adults. Further investigation is needed to determine whether age moderates the effect of FTP including ambiguous aspect on psychological well-being among immigrants.

### **1.8 Aims of the present study**

While the socioemotional selectivity theory suggested that individuals change their priorities of social relationship and goals as they age, there has been a lack of research focusing on age-related differences in the relationship between the social support and psychological well-being among immigrants and especially Japanese immigrants. Additionally, although FTP is an important predictor of well-being, no studies have demonstrated the relationship with acculturation and whether the effect of FTP, particularly in its ambiguous aspect, on well-being varies among immigrants of different age groups. Building on previous findings and established theories, further research is essential to examine age-related differences in the relationships of perceived social support and FTP with psychological well-being among immigrants.

In this study, the primary focus was to investigate age-related differences among Japanese adult immigrants in Canada. The research addressed three central objectives. The first purpose of this study was to identify whether bidimensional acculturation (mainstream/heritage) is related to FTP (open/limited/ambiguous). Given that previous research has shown that ethnically diverse immigrant workers in the U.S. with integrated acculturation were primarily future-time oriented compared to those with segregated acculturation (Lee, & Flores, 2019), both mainstream and heritage acculturation might be related to open future time perspective. Secondly, this study aimed to examine the moderating effect of age in the relationship of different perceived social support types (socioemotional and instrumental) and sources (host-nationals, co-nationals, and other international migrants) with psychological well-being (life satisfaction, interdependent happiness, and depression). According to the socioemotional selectivity theory suggesting that as age increases, individuals invest psychological and social resources in the pursuit of emotional well-being (Carstensen et al., 2011), socioemotional support from all sources may be more associated with psychological well-being in older age. Moreover, the third aim was to explore the moderating effect of age in the relationship between FTP and psychological well-being. Previous research has shown that the association between extension and life satisfaction was more pronounced in younger individuals than in older

adults, whereas the negative effect of constraint on life satisfaction was stronger in older adults than younger counterparts (Zhang et al., 2023). Therefore, even in immigrant group, age might be a moderator in the relationship between open and limited FTP and psychological well-being. Younger people have more time and options for the future, which might lead to more ambiguity about the future, thus ambiguous FTP might be more related to psychological well-being in younger age. Furthermore, the interrelationships between acculturation, FTP, well-being, and depression, as well as the future concerns were examined as an exploratory study. This study aims to provide insights into the relationship related to FTP among Japanese adult immigrants in Canada and contribute to the extending knowledge on how to promote their psychological well-being by comprehending the effect of social support and FTP, with consideration on different ages. Given the previous findings and theory, three hypotheses were proposed.

Hypothesis 1: Acculturation to both mainstream and heritage culture is positively correlated to open FTP (H1).

Hypothesis 2: The effects of socioemotional support from all sources on psychological well-being (life satisfaction, interdependent happiness, and depression) are stronger in older adults than younger adults (H2).

Hypothesis 3: The effect of open FTP on psychological well-being (life satisfaction, interdependent happiness, and depression) is stronger in younger individuals than in older adults (H3a), while the effect of limited FTP on psychological well-being is stronger among older adults than younger adults (H3b). The effect of ambiguous FTP on psychological well-being is stronger among younger adults than older adults (H3c).

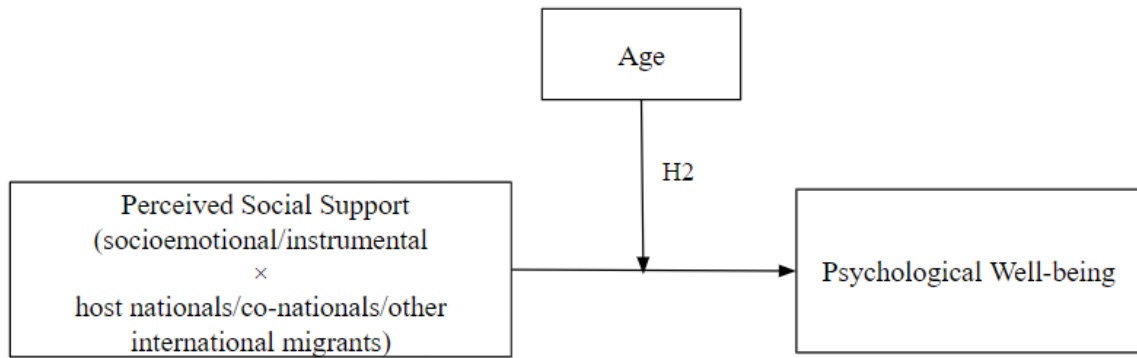


Figure 1. The hypothesized moderation model (H2)

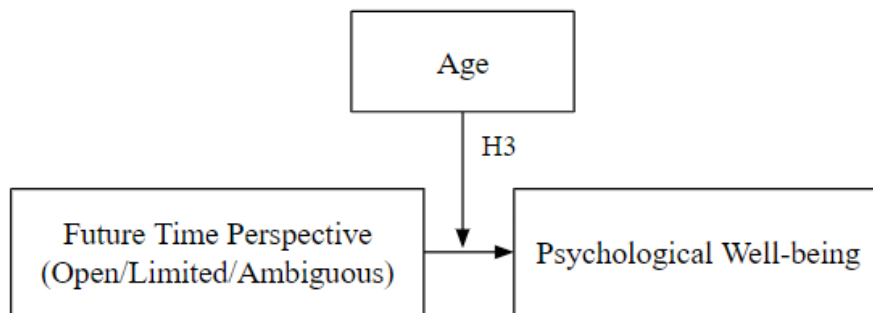


Figure 2. The hypothesized moderation model (H3)

## 2. Methods

### 2.1 Participants

A total of 212 Japanese immigrants, residing in all provinces of Canada participated in this study. 47 incomplete responses were excluded, and therefore, the final sample consisted of 165 participants, with age ranging from 21 to 82 ( $M = 40.38$ ,  $SD = 10.67$ ). The sample included 142 women (86.1%), 21 men (12.7%) and 2 other (1.2%). All participants were born in Japan. The mean length of their stay in Canada was 10.37 years ( $SD = 9.12$ ) ranging from 1 to 63 years, and the mean age they immigrated to Canada was 29.17 years old ( $SD = 7.23$ ) ranging from 15 to 49 years old. In terms of educational level, 5.5% reported having a basic education (primary and secondary education) as the highest level of education, 57.6% reported having a bachelor's degree, 10.9% reported having a master's degree, 6.1% reported having a PhD, and 20% reported associate degree (i.e., degree obtained in a junior college or vocational school, typically involving two or three years of education). Regarding marital status, 45 participants were single (27.3%), 106 participants were married (64.2%), 10 participants were either separated or divorced (6.1%), and 4 participants were widowed (2.4%). Most of the participants were employed (57.1%), 16.5% were students, 18.1% were unemployed, 2.2% were retired, and 6% reported as other. In this study, younger adults were defined as those aged 21-39 ( $N = 81$ ), middle-aged adults as those aged 40-64 ( $N = 80$ ), and older adults as those aged 65-82 ( $N = 4$ ), based on previous research targeting Japanese population (Saito & Kobayashi, 2021).

### 2.2 Measures

With the exception of the assessments for life satisfaction, interdependent happiness, depression, and future time perspective which had an available Japanese version, the scales of acculturation and social support were translated into Japanese by bilingual psychology students, using the TRAPD method (Harkness, 2003). Thus, all instruments were made available to participants in Japanese. The questionnaire included measures of life satisfaction, interdependent happiness, depression, acculturation, social support, future time perspective as well as demographic items.

**Life satisfaction.** The 5-item Japanese version (Oishi, 2009) of Satisfaction with Life Scale (SWLS; Diener et al., 1985) was used to measure subjective well-being. Sample items are “I am

satisfied with my life,” and “In most ways my life is close to ideal.” Participants responded, indicating their agreement with each item on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The Cronbach’s alpha reliability coefficient in the current study was .89, indicating good reliability.

**Interdependent happiness.** Participants completed the 9-item Interdependent Happiness Scale (HIS: Hitokoto & Uchida, 2015), which assesses happiness based on factors such as interpersonal harmony, quiescence, and ordinariness and focuses on happiness in relational nature. The items were rated on 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). For example, participants were asked to indicate their level of agreement with statement such as “I make significant others happy,” and “I believe that I and those around me are happy.” Hitokoto and Uchida (2015) reported a test-retest reliability of .76 and an internal consistency of .93. In the current study, the Cronbach’s alpha reliability coefficient was .92, showing excellent reliability.

**Depression.** The Japanese version of Patient Health Questionnaire-9 (PHQ-9) (Muramatsu et al., 2018) was used to assess depressive symptoms (Kroenke et al., 2001), and consists of 9 items based on the DSM-V depressive disorder criteria. Eight items were used in this study, except for suicidal thoughts. Examples of items include “little interest or pleasure of doing things,” “feeling down, depressed, or hopeless,” and “poor appetite or overeating.” Items were rated on a 4-point Likert scale ranging from 1 (not at all) to 4 (nearly every day). The PHQ-9 has been shown to have excellent internal reliability, with a Cronbach’s alpha of .86–.89 (Kroenke et al., 2001). In the current study, the Cronbach’s alpha reliability coefficient was .85, showing good reliability.

**Acculturation.** Acculturation was measured with the Vancouver Index of Acculturation (VIA) developed by Ryder et al. (2000) to assess the heritage and mainstream acculturation. The scale consists of 20 items, which includes three domains of acculturation: values, social relationships, and adherence to tradition. Since two items related to marriage were not appropriate with consideration of current society, only 18 items were used for this study, excluding those two items. A sample item from heritage acculturation is “I often participate in heritage cultural traditions.” A sample item from mainstream acculturation is “I often participate in mainstream Canadian cultural tradition.” Responses



were rated on a 9-point Likert scale ranging from 1 (strongly disagree) to 9 (strongly agree) indicating their agreement with each item. The VIA has demonstrated a good internal consistency, with a Cronbach's alpha coefficient ranging from .85 to .92 for mainstream acculturation subscale and .91 to .92 for heritage acculturation subscale, depending on the sample (Hashemi et al., 2019; Ryder et al., 2000). The Cronbach's alpha reliability coefficient for the mainstream acculturation and heritage acculturation subscales in this study were .79 and .82 respectively, showing acceptable and good reliability.

**Social support.** Social support was measured using the Index of Sojourner Social Support (ISSS) (Ong & Ward, 2005), which was designed to measure perceived social support people living abroad receive from others. This scale assessed how much they obtain two types of social support; socioemotional support (e.g., "Comfort you whenever you feel homesick"); instrumental support (e.g., "Help you interpret things that you don't really understand"). It consists of 18 items scored on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The response set was modified to answer each question regarding host nationals, co-nationals, other international migrants to measure each sources' effect separately. Ong and Ward (2005) reported a Cronbach's alpha coefficient for entire social support, socioemotional, and instrumental with .95, .92, .92. In the current study, the Cronbach's alpha reliability coefficient for entire social support, socioemotional, and instrumental support from host nationals were .95, .93, and .94 respectively. From co-nationals, the Cronbach's alpha reliability coefficient for entire social support, socioemotional, and instrumental support were .95, .92, and .94 respectively. From other international migrants, the Cronbach's alpha reliability coefficient for entire social support, socioemotional, and instrumental support were .97, .95, and .96 respectively. All Cronbach's alpha showed excellent reliability.

**Future Time Perspective.** The 12-item Japanese version (Shiraishi & Horiuchi, 2022) of Multidimensional Future Time Perspective (MFTP) developed by Brothers et al. (2014) scale was used to assess multiple dimensions of future time perspective in adulthood. It is a three-factor scale with "open," "limited," and "ambiguous." A sample item with open FTP is "I look forward to the future with hope and enthusiasm." A sample item with limited FTP is "I have the sense that time is

running out.” A sample item with ambiguous FTP is “My future is uncertain.” Items were scored on 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Shiraishi and Horiuchi (2022) reported that Cronbach’s alpha coefficients with open, limited, and ambiguous were .89, .86, .80 respectively. In the current study, the Cronbach’s alpha reliability coefficient for open, limited, and ambiguous FTP were .89, .84, and .75 respectively, showing good and acceptable reliability.

**Demographics.** Information was collected on demographics characteristics such as: age, gender, current province of residence, length of residence in current province, experience living in other province (Canada), length of residence in other country (including Japan and Canada), nationality, current resident status, estimated length of residence in Canada, academic backgrounds, employment status, field of occupation, household income, relationship/marital status, frequency of contact with people in Japan, present level of languages, as well as frequency of languages use. The questionnaire also included an open and ended question regarding future concerns.

## **2.3 Procedure**

The study used both quantitative data and qualitative data collection methods and was approved by the ethical committee of Concordia University in Canada before recruiting participants. This study was conducted in collaboration with three other researchers in Canada, and some of the data was used in my study. From 27th of March 2024 to 8th of May 2024, the questionnaires were distributed online through advertisements in social media platform (Facebook and X (Twitter)), NGOs, Japanese schools in Canada, Japanese communities in Canada, Japanese embassy, and bulletin boards of Japanese communities in Canada, as well as other organizations. The participants were recruited from online platforms, Qualtrics. For this study, four requisites were established: (1) Those who currently or used to hold a Japanese citizen; (2) those who have lived in Canada for at least one year; (3) those who are able to answer and complete questionnaire in Japanese; (4) Those who is over the age of 18 (There is no upper age limit). Participants were given an informed consent indicating that they were able to choose not to participate or to withdraw from the study. In addition, they were informed that their responses were confidential, and not identified. After they agreed to take part in this research,

participants answered demographics first, and the self-report measures later. The study took approximately 50 minutes to complete. When participants completed the questionnaires, they were able to sign up for a lottery to win compensation. Since there was limited research funding, some of them received a reward of Amazon gift card by lottery.

## **2.4 Data analysis strategy**

The Statistical Package for the Social Sciences (SPSS) version 29 was used for data analysis. Descriptive statistics and correlation analyses were conducted among variables such as life satisfaction, interdependent happiness, depression, acculturation, social support, and future time perspective to test hypothesis 1. For each second and third hypothesis testing, analysis with PROCESS in SPSS was performed to identify the moderating effect of age on the relationships between each social support (socioemotional support from host nationals, instrumental support from host nationals, socioemotional support from co-nationals, instrumental support from co-nationals, socioemotional support from other international migrants, and instrumental support from other international migrants) and psychological well-being variables (life satisfaction, interdependent happiness, and depression), and the moderating effect of age on the relationship between each future time perspective (open, limited, and ambiguous) and psychological wellbeing variables (life satisfaction, interdependent happiness, and depression).



### 3. Results

#### 3.1 Descriptives and correlation analysis

Descriptive statistics for variables of this study were reported in Table 1. In terms of social support, socioemotional support was mostly attributed to co-nationals ( $M = 3.77, SD = .78$ ), followed by host nationals ( $M = 3.62, SD = .83$ ), and other international migrants ( $M = 3.48, SD = .87$ ). A repeated measures analysis of variance (ANOVA) on the sources of socioemotional support (host nationals, co-nationals, and international migrants) showed statistically significant differences between them ( $F(2, 324) = 7.51, p < .001$ ). This indicates that participants received different amounts of socioemotional support from these different sources. In contrast, instrumental support was primarily attributed to host nationals ( $M = 3.72, SD = .83$ ), followed by co-nationals ( $M = 3.60, SD = .85$ ), and other international migrants ( $M = 3.47, SD = .89$ ). A repeated measures analysis of variance (ANOVA) on the sources of instrumental support (host nationals, co-nationals, and international migrants) showed statistically significant differences between them ( $F(2, 326) = 5.30, p = .01$ ). This indicates that participants received different amounts of instrumental support from these different sources. Regarding the acculturation mode, participants exhibited higher scores for heritage acculturation ( $M = 5.94, SD = 1.39$ ), compared to mainstream acculturation ( $M = 5.31, SD = 1.25$ ). A repeated measures analysis of variance (ANOVA) on acculturation (mainstream and heritage acculturation) showed statistically significant differences between them ( $F(1, 163) = 19.67, p < .001$ ). This indicates that participants acculturated to mainstream and heritage culture at different levels. As for the future time perspective (FTP), open FTP was the highest ( $M = 3.55, SD = .96$ ), followed by limited FTP ( $M = 3.28, SD = .99$ ), and ambiguous FTP ( $M = 3.28, SD = .83$ ). A repeated measures analysis of variance (ANOVA) on FTP (open, limited, ambiguous FTP) showed statistically significant differences between them ( $F(2, 328) = 3.93, p = .02$ ). This indicates that participants hold different levels of open FTP, limited FTP, and ambiguous FTP.

A correlation analysis was performed including all scales and subscales and age to test the correlations between each variable (Table 1). As hypothesized (H1), there was a positive correlation between mainstream acculturation and open FTP, showing that higher levels of mainstream acculturation were associated with higher levels of open FTP ( $r = .44, p < .001$ ). Nevertheless,

contrary to the hypothesis (H1), heritage culture was not significantly related to open FTP. Notably, there was a negative correlation between mainstream acculturation and ambiguous FTP, indicating that higher levels of mainstream acculturation corresponded to lower levels of ambiguous FTP ( $r = -.18, p = .02$ ). However, no other correlations were found between either mainstream and heritage acculturation and limited FTP.

In terms of the relationship between acculturation and psychological well-being variables, there was a positive and significant correlation between mainstream acculturation and life satisfaction, indicating that higher scores on mainstream acculturation were positively associated with life satisfaction ( $r = .34, p < .001$ ). Similarly, there was a positive and significant correlation between mainstream acculturation and interdependent happiness ( $r = .39, p < .001$ ). Additionally, there was a negative and significant correlation between mainstream acculturation and depression ( $r = -.23, p = .003$ ). However, there was no significant correlation between heritage acculturation and psychological well-being variables (life satisfaction, interdependent happiness, and interdependent happiness), contrary to expectations.

Regarding the relationship between social support and psychological well-being variables (life satisfaction and interdependent happiness), there were significant correlations between them. Socioemotional support from host nationals showed a positive correlation with life satisfaction ( $r = .37, p < .001$ ), a positive correlation with interdependent happiness ( $r = .38, p < .001$ ), and negative correlation with depression ( $r = -.21, p = .01$ ). Socioemotional support from co-nationals showed a positive correlation with life satisfaction ( $r = .28, p < .001$ ), a positive correlation with interdependent happiness ( $r = .26, p < .001$ ), and a negative correlation with depression ( $r = -.26, p = .001$ ). Socioemotional support from other international migrants showed a positive correlation with life satisfaction ( $r = .27, p < .001$ ), a positive correlation with interdependent happiness ( $r = .27, p < .001$ ), and a negative correlation with depression ( $r = -.18, p = .02$ ). Moreover, instrumental support from host nationals was positively correlated with life satisfaction ( $r = .33, p < .001$ ); positively correlated with interdependent happiness ( $r = .33, p < .001$ ), and negatively correlated with depression ( $r = -.23, p = .003$ ). Instrumental support from co-nationals was positively correlated with life satisfaction ( $r = .22, p = .004$ ) and negatively correlated with depression ( $r = -.21, p = .01$ ). Instrumental support

from other international migrants was positively correlated with life satisfaction ( $r = .22, p = .004$ ); positively correlated with interdependent happiness ( $r = .16, p = .05$ ). and negatively correlated with depression ( $r = -.17, p = .03$ ).

As for the relationship between FTP and psychological well-being variables, open FTP was positively correlated with life satisfaction ( $r = .69, p < .001$ ), positively correlated with interdependent happiness ( $r = .74, p < .001$ ), and negatively correlated with depression ( $r = -.56, p < .001$ ). This indicates that higher open FTP was associated with greater levels of life satisfaction and interdependent happiness, and lower levels of depression. Conversely, limited FTP was negatively correlated with life satisfaction ( $r = -.16, p = .04$ ), negatively correlated with interdependent happiness ( $r = -.36, p < .001$ ), and positively correlated with depression ( $r = .26, p < .001$ ). This indicates that greater limited FTP was associated with lower levels of life satisfaction and interdependent happiness, and higher levels of depression. Similarly, ambiguous FTP was negatively correlated with life satisfaction ( $r = -.44, p < .001$ ), negatively correlated with interdependent happiness ( $r = -.53, p < .001$ ), and positively correlated with depression ( $r = .49, p < .001$ ). This shows that greater ambiguous FTP was associated with lower levels of life satisfaction and interdependent happiness, and greater levels of depression.

Table 1 – Descriptive statistics and Bivariate correlations of the main study variables

Variables	Mean	SD	Rang	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>Psychological Well-being</b>																		
1 Satisfaction with Life	4.80	1.25	1-7															
2 Interdependent Happiness	3.57	0.89	1-5	.68**														
3 Depressive Symptoms	1.72	0.62	1-4	-.44**	-.57**													
<b>Bidimensional Acculturation</b>																		
4 Mainstream Acculturation	5.31	1.25	1-9	.34**	.39**	-.23**												
5 Heritage Acculturation	5.94	1.39	1-9	-.06	-.08	-.01	.05											
<b>Social Support</b>																		
6 Socioemotional Support×Host nationals	3.62	0.83	1-5	.37**	.38**	-.21**	.41**	.03										
7 Socioemotional Support×Co-nationals	3.77	0.78	1-5	.28**	.26**	-.26**	.24**	.28**	.36**									
8 Socioemotional Support×Other International Migrants	3.48	0.87	1-5	.27**	.27**	-.18*	.22**	.03	.19*	.48**								
9 Instrumental Support×Host nationals	3.72	0.83	1-5	.33**	.33**	-.23**	.33**	-.03	.67**	.40**	.30**							
10 Instrumental Support×Co-nationals	3.60	0.85	1-5	.22**	.09	-.21**	.16*	.39**	.13	.69**	.38**	.28**						
11 Instrumental Support×Other International Migrants	3.47	0.89	1-5	.22**	.16*	-.17*	.17*	.11	.13	.47**	.77**	.30**	.55**					
<b>Future Time Perspective</b>																		
12 Open	3.55	0.96	1-5	.69**	.74**	-.56**	.44**	.05	.42**	.33**	.31**	.37**	.29**	.29**				
13 Limited	3.28	0.99	1-5	-.16*	-.36**	.26**	-.07	.03	-.20*	.01	-.08	-.18*	.06	-.02	-.35**			
14 Ambiguous	3.28	0.83	1-5	-.44**	-.53**	.49**	-.18*	.08	-.20*	-.10	-.02	-.16*	-.08	-.02	-.57**	.42**		
15 Age	40.38	10.67	21-82	-.03	-.01	-.08	.01	-.19*	-.07	-.20**	-.23**	-.06	-.21**	-.21**	-.14	.14	-.14	

Note.  $N = 165$ ,  $M = \text{Mean}$ ,  $SD = \text{Standard deviation}$ . \*  $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$



### 3.2 Moderation of age on the relationship between social support and well-being

Moderation analysis was conducted using SPSS's PROCESS macro (Hayes, 2012) to test the moderating effect of age on the relationship between social support and psychological well-being variables. The interaction between instrumental support from co-nationals and age significantly affected interdependent happiness ( $\beta = .02, t = 2.15, p = .03$ ), indicating that the relationship between instrumental support from co-nationals and interdependent happiness was moderated by age (see Table 2, Figure 3). The relationship between instrumental support from co-nationals and interdependent happiness was negative and not significant for younger age (-1SD) (simple slope =  $-.10, t = -.82, p = .42$ ). This relationship was positive and significant for older age (+1SD) (simple slope =  $.30, t = 2.37, p = .02$ ). Thus, results suggested that age amplified the relationship between instrumental support from co-nationals and interdependent happiness. However, age did not moderate the relationship between socioemotional support from all sources and well-being variables (life satisfaction interdependent happiness, and depression), not supporting Hypothesis 2 (see Appendix C, Table C1-C9). Additionally, there was no other moderating effect of age in the relationship between instrumental support and well-being variables (see Appendix C, Table C10-17).

Table 2—Regression results: moderation of age between instrumental support from co-nationals and interdependent happiness

	Outcome: Interdependent happiness				R <sup>2</sup>
	Coeff.	SE	<i>t</i>	<i>p</i>	.04
Instrumental support from co-nationals	0.09	0.08	1.12	.26	
Age	0.00	0.01	0.24	.81	
Instrumental support from co-nationals x Age	0.02	0.01	2.15	.03	

*N* = 165. Unstandardized regression coefficients are reported.

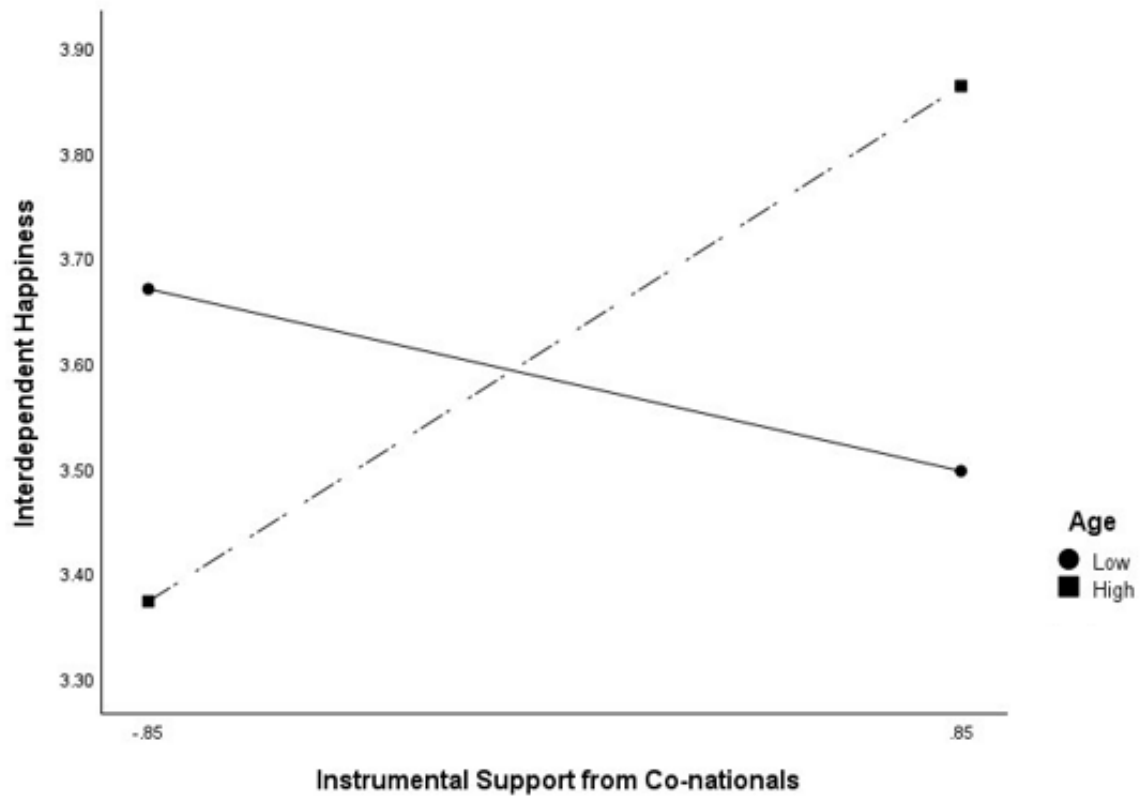


Figure 3. Moderation of age on the relationship between instrumental support from co-nationals and interdependent happiness

### 3.3 Moderation of age on the relationship between FTP and well-being

Moderation analysis was performed using SPSS's PROCESS macro (Hayes, 2012) to examine the moderating effect of age on the relationship between future time perspective and psychological well-being variables. The interaction between limited FTP and age significantly affected depression ( $\beta = .01, t = 2.07, p = .04$ ), indicating that the relationship between limited FTP and depression was moderated by age (see Table 3, Figure 4). The relationship between limited FTP and depression was positive and not significant for lower age (-1SD) (simple slope = .07,  $t = 1.08, p = .28$ ). This relationship was also positive and significant for higher age (+1SD) (simple slope = .29,  $t = 3.99, p < .001$ ). Thus, results suggested that age enhanced the relationship between limited FTP and depression, supporting Hypothesis 3b. However, there was no moderating effect of age on the relationship between open FTP and well-being variables (life satisfaction, interdependent happiness,

and depression), not supporting Hypotheses 3a (See Appendix D, Table D1-D3). Similarly, no moderating effect of age was found in the relationship between ambiguous FTP and well-being variables, which did not support Hypothesis 3c (See Appendix D, Table D6-D8). Furthermore, age did not moderate the relationship of limited FTP with life satisfaction and interdependent happiness (see Appendix D, Table D4 and D5).

Table 3 — Regression results: moderation of age between limited FTP and depression

	Outcome: Depression				R <sup>2</sup>
	Coeff.	SE	<i>t</i>	<i>p</i>	.11
Limited future time perspective	0.18	0.05	3.77	< .001	
Age	-0.01	0.00	-1.69	.09	
Limited future time perspective x Age	0.01	0.01	2.07	.04	

*N* = 165. Unstandardized regression coefficients are reported.

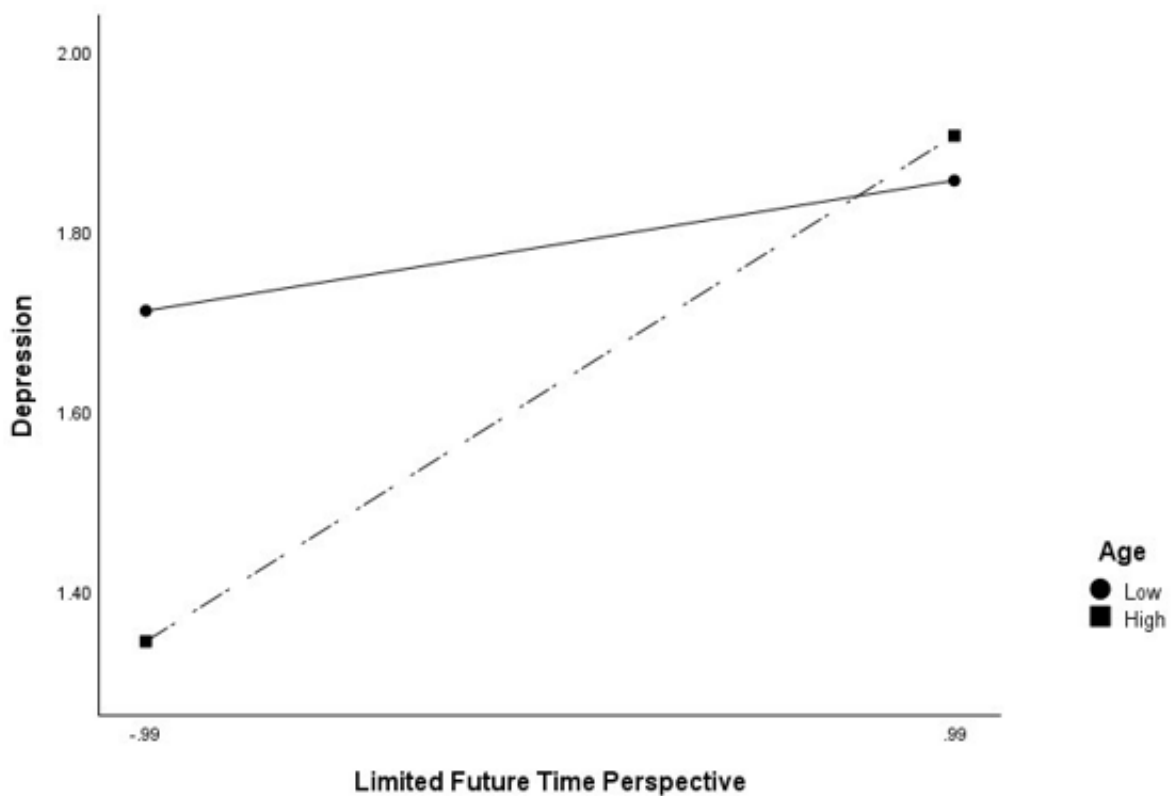


Figure 4. Moderation of age on the relationship between limited FTP and depression

### 3.4 Exploratory analysis: Mediation

The main study showed the correlations between mainstream acculturation and psychological well-being (life satisfaction, interdependent happiness, and depression), between mainstream acculturation and open and ambiguous FTP, and between FTP and psychological well-being. An exploratory study was conducted to explore interrelationships among mainstream acculturation, open and ambiguous FTP and psychological well-being. As an exploratory study, mediation analysis was performed using SPSS's PROCESS macro (Hayes, 2012) to test the mediating effect of open FTP in the relationship of mainstream acculturation with well-being variables (see Appendix E). The results revealed a significant indirect effect of mainstream acculturation on life satisfaction ( $\beta = 0.29$ , CI [.19, .39]) (Figure 5, Table E.1). The total effect of mainstream acculturation on life satisfaction was significant ( $\beta = 0.35$ ,  $t = 4.67$ ,  $p < .001$ ), but the direct effect of mainstream acculturation and life satisfaction was not significant ( $\beta = 0.06$ ,  $t = 0.90$ ,  $p = .37$ ). This showed that open FTP fully mediated the relationship between mainstream acculturation and life satisfaction. Regarding the relationship with interdependent happiness, there was a significant indirect effect of mainstream acculturation on interdependent happiness ( $\beta = 0.31$ , CI [.20, .40]) (Figure 6, Table E.2). The total effect of mainstream acculturation on interdependent happiness was significant ( $\beta = 0.28$ ,  $t = 5.32$ ,  $p < .001$ ), but the direct effect of mainstream acculturation on interdependent happiness was not significant ( $\beta = 0.06$ ,  $t = 1.36$ ,  $p = .18$ ). This showed that open FTP fully mediated the relationship between mainstream acculturation and interdependent happiness. In terms of the relationship with depression, there was a significant indirect effect of mainstream acculturation on depression ( $\beta = -0.25$ , CI [-.35, -.15]) (Figure 7, Table E.3). The total effect of mainstream acculturation on depression was significant ( $\beta = -0.12$ ,  $t = -3.04$ ,  $p = .003$ ), but the direct effect of mainstream acculturation on depression was not significant ( $\beta = 0.01$ ,  $t = 0.18$ ,  $p = .86$ ). This showed that open FTP fully mediated the relationship between mainstream acculturation and depression.

In addition, the analysis of ambiguous FTP was also performed. The results revealed a significant indirect effect of mainstream acculturation on life satisfaction ( $\beta = 0.07$ , CI [.01, .13]) (Figure 8, Table E.4). The total effect of mainstream acculturation on life satisfaction was significant ( $\beta = 0.35$ ,  $t = 4.67$ ,  $p < .001$ ), and the direct effect of mainstream acculturation on life satisfaction was

also significant ( $\beta = 0.28, t = 3.99, p < .001$ ). This showed that ambiguous FTP partially mediated the relationship between mainstream acculturation and life satisfaction. Regarding the relationship with interdependent happiness, there was a significant indirect effect of mainstream acculturation on interdependent happiness ( $\beta = 0.09, CI [.02, .16]$ ) (Figure 9, Table E.5). The total effect of mainstream acculturation on interdependent happiness was significant ( $\beta = 0.28, t = 5.32, p < .001$ ), and the direct effect of mainstream acculturation and interdependent happiness was also significant ( $\beta = 0.22, t = 4.71, p < .001$ ). This showed that ambiguous FTP partially mediated the relationship between mainstream acculturation and interdependent happiness. In terms of the relationship with depression, there was a significant indirect effect of mainstream acculturation on depression ( $\beta = -0.08, CI [-.15, -.14]$ ) (Figure 10, Table E.6). The total effect of mainstream acculturation on depression was significant ( $\beta = -0.12, t = -3.04, p = .003$ ), and the direct effect of mainstream acculturation on depression was also significant ( $\beta = -0.08, t = -2.16, p = .03$ ). This showed that ambiguous FTP partially mediated the relationship between mainstream acculturation and depression.

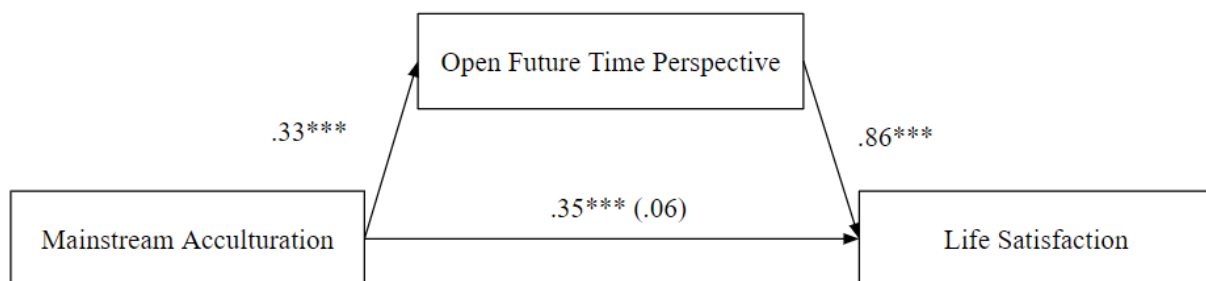


Figure 5. Mediation model of open FTP between acculturation and life satisfaction. \*\*\*  $p < 0.001$

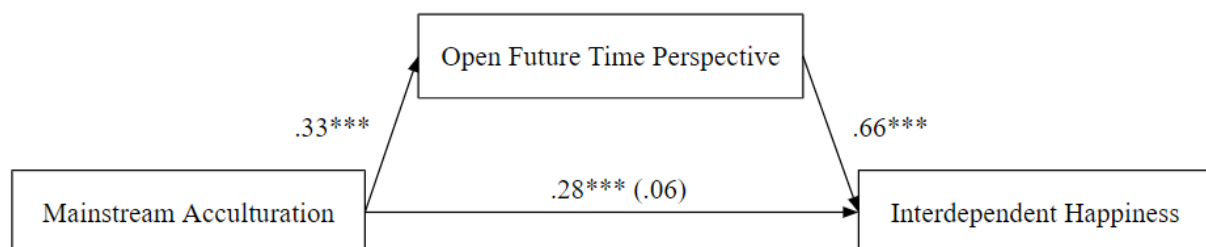


Figure 6. Mediation model of open FTP between acculturation and interdependent happiness.

\*\*\*  $p < 0.001$

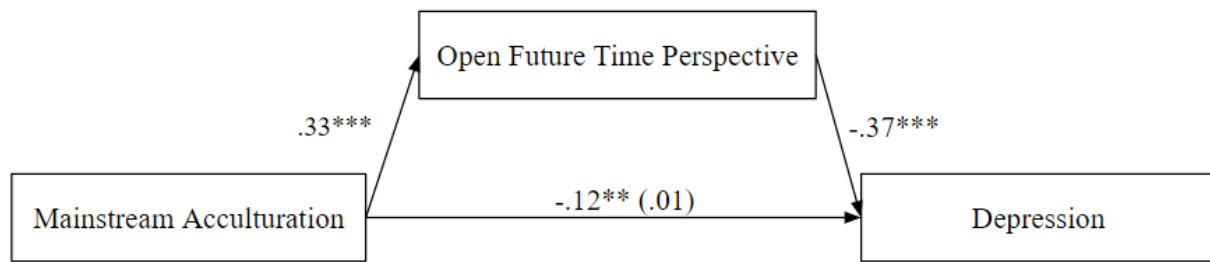


Figure 7. Mediation model of open FTP between acculturation and depression.

\*\*  $p < 0.01$  \*\*\*  $p < 0.001$

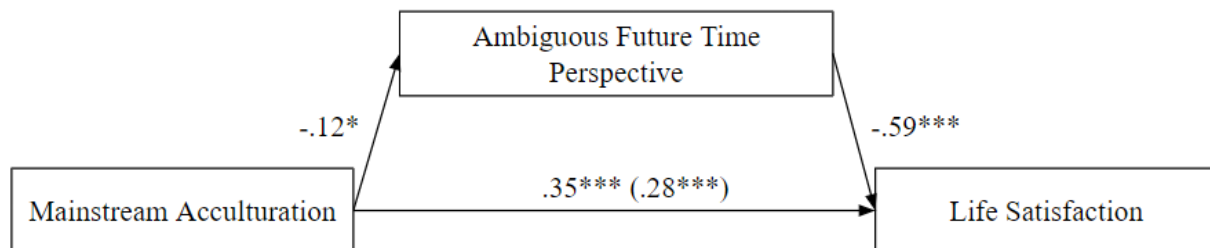


Figure 8. Mediation model of ambiguous FTP between acculturation and life satisfaction.

\*  $p < 0.05$  \*\*\*  $p < 0.001$

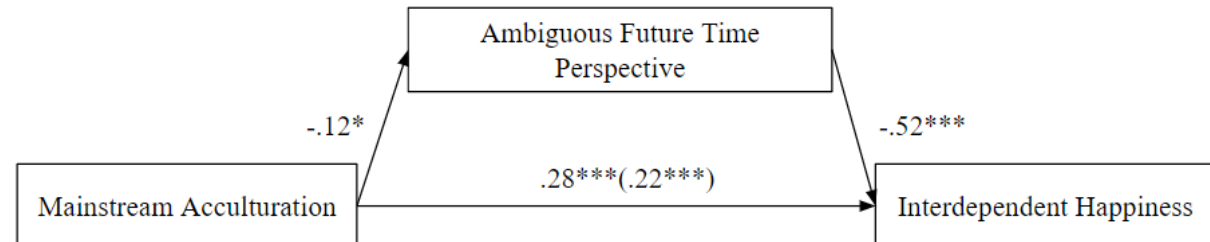


Figure 9. Mediation model of ambiguous FTP between acculturation and interdependent happiness.

\*  $p < 0.05$  \*\*\*  $p < 0.001$

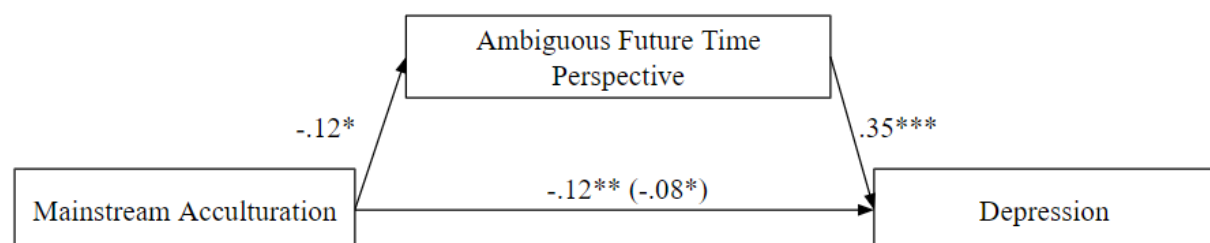


Figure 10. Mediation model of ambiguous FTP between acculturation and depression.

\*  $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$

### 3.5 Exploratory analysis: Thematic analysis

As an exploratory study, thematic analysis was conducted to examine responses to the open-ended question “what are your future concerns?”. There were 97 responses to this optional open-ended question, and the age ranged from 22 to 61 ( $M = 39.09$ ,  $SD = 9.11$ ). No older adults (over 65 years old) responded to this question, therefore, the theme of future concerns in older adults was not investigated. The sample consisted of 83 women (85.6%), 12 men (12.4%) and 2 others (2.1%). The thematic analysis was conducted separately for the younger (22 to 39 years old) and middle-aged (40 to 61 years old) adult groups to explore differences in future concerns by age group. In the younger age group, there were 52 participants ( $M = 32.27$ ,  $SD = 4.93$ ), including 43 women (82.7%), 7 men (13.5%), and 2 others (3.8%). In the middle-aged adult group, there were 45 participants ( $M = 46.98$ ,  $SD = 5.87$ ), including 40 women (88.9%) and 5 men (11.1%). Following process suggested by Braun and Clarke (2006), the process began with translating the data from Japanese to English and familiarizing with the data, and later the initial codes were created using Microsoft Excel software. In the next step, sub-themes were identified, and codes were categorized into these sub-themes. Main themes were subsequently identified and reviewed in relation to each code and sub-theme. Finally, the themes were re-examined, and the final main themes were defined.

#### *Thematic analysis in younger adult group*

In the younger adult group, thematic analysis of 63 responses to the question demonstrated three main themes, 10 sub-themes and 19 codes (see Table 4). The three main themes included Economic stability and immigration, Future living arrangements and planning, and Health and care.

**Economic stability and immigration.** Concerns about economic stability and immigration were the most prevalent in the frequency of responses, with 30 responses. This theme was further divided into three sub-themes: Financial, Work, and Immigration status. Financial concern was the most frequently reported concern, attracting 17 responses. 4 respondents cited concerns with financial matters, such as “income source concerns” (woman, 38 years old) and “insufficient income” (woman, 34). Moreover, 6 respondents highlighted the high cost of living including housing expenses and 4 participants with inflation. In addition, housing loan was one of the future concerns, as 2 responses included “uncertainty about the time when the loan will be paid off” (woman, 36), and “whether I can

buy a house” (woman, 32). Only 1 respondent demonstrated “retirement funds (woman, 36). Work-related concerns were also reported, with 8 responses. Employment and career development were frequently reported with 3 and 4 responses respectively, including responses such as “career development is difficult” (woman, 33). One respondent had concern about instability in academia (man, 25). Furthermore, as respondents were immigrants, 5 responses indicated about their immigration status or condition, citing issues with “concerns about obtaining permanent residence card” (woman, 36) and “the lack of freedom in decision-making until obtaining permanent resident card” (woman, 30).

**Future living arrangements and planning.** Concerns about future living and planning was the second prevalent theme, with 26 responses. This theme encompassed three sub-themes: Residential consideration, Post-return, and After retirement. Residential consideration was the most frequently reported concern, gathering 23 responses. Uncertainty about their future residence was frequently reported with 21 responses. For instance, respondents concerned “whether to settle in Canada or return to Japan” (woman, 30) and “whether it is possible to return to Japan in older age” (woman, 39). Two respondents also concerned about future housing conditions, citing such as “housing crisis” (man, 27). Besides residential concerns, post-return was remarked as a concern, with 1 response indicating “worries about plans after returning home country” (woman, 29). Lastly, concerns about the life after retirement were noted by 2 respondents expressing “worries about older age and retirement” (woman, 36; other, 39).

**Health and care.** Concern about health and care was the least prevalent theme, with 7 responses. This theme was divided into four sub-themes: Psychological, Physical, Medical, and Aging care. Aging care was the most frequently reported concern, attracting 3 responses. Two respondents cited concerns about caring for parents. In addition, 1 respondent concerned about self-care, stating “taking care of myself in my older age” (woman, 29). In terms of psychological health, 1 respondent reported “worries about overall instability” (woman, 37). Physical health was also reported by 2 responses, indicating “it will be difficult to communicate with my partner (English speaker) if I forget English due to dementia” (other, 22) and “whether I can speak a language other than Japanese when I get older and have dementia” (woman, 36). Regarding medical concerns, health



care system was highlighted, with 1 respondent citing “collapse of the health care system” (woman, 39).

Table 4 – Future concerns code frequency grouped by four main themes (younger adults: 22-39 years old)

Economic stability and immigration		Future living arrangements and planning		26 Health and care	7
<i>Financial</i>		30			
Financial matters		17 <i>Residential consideration</i>		23 <i>Psychological</i>	1
High cost of living (including housing)		4 Uncertainty about future residence		21 Worries about overall instability	1
Retirement funds		6 Housing		2	
Housing loan		1		<i>Physical</i>	2
Inflation		2 <i>Post-retirement</i>		1 Communication difficulty due to dementia	2
		4 Plan after returning to Japan		1	
				<i>Medical</i>	1
<i>Work</i>		8 <i>After retirement</i>		2 Medical care system/Medical support	1
Employment		3 Retirement planning		2	
Career development		4		<i>Aging care</i>	3
Instability in academia		1		Self-care in old age	1
				Caring for parents	2
<i>Immigration status</i>		5			
VISA		4			
No free decisions until getting a permanent resident card		1			

*N* = 52. Each participant's response was coded, and included multiple codes from the same sub-theme. Thus, themes overlapped, and a participant could be represented multiple times within a code, sub-theme, or main theme

### ***Thematic analysis in middle-aged adult group***

In the middle-aged adult group, thematic analysis of 54 responses to the question demonstrated four main themes, 12 sub-themes and 24 codes (see Table 5). The four main themes included Economic stability and immigration, Health and care, Future living arrangements and planning, and Social relationships.

**Economic stability and immigration.** Concerns about economic stability and immigration were the most prevalent in the frequency of responses, with 21 responses. This theme was further divided into three sub-themes: Financial, Work, and Immigration status. Financial concern was the most frequently reported concern, attracting 16 responses. Six respondents commonly cited concerns with financial matters and economic aspect, such as “there is a lack of financial security assurance” (woman, 50). Moreover, 2 respondents highlighted the high cost of living including housing expenses and 3 respondents with inflation. In addition, housing loan was one of the future concerns, as response included “uncertainty about buying a house” (woman, 43). Financial matters in older age were also noted, as “pension” was cited by 2 respondents (woman, 52; woman, 41), “retirement fund” by one (woman, 41), and “cost of nursing home in older ages” by one (woman, 45). Work-related concerns were also reported, with 2 responses. For instance, one respondent reported “fear of losing their job” (woman, 46). Furthermore, respondents were as immigrants, 3 responses indicated about their immigration status or condition, citing issues with VISA and concern about language coercion, specifically regarding “the imposition of French language use” (man, 49).

**Health and care.** Concerns about health and care were the second prevalent theme, with 16 responses. This theme was divided into five sub-themes: Psychological, Physical, Medical, Aging care, and Childcare. Aging care was the most frequently reported concern, attracting 6 responses. Respondents frequently cited concerns about caring for parents, with examples such as “caring for parents in Japan” (woman, 44). Furthermore, concern about caring for child with disability was also remarked by 1 respondent (woman, 48). In terms of psychological health, 3 respondents reported anxiety, and 1 respondent demonstrated “ambiguity about the future” (woman, 43). Physical health was also reported indicating “difficulty with long-distance air travel” by 1 respondent (woman, 45) and “I sometimes wonder what I will do if I become a blur and can only speak Japanese” by 1

respondent (woman, 56). Regarding medical concerns, medical care system and medical support in older age were highlighted with 3 responses, such as “poor health care system” (woman, 41).

**Future living arrangements and planning.** Concerns about future living and planning was the third prevalent theme, with 14 responses. This theme encompassed two sub-themes: Residential consideration and After retirement. Residential consideration was the most frequently reported concern, gathering 8 responses. Six respondents expressed uncertainty about their future residence. For instance, they reported “whether to settle in Canada or return to Japan (woman, 40)” and “when to return to Japan permanently” (woman, 49). Additionally, uncertainty as to whether their children will want to live in Japan was also cited by one respondent, as “we (parents) have already made up their minds, but we are worried about whether their children will want to live in Japan” (woman, 40). Two respondents were also concerned about future housing conditions. Lastly, concerns about the life after retirement were noted by 6 respondents as a key concern., with example of “worries about older age and retirement” (woman, 54).

**Social relationships.** Concerns about social relationships were the least prevalent theme, with 3 responses. This theme was divided into two sub-themes: Social network and Family. In terms of social network, 1 respondent reported a lack of social network, with statement indicating that “there is no one to rely on” (woman, 41). Moreover, family concerns were remarked by 2 responses, “concerns about marital relationship” (man, 46) and “worries about life after partner's death” (woman, 59).

Table 5 – Future concerns code frequency grouped by four main themes (middle-aged adults: 40-61 years old)

Economic stability and immigration	21 Health and care	16 Future living arrangements and planning	14 Social relationships	3
<i>Financial</i>				
Financial matters	16 <i>Psychological</i>	4 <i>Residential consideration</i>	8 <i>Social network</i>	1
High cost of living (including housing)	6 Anxiety	3 Uncertainty about future residence	6 Lack of social network	1
Retirement funds	2 Ambiguity about the future	1 Child's desire to live in Japan	1	
Pension	1	Housing	2 <i>Family</i>	2
Cost of nursing home in old ages	2 <i>Physical</i>	2	Marital relationship	1
Housing loan	1 Difficulty with long-distance air travel	1 <i>After retirement</i>	6 Worries about life after partner's death	1
Inflation	1 Communication difficulty due to dementia	1 Retirement planning	6	
	3			
<i>Work</i>	<i>Medical</i>	3		
Employment	2 Medical care system/Medical support	3		
	2			
<i>Immigration status</i>	<i>Aging care</i>	6		
VISA	3 Caring for parents	6		
	2			
Imposition of language use (French)	1 <i>Child care</i>	1		
	Caring for children with disability	1		

*N* = 45. Each participant's response was coded, and included multiple codes from the same sub-theme. Thus, themes overlapped, and a participant could be represented multiple times within a code, sub-theme, or main theme



## **4. Discussion**

The purpose of this study was to examine the relationship between acculturation, social support, future time perspective (FTP), life satisfaction, interdependent happiness, and depression among Japanese immigrants in Canada. The research was conducted online, targeting Japanese population residing in Canada aged over 18 years old. Specifically, the study aimed to explore the correlations between acculturation and FTP, and to test the moderating effect of age on the relationship of social support (sources and types) with psychological well-being (life satisfaction, interdependent happiness, and depression), as well as the moderating effect of age on the relationship of FTP with psychological well-being.

### **4.1 The relationships of acculturation with FTP and well-being**

The relationship between acculturation and FTP showed that mainstream acculturation was positively related to open FTP and negatively related to ambiguous FTP, while heritage acculturation was not significantly correlated with FTP. This suggested that Hypothesis 1 was partially confirmed. These results revealed that mainstream acculturation could be more relevant to FTP than heritage acculturation, predicting higher levels of open FTP and lower levels of ambiguous FTP among Japanese immigrants in Canada. In other words, this finding implies that mainstream acculturation may have a positive effect on future time perspective. Regarding the relationship between acculturation and psychological well-being, only mainstream acculturation was associated with life satisfaction, interdependent happiness, and depression, while heritage acculturation showed no such relationship. This contrasted with previous research, which found that both mainstream and heritage acculturation were predictors of well-being among Japanese immigrants in the United States and middle eastern migrants in Australia (Ando, 2014; Hashemi et al., 2019). The preferred mode of acculturation may depend on mainstream society's attitudes towards multicultural populations and national policies (Kirmayer & Minas, 2000; Shim et al., 2014). Although Canada is one of the most culturally diverse countries in the world, Canada's current society might place more emphasis on whether immigrants have acculturated to mainstream culture to fit into society in Canada. This may lead that mainstream acculturation was significantly associated with psychological well-being among Japanese immigrants to Canada. Given the significant correlations between mainstream acculturation,

FTP, and psychological well-being found in this main study, an exploratory study examined the mediating effect of FTP (open and ambiguous) in the relationships between mainstream acculturation and psychological well-being (life satisfaction, interdependent happiness, and depression). As a result, both open and ambiguous FTP mediated these relationships. Specifically, open FTP fully mediated these relationships, while ambiguous FTP partially mediated these relationships. These results demonstrate that mainstream acculturation was indirectly associated with psychological well-being through the mediating role of open and ambiguous FTP, indicating that mainstream acculturation could enhance psychological well-being through higher levels of open FTP and lower levels of ambiguous FTP. This might be explained by the changes in emotions according to acculturation levels. Liem et al. (2000) demonstrated that individuals who were well acculturated to mainstream culture emphasized emotional calm, ease, or less inclination towards anger and disappointment, whereas those who were less acculturated experienced more feelings of embarrassment and disappointment. Therefore, mainstream acculturation might help improve emotional conditions, promoting emotional ease and reducing disappointment. This, in turn, could help individuals view their future as open and less ambiguous, eventually leading to higher levels of life satisfaction and interdependent happiness and lower levels of depression. Nevertheless, this mediating effect of FTP was conducted as an exploratory study. Future studies should be replicated on the same sample to confirm reliability and on different samples to confirm the generality of these results.

#### **4.2 Moderating effect of age between social support and well-being**

This study showed that there was no moderating effect of age in the relationship of socioemotional support from all sources on life satisfaction, interdependent happiness, and depression, not supporting hypothesis 2. These results indicate that there are no significant differences in the relationship between perceived socioemotional support and well-being variables (life satisfaction, interdependent happiness, and depression) by age. This might be because immigrants, regardless of age, are in a unique situation and therefore highly need socioemotional support. Mental disorders were found to be related to both younger and older immigrants (Jurado et al., 2017). Specifically at the initial stage of migration, the stress of adapting to a new culture and environment and loss of existing social support increase emotional distress (Bhugra, 2004). Therefore, immigrants constantly require higher



socioemotional support to overcome difficulties or stress due to acculturation at any age.

Additionally, Podsiadlowski et al. (2013) demonstrated that socioemotional support was the most important predictor of satisfaction with a sojourn among all-aged individuals (18-57 years old).

Although the hypothesis that the association between socioemotional support and psychological well-being (life satisfaction, interdependent happiness) would be higher in older adults than in younger adults was based on socioemotional selectivity theory, which suggests that individuals pursue emotional goals with increasing age (Carstensen et al., 2011), this might not apply to immigrant groups who might need socioemotional support to combat acculturative stress and increase well-being at any age.

Despite no moderation in the relationship with socioemotional support, age was a significant moderator in the relationship between instrumental support from co-nationals and interdependent happiness. Particularly, the positive effect of instrumental support from co-nationals on interdependent happiness was significant when age was higher, while there was no significant effect in this relationship when age was lower. The positive effect of this relationship among older adults might be explained by their increased concerns about physical and life limitations. Social support can play an important role in buffering anxiety and dissatisfaction associated with the age-related decline in physical and life functioning, and instrumental support in particular has been shown to promote positive mental health (Matsumoto & Tojo, 2001). Instrumental support has also been found to be correlated with happiness or well-being in older adults (Fukase & Okamoto, 2009). Happiness has variances by cultures, but in Japanese context, the social or relational aspect of happiness, in other words, interdependent happiness, is highly valued (Uchida & Kitayama, 2009). Interdependent happiness is a concept that is collectively shared among those belonging to interdependent culture, and it involves relational harmony (Hitokoto & Uchida, 2015). By receiving social support, particularly instrumental support (explicit support), individuals can find connection with others and might enhance their interdependent happiness. Additionally, older immigrants are more likely to retain ethnic or heritage cultures (Remennick, 2002). This research suggests that instrumental support from co-nationals might be beneficial to older immigrants. Also, co-nationals, sharing the same cultural backgrounds, may better understand and assist each other. In contrast, there was no

significant relationship between instrumental support from co-nationals and interdependent happiness among younger adults. This might be because too close contact with co-nationals can interfere cultural adjustment and increase stress (Geeraert et al., 2014). Geeraert et al. (2014) showed that close contact with co-nationals was related to less adjustment, higher levels of stress, and a negative perception of outgroups. Thus, instrumental support from co-nationals might reduce opportunities for interaction with host nationals, leading to less acculturation to the mainstream culture and ultimately resulting in not enhancing interdependent happiness among younger adult immigrants. This result implies that the quality and balance of contact with co-nationals might be crucial for facilitating cultural adjustment and managing stress, especially in the early stages of migration.

#### **4.3 Moderating effect of age between FTP and well-being**

As hypothesized, there was difference in the relationship between limited FTP and depression according to age, supporting Hypothesis 3b. Specifically, the positive relationship between limited FTP and depression was significant when age was higher, while there was no significant relationship when age was lower. This result was consistent with the previous study (Zhang et al., 2023), which demonstrated that the negative effect of constraint on life satisfaction was stronger in older adults compared to younger counterparts. The finding of this study indicates that the more limited individuals view their future, the more depression they gain, and this effect is enhanced with increasing age, even within immigrants' group. This result supports the notion that individuals increasingly perceive their remaining time in life as limited with increasing chronological age, and the perception of anticipated losses in the future may intensify subjective obsolescence and is negatively associated with their well-being (Lang & Damm, 2018). According to socioemotional selectivity theory (Carstensen, 2006), individuals are more likely to make optimal choices for their remaining time and pursue emotionally meaningful goals. This indicates that individuals can adjust their behavior to succeed in their remaining life and achieve emotional goals. However, limited FTP might still have a negative effect on well-being, as individuals with limited FTP face an unknown, uncontrollable, indefinite, and ambiguous end of their personal life, which can be detrimental to their psychological well-being (Lang & Damm, 2018).

Nevertheless, there was no moderating effect of age in the relationship of open and ambiguous FTP with life satisfaction, interdependent happiness, and depression, which did not support Hypotheses 3a and 3c. This result was inconsistent with the previous study showing that the association between extension future time perspective and life satisfaction was stronger in younger individuals compared to older adults (Zhang et al., 2023). The fact that there were no significant differences in the relationship between open and ambiguous FTP and psychological well-being (life satisfaction, interdependent happiness, and depression) according to age might explain that open FTP is vital to enhance well-being of migrants, and ambiguous FTP diminishes their well-being, regardless of age. Migrants are particularly vulnerable to anxiety and depression (Hovey & Magaña, 2000; Potochnick & Perreira, 2010). Culture shock can act as a stressor, causing anxiety, confusion, and emotional disturbance (Bhugra, 2003). Moreover, the unpredictability and instability of policies and societal changes in the receiving country can increase ambiguity of migrants' life (Vezzoli, 2021). Therefore, migrants, regardless of age, tend to experience ambiguity and anxiety in their life. Under these specific stressful conditions, open FTP can be essential for mitigating anxiety and enhancing their well-being across their lifetime, whereas ambiguous FTP might be detrimental to migrants of any age due to their constant uncertainty and ambiguity about the future.

#### **4.4 Exploratory analysis: Thematic analysis**

Through thematic analysis, 3 main themes were established for the younger adult group (22 to 39 years old): Economic stability and immigration, Future living arrangements and planning, and Health and care. For the middle-aged group (40-61 years old), 4 themes were identified: Economic stability and immigration, Future living arrangements and planning, Health and care, and Social relationships. Among these themes, Economic stability and immigration was the most frequently reported theme in both age groups. Especially considering the current global economic changes, inflation, and instability, immigrants may be likely to face challenges in securing economic stability and employment. Participants in both age groups were highly concerned about the high cost of living and housing loan. In particular, middle-aged adults were more concerned about the finance after retirement, including retirement funds, pension, and cost of nursing home in older ages, compared to younger adult group. In terms of work-related concerns, however, many younger adult respondents

had concerns about their career development in business and academia and employment, while only 2 of middle-aged adult respondents reported concerns about employment. Similarly, more younger adult respondents were concerned about VISA or permanent residency card than middle-aged adults. This may mean that building a career is important specifically when being younger, and the instability of immigration status and future ambiguity is likely to be related to employment and career prospects. The concerns regarding work and VISA may limit choices and increase limited and ambiguous FTP. Future living arrangements and planning was the second most frequent theme among younger adults and third most frequent theme among middle-aged adults. Many participants demonstrated concerns about whether they stay in Canada or return to Japan and what they will do when they retire or get older. In particular, younger adults were more concerned about their future residence than middle-aged adults. This uncertainty about the future basement may have a negative effect on their well-being, especially due to the anxiety associated with ambiguity (Nishimura, 2007). In terms of retirement planning, middle-aged adults demonstrated more concerns about their life after retirement than younger adults.

Health and care was the least frequent theme among younger adults and second most frequent theme for middle-aged adults. Middle-aged adults reported more concerns about caring for their parents at an older age than younger respondents. Additionally, both age groups were concerned about medical support and the medical care system. Immigrants often face challenges in caring for their older parents living in a different country, as well as accessing health care systems in the different country of their origin. These concerns might limit their lifestyle choices, potentially leading to limited FTP. Despite Canada's explicit policy of multiculturalism and tolerant society, there might be systematic inequalities in the mental health care of immigrants and ethnocultural minorities, resulting from language problems, cultural misunderstandings, and racism (Kirmayer & Minas, 2000). Moreover, middle-aged participants indicated psychological concerns, such as anxiety and ambiguity about the future, whereas only 1 younger respondent expressed worries about overall instability. Regarding physical concern, both groups reported communication difficulty due to dementia, particularly concerning the potential loss of language proficiency other than their mother tongue as they age. Dementia appears to accelerate the decline of language skills and potentially

affect a severe loss of fluency (Boller et al., 2002; Kemper et al., 2001). This communication challenge in the future can impact interactions with healthcare providers and family members in Canada, posing significant problems for international couples and immigrants. Besides dementia, middle-aged adult respondent concerned about the possible difficulty with long-distance air travel, resulting in the limited international mobility in the future. This factor could be detrimental for aging immigrants who wish to visit their home countries, resulting in increasing the limited FTP. A middle-aged adult notably expressed concern about childcare, especially caring for children with disabilities. Furthermore, there was a unique theme among middle aged adult groups, which was Social relationship. Middle-aged adult respondents aged 46 and 59 were concerned about marital relationships and worries about the life after partner's death. For Japanese immigrants living in Canada because of a partner's country, the loss of a partner could result in a lack of social network, potentially damaging their mental health and well-being. Respondent aged 41 also expressed concern about the lack of social network. These concerns were related to a decrease in social networks when aging (Barnes et al., 2004).

Overall, there were differences in concerns by age group. Younger respondents were more concerned about future residence, work, immigration status, and finance, while middle-aged respondents were more concerned about finance, health and care, retirement planning, children, and social relationships. Specifically, only the middle-aged group reported concerns about social relationships. It may be that as people age, they become more concerned about social relationships. Additionally, physical concerns reported by both age groups also suggest the potential need for instrumental support when individuals age, due to physical decline by age. These concerns may explain that there was a significant and positive relationship between instrumental support from co-nationals and interdependent happiness among older immigrants but not among younger immigrants. Moreover, the result of thematic analysis suggests that participants in this study have immigrant-specific concerns that may increase uncertainty and ambiguity, resulting in limited FTP and ambiguous FTP. Especially, physical concerns about communication, air-travel difficulties and social concerns about a lack of social network in abroad might limit the future, potentially explaining that limited FTP was strongly and positively related to depression among older adults. Furthermore,

although future concerns vary with age, concerns in both groups may be related to the limited FTP and ambiguous FTP. It is indispensable to consider age-related differences in future concerns and explore what can alleviate the limited and ambiguous FTP.

#### **4.5 Limitations and future research**

This study has several limitations that should be addressed in future research. First, the small sample size, specifically of men (12.7% of this study samples), limited the generalizability of the findings. Future studies should include larger and more representative samples to establish the generality of the findings for Japanese immigrants. Furthermore, studies focusing on age-related differences should use equal sample size across different age groups to ensure balanced comparisons. In this study, younger and middle-aged adults comprised much of the sample (49.1% and 48.5% respectively), while older adults comprised 2.4% of the sample size. Additionally, no thematic analysis was conducted on older adults because of lack of a sample of older adults. It is crucial for future research to collect more balanced samples from each age group to examine differences by age. Moreover, this study focused on Japanese immigrants to Canada. The results of this study may apply only to Japanese immigrants in Canada and are not generalizable to immigrant groups. There is a need to expand the scope to encompass other immigrants' group and in other cultures or countries. Future studies should include immigrants with different cultural backgrounds and conduct in different cultures and countries.

Besides the sample size and sample cultural backgrounds, this study was conducted using self-report measures to assess perceived social support. Future research should incorporate qualitative methodologies to further explore the specific types and sources of social support that enhance well-being and reduce depression among immigrants. Additionally, research on FTP of immigrants is highly needed. This study found that open FTP positively correlated with life satisfaction and interdependent happiness and negatively correlated with depression, while limited and ambiguous FTP were negatively associated with life satisfaction and interdependent happiness and negatively associated with depression. However, few studies have focused on FTP and how to enhance open FTP while reducing limited and ambiguous FTP. According to a stressor-support specificity model (Cohen & McKay, 1984), the effectiveness of the supportive aspects within interpersonal relationships depends on specific, identifiable circumstances, particularly when the form of social support provided

matches the coping needs arising from a particular stressor or stress experience. Future research should explore which types of support, and from whom, would be beneficial to enhance open FTP and reduce limited and ambiguous FTP among immigrants.

Furthermore, this study did not study causal relationships. Although this study provided meaningful insights into the relationships between age, FTP, acculturation, social support, life satisfaction, interdependent happiness, and depression, it is limited in suggesting about their causal relationship. Future research should consider conducting a longitudinal study that explores immigrants' acculturation, future time perspectives, social support, and well-being throughout the lifetime of a particular immigrant sample. This longitudinal study would provide more reliable evidence on the relationship between acculturation, FTP, social support, and psychological well-being, considering differences by age.

#### **4.6 Theoretical and practical implications**

This study identified the relationship between mainstream acculturation and FTP. This result may imply that acculturation to mainstream culture is important for having more open FTP and less ambiguous FTP. Additionally, this study indicates that social support is important for well-being of Japanese immigrants. Specifically, instrumental support from co-nationals was positively associated with interdependent happiness among older Japanese immigrants, but there was no significant relationship among younger adult immigrants. This suggests that support providers need to consider age-related differences when providing instrumental support to Japanese immigrants. The result also implies the need for more research on what types and sources of social support predict well-being of immigrants based on age. Furthermore, among older adults, limited FTP was positively related to depression. In other words, older adults who perceive the future as limited are more likely to have depression. It is essential to examine ways to mitigate this relationship, especially in older adults. Since immigrants have different concerns about their future depending on their age, which may lead to limited and ambiguous FTP, it would be crucial to consider these differences in future concerns held by each age group and to find out what and how to reduce limited and ambiguous FTP for immigrants.





## 5. Conclusion

Overall, the present study revealed three main results. Firstly, the more Japanese immigrants were engaged with Canadian culture, the more they perceived the future as open and full of opportunities, and the less ambiguous their perception of the future. Secondly, there were age-related differences in the relationship between instrumental support from co-nationals (involving explicit support and helping behaviors) and interdependent happiness (i.e., happiness focusing on relational nature). While instrumental support from Japanese individuals was not significantly associated with interdependent happiness in younger adults, it was positively and significantly associated with interdependent happiness in older adults. Thus, it is indispensable to understand which social support types and sources predict well-being on specific age groups. Thirdly, there was a significant and positive relationship between limited future time perspective and depression among older adults, whereas there was no significant relationship among younger adults. This result indicates that older people might be more likely to experience depression when perceiving their future as limited and constraint. In addition to these main results, the present study also explored that perceiving future as open and ambiguous mediated the relationship between acculturation into Canadian culture and psychological well-being (i.e., life satisfaction, interdependent happiness, and depression), as an exploratory study. This result implies that acculturation or involvement with more Canadian culture is associated with psychological well-being through the mediating role of perceiving the future as open and ambiguous. In this study, moreover, identified main themes regarding immigrants' future concerns: three main themes among younger adult group (economic stability and immigration, future living arrangements and planning, and health and care) and four main themes among middle-aged group (economic stability and immigration, future living arrangements and planning, health and care, and social relationships). These concerns can lead individuals to perceive the future as limited and ambiguous, which might result in lower levels of well-being and higher levels of depression. Despite limitations in sample size, sample cultural backgrounds, and research methods, the findings highlight the importance of considering age in understanding the relationships between acculturation, social support, future time perspective, and psychological well-being among Japanese immigrants in Canada.



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## **Appendices**

### **Appendix A - Informed consent**

**Study Title:** Cultural Adaptation and Psychological Well-being among Japanese living in Canada

**Researcher:** Postdoctoral fellow Momoka Watanabe (Research Director), Ayaka Naganuma (research assistant), Yuki Tomoda (research assistant), and Mizuki Horiguchi (research assistant)

**Faculty Supervisor:** Professor Andrew Ryder in the Department of Psychology, Concordia University

**Source of funding for the study:** Department Chair Res

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

#### **A. PURPOSE**

The purpose of the research is to understand the cross-cultural adaptation, immigration experiences, and mental health of Japanese people living in Canada. In this survey, (1) those who currently or used to hold a Japanese citizenship, (2) those who have lived in Canada for at least one year, and (3) those who are able to answer and complete the survey in Japanese. (4) Those who are over the age of 18 (There is no upper age limit) are eligible to participate in. This study has been approved by the Academic Research Ethics Committee of Concordia University. (Approval No.: 30019392).

#### **B. PROCEDURES**

If you participate, you will be asked to answer your personal background, your experiences with immigration to Canada, and your mental health. The entire process of your participation in this survey

will be taken on this online platform, Qualtrics. In total, participating in this study will take approximately 30 minutes to one hour.

### **C. RISKS AND BENEFITS**

You might face certain risks or discomfort by participating in this research. Since some questions inquire about difficulties and personal opinions about mental illness, it may lead to awareness of mental health symptoms or evoke some distress in some people. If you feel uncomfortable during your participation, you may withdraw from participation without incurring any disadvantages. Upon exiting the survey, a list of sources is provided for immediate or later reference. You can also contact us, the research team by emailing [acculturation2019@gmail.com](mailto:acculturation2019@gmail.com). The research team will help you explore different options and provide a list of resources in the mental health community.

This research is not intended to benefit you personally. However, the information obtained from your participation will contribute to the increased knowledge and an understanding of the role of cultural factors in perceptions of well-being and mental illness.

### **D. CONFIDENTIALITY**

We will gather the following information as part of this research: your personal background, your experiences and thoughts with immigration to Canada, and your mental health.

We will not allow anyone to access the information, except people directly involved in conducting the research. We will only use the information for the purposes of the research described in this form.

The information gathered will be anonymous. That means that it will not be possible to make a link between you and the information you provide. The survey IDs are automatically generated by an online questionnaire survey platform called Qualtrics, which is securely managed by the Centre for



Clinical Research in Health (CCRH), housed in the Department of Graduate Psychology at Concordia University. Your email will be deleted after the raffle draw is complete. Data collected online and consent forms are transmitted remotely using a Virtual Private Network (VPN) and stored electronically on a computer in the Culture Health and Personality (CHP) laboratory at Concordia University. The lab is locked and accessible only to those affiliated with the lab.

We will protect the information by our research lab with the password and no one other than those directly involved in the research will have access to the files. We intend to publish the results of the research. However, it will not be possible to identify you in the published results. We will destroy the information ten years after the end of the study.

## **E. CONDITIONS OF PARTICIPATION**

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must email the research team ([acculturationproject2019@gmail.com](mailto:acculturationproject2019@gmail.com)) within two weeks after your participation. Please tell us the email address you provided to participate in the study. We will immediately destroy your data.

As a compensatory indemnity for participating in this research, those who wish may enter a drawing for a \$20 gift card for 25 people. Winners will be notified by email, but since the drawing will be held within four weeks of the end of the survey period, it may take some time from the time you respond to the survey until you are notified that you have won. To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on this form. You may also contact their faculty supervisor or the project director (available in Japanese and English, email: [acculturationproject2019@gmail.com](mailto:acculturationproject2019@gmail.com)).

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or [oor.ethics@concordia.ca](mailto:oor.ethics@concordia.ca).

## **F. PARTICIPANT'S DECLARATION**

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

- I agree
- I do not agree

## Appendix B – Questionnaire

### 1. Demographics

1. What is your age?  
\_\_\_\_\_ years old
2. What is your gender?
  - 2-1. Woman
  - 2-2. Man
  - 2-3. Other
  - 2-4. Do not answer
3. Were you born in Japan?
  - 3-1. Yes
  - 3-2. No
  - 3-2-1. In which country were you born? \_\_\_\_\_
4. In which province of Canada do you currently reside?
  - 4-1. Ontario
  - 4-2. Quebec
  - 4-3. British Columbia
  - 4-4. Alberta
  - 4-5. Manitoba
  - 4-6. Saskatchewan
  - 4-7. Nova Scotia
  - 4-8. New Brunswick
  - 4-9. Newfoundland and Labrador
  - 4-10. Prince Edward Island
  - 4-11. Northwest Territories
  - 4-12. Nunavut
  - 4-13. Yukon Territory
5. How long have you lived in that province?  
\_\_\_\_\_ year(s) \_\_\_\_\_ month(s)
6. Have you ever lived in another Canadian province?
  - 6-1. Yes, I have
  - 6-1-1. Which province was it? (If more than one, please select the province in which you have lived the longest) \_\_\_\_\_
  - 6-1-2. How many years did you live in that province? \_\_\_\_\_ year(s) \_\_\_\_\_ month(s)
  - 6-2. No

7. Please select up to 3 countries you have lived in, including Japan and Canada, in order of length of stay, and tell us the length of stay together with the age at which you started living in that country.

7-1. Length of time lived in Japan: \_\_\_\_ year(s) \_\_\_\_ month(s); Age when you started living in Japan: \_\_\_\_ years old

7-2. Length of time lived in Canada: \_\_\_\_ year(s) \_\_\_\_ month(s); Age when you started living in Canada: \_\_\_\_ years old

7-3. Other countries: name of country: \_\_\_\_ year(s) \_\_\_\_ month(s), length of time lived in that country: \_\_\_\_ year(s) \_\_\_\_ month(s) Age when you started living in the other country: \_\_\_\_ years old

8. Please tell us your nationality, and if you have two, please tell us both.

8-1. \_\_\_\_\_

8-2. \_\_\_\_\_

9. What is your current residency status in Canada?

9-1. Canadian citizen (PR)

9-2. Canadian Permanent Resident (PR)

9-3. Spouse Visa

9-4. Working Visa

9-5. Working Holiday Visa

9-6. Student Visa

9-7. Refugee or refugee claimant

9-8. Other (please specify): \_\_\_\_\_

10. How long do you plan to stay in Canada?

10-1. I plan to stay in Canada permanently

10-2. I plan to live permanently in Japan

10-3. I plan to live in both Canada and Japan

10-4. Not sure at this time

11. Please give a brief reason why you came to Canada.

---

12. Which of the categories below do you think the reason written above best fits?

12-1. Work

12-2. Academics

12-3. Family

12-4. Other (please specify): \_\_\_\_\_

13. What was your last level of education?

13-1. Middle School

- 13-2. High School
- 13-3. Junior College
- 13-4. University
- 13-5. Graduate School (Master's Degree)
- 13-6. Graduate School (Ph.D.)
- 13-7. Other (please specify): \_\_\_\_\_

14. What is your current employment status?

- 14-1. Student
- 14-2. Retired
- 14-3. Working full time
- 14-4. Working part time
- 14-5. Housewife/Househusband
- 14-6. Looking for a new job
- 14-7. On leave

15. What is your main area of work now? If you are not currently working, what was your main job in the past?

- 15-1. Agriculture, forestry, fishing
- 15-2. Mining
- 15-3. Construction/Infrastructure
- 15-4. Manufacturing
- 15-5. Electricity & Gas
- 15-6. Transportation
- 15-7. Information & Communication
- 15-8. Sales & Wholesale
- 15-9. Finance/Insurance
- 15-10. Food and Beverage
- 15-11. Service industry (accommodation, hairdressing, etc.)
- 15-12. Real estate
- 15-13. Nursing care and welfare
- 15-14. Medical and health care
- 15-15. Education and research
- 15-16. Entertainment/Arts
- 15-17. Public Administration
- 15-18. Other (please specify): \_\_\_\_\_
- 15-19. No working experience

16. What is your household income (in Canadian dollars)?

- 16-1. Less than \$25,000
- 16-2. From \$25,000 to \$50,000
- 16-3. \$50,000 to \$75,000

16-4. \$75,000 to \$100,000

16-5. More than \$100,000

17. How has your current household changed compared to before Corona? (You may answer this question as you feel it.)

17-1. I feel that my household finances are quite difficult.

17-2. My household finances are rather tight

17-3. Feel that there has been no particular change

17-4. Household finances are rather comfortable

17-5. Household finances are quite comfortable

18. How do you feel about the situation of your household finances?

18-1. Not worried at all

18-2. Not that worried

18-3. Somewhat concerned

18-4. Very concerned

19. Does your current employer offer mental health coverage such as the Employee Assistance Program (EAP)?

19-1. Yes

19-2. No

19-3. I don't know

20. >If 19 yes, what is the nature of the coverage?

20-1. The company I work for hires counselors or other staff, and employees can receive counseling free of charge

20-2. Paid time off to see a counselor or other mental health-related agency

20-3. Partial reimbursement for counseling at outside agencies

20-4. Don't know

20-5. Other (please specify): \_\_\_\_\_

21. What is your current relationship/marital status?

21-1. Never married (no partner)

21-2. Never married (with a partner)

21-3. Married or common-law

21-4. Separated

21-5. Divorced

21-6. Bereaved

22. > If 21. is not 1 or 2, Please describe the cultural background of your partner or former partner

23. How often do you communicate with people living in Japan (family, friends, etc.) using the following methods?

	1 Almost everyday	2 More than once a week	3 About once every two weeks	4 About once a month	5 About once every three months	6 About once every six months	7 About once a year	8 Not at all
Chat in Messages app								
Video call								
Audio-only calls and calls in the app								
Interacting with posts on social media such as Facebook and Twitter								
Email								
Letters/postcards								
Other (please write): _____								

24. Please rate your current language proficiency in each of the languages you have learned (including your native language): listening, speaking, reading, and writing.

1=Very poor 2=Poor 3=Limited 4=Average 5=Good 6=Very good 7=Native level

	Listening	Speaking	Reading	Writing
Japanese				
English				
Others 1				
Others 2				

25. How often do you use each language you have learned (including your native language) for the following activities?

1=Never use 2=Rarely use 3=Sometimes use 4=Use often 5=Use always

	Thinking	Talking to myself	Emotional expression	Home/Family	With friends	School/workplace
Japanese						
English						
Others 1						
Others 2						

26. Please select one of the groups below that you interact with most frequently in Canada.
- 26-1. Canadians born and raised in Canada (\*In this survey, Canadians are defined as people born and raised in Canada, regardless of race.)
- 26-2. Japanese (\*Japanese in this survey is defined as people who were born and raised in Japan and have or have had Japanese nationality.)
- 26-3. Immigrants from other countries residing in Canada (\*Immigrants from other countries in this survey are defined as people who immigrated to Canada from another country and do not have Canadian or Japanese nationality. Example: Korean, and French people living in Canada)



## 2. Scales

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

	1 Strongly Disagree	2 Disagree	3 Slightly Disagree	4 Neither agree nor disagree	5 Slightly Agree	6 Agree	7 Strongly Agree
In most ways my life is close to my ideal.							
The conditions of my life are excellent.							
I am satisfied with my life							
So far I have gotten the important things I want in life.							
If I could live my life over, I would change almost nothing.							

Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things				
2. Feeling down, depressed, or hopeless				
3. Trouble falling or staying asleep, or sleeping too much				
4. Feeling tired or having little energy				
5. Poor appetite or overeating				
6. Feeling bad about yourself or that you are a failure or have let yourself or your family down				
7. Trouble concentrating on things, such as reading the newspaper or watching television				
8. Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual				

Please tell us your thoughts and actions regarding the following three cultures: (1) Japan, (2) Canada (Western) (hereinafter referred to as Canadian culture), and (3) cultures other than Japan and Canada.

"Cultures other than Japan and Canada" here refers to all cultures other than Japanese culture and Canadian culture (Western). (Example: Chinese, Korean, South American, Middle Eastern, etc.) Please select the appropriate number to indicate how much you agree with the following items.

	1 Strongly Disagree	2	3 Disagree	4	5 Neutral/ Depends	6	7 Agree	8	9 Strongly Agree
I often participate in my heritage cultural traditions.									
I often participate in mainstream North American cultural traditions.									
I often participate in other cultural traditions outside of Japan and Canada.									
I enjoy social activities with people from the same heritage culture as myself.									
I enjoy social activities with typical North American people.									
I enjoy social activities with people from cultures other than Japan and Western Canada.									
I am comfortable working with people of the same heritage culture as myself.									
I am comfortable working with typical North American people.									
I am comfortable working with people from cultures other than Japan and Western Canada.									
I enjoy entertainment (e.g., movies, music) from my heritage culture.									
I enjoy North American entertainment (e.g., movies, music).									
I enjoy entertainment (movies, music, etc.) from cultures other than Japan and Canada.									
I often behave in ways that are typical of my heritage culture.									
I often behave in ways that are 'typically North American.'									
I often behave in ways that are typical from a culture other than Japan and Western Canada.									
It is important for me to maintain or develop the practices of my heritage culture.									
It is important for me to maintain or develop North American cultural practices.									
It is important for me to maintain and develop the practices of cultures other than Japan and Western Canada.									
I believe in the values of my heritage culture.									
I believe in mainstream North American values.									

I believe in cultural values other than Japan and Western Canada.									
I enjoy the jokes and humor of my heritage culture.									
I enjoy typical North American jokes and humor.									
I enjoy the jokes and humor from cultures other than Japan and Western Canada.									
I am interested in having friends from my heritage culture.									
I am interested in having North American friends.									
I am interested in having friends from cultures other than Japan and Western Canada.									

Please indicate the degree to which the following statements accurately describe you using the scale from 1. Strongly disagree, 2. Somewhat disagree, 3. Neither agree nor disagree, 4. Somewhat agree, 5. Strongly agree. Please choose one option from below.

	1 Strongly Disagree	2 Somewhat Disagree	3 Neither agree nor disagree	4 Somewhat Agree	5 Strongly Agree
I believe that I and those around me are happy.					
I feel that I am being positively evaluated by others around me.					
I make significant others happy.					
Although it is quite average, I live a stable life.					
I do not have any major concerns or anxieties.					
I can do what I want without causing problems for other people.					
I believe that my life is just as happy as that of others around me.					
I believe I have achieved the same standard of living as those around me.					
I generally believe that things are going well for me in its own way as they are for others around me.					

For each of the following statements, choose the appropriate number from "1. Strongly Disagree," "2. Disagree," "3. Neither agree nor disagree," "4. Agree," and "5. Strongly Agree."

	1 Strongly Disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
I look forward to the future with hope and enthusiasm.					
When I think about the future, I expect good things to happen.					
I have little hope for the future.					
Each new day and season presents me with interesting opportunities.					
I have the sense that time is running out.					
I am beginning to experience that time is limited.					
Increasingly I feel like time is against me.					
I know that I do not have all the time in the world.					
My future is uncertain.					
You cannot really plan for the future because things change so much.					
My future seems very vague and uncertain to me.					
I do not focus on the future because it is so uncertain to me anyway.					

We would like to ask whether you feel that you receive the following types of support from (1) Canadians (2) Japanese (3) people outside Japan and Canada. Please select the appropriate number.

Now think about Canadians who were born and raised in Canada. (Example: Canadian friends, family, colleagues, etc.)

	1 Strongly Disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
Comfort you whenever you feel homesick.					
Listen and talk with you whenever you feel lonely or depressed.					
Share your good and bad times.					
Spend some quiet time with you whenever you do not feel like going out.					

Spend time chatting with you whenever you are bored.					
Accompany you to do things whenever you need someone for company.					
Visit you to see how you are doing.					
Accompany you somewhere even if he or she doesn't have to.					
Reassure you that you are loved, supported, and cared for.					
Provide necessary information to help orient you to your new surroundings.					
Help you deal with some local institutions' official rules and regulations.					
Show you how to do something that you didn't know how to do.					
Explain things to make your situation clearer and easier to understand.					
Tell you what can and cannot be done in Canada.					
Help you interpret things that you don't really understand.					
Give you some tangible assistance in dealing with any communication or language problems that you might face.					
Explain and help you understand the local culture and language.					
Tell you about available choices and option.					

Now think about Japanese people living in Canada and abroad. This includes Japanese nationals living in Japan. (Example: Japanese family/friends living in Canada, family/friends living in Japan)

	1 Strongly Disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
Comfort you whenever you feel homesick.					
Listen and talk with you whenever you feel lonely or depressed.					
Share your good and bad times.					
Spend some quiet time with you whenever you do not feel like going out.					
Spend time chatting with you whenever you are bored.					
Accompany you to do things whenever you need someone for company.					
Visit you to see how you are doing.					
Accompany you somewhere even if he or she doesn't have to.					
Reassure you that you are loved, supported, and cared for.					

Provide necessary information to help orient you to your new surroundings.					
Help you deal with some local institutions' official rules and regulations.					
Show you how to do something that you didn't know how to do.					
Explain things to make your situation clearer and easier to understand.					
Tell you what can and cannot be done in Canada.					
Help you interpret things that you don't really understand.					
Give you some tangible assistance in dealing with any communication or language problems that you might face.					
Explain and help you understand the local culture and language.					
Tell you about available choices and option.					

Now consider immigrants from other countries residing in Canada. (Example: Korean friend, French boss)

	1 Strongly Disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly Agree
Comfort you whenever you feel homesick.					
Listen and talk with you whenever you feel lonely or depressed.					
Share your good and bad times.					
Spend some quiet time with you whenever you do not feel like going out.					
Spend time chatting with you whenever you are bored.					
Accompany you to do things whenever you need someone for company.					
Visit you to see how you are doing.					
Accompany you somewhere even if he or she doesn't have to.					
Reassure you that you are loved, supported, and cared for.					
Provide necessary information to help orient you to your new surroundings.					
Help you deal with some local institutions' official rules and regulations.					
Show you how to do something that you didn't know how to do.					

Explain things to make your situation clearer and easier to understand.					
Tell you what can and cannot be done in Canada.					
Help you interpret things that you don't really understand.					
Give you some tangible assistance in dealing with any communication or language problems that you might face.					
Explain and help you understand the local culture and language.					
Tell you about available choices and option.					

What is your future concern?

## Appendix C – Tables for moderation analysis: social support)

Table C.1 – Regression results for moderation: socioemotional support (host) and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.14
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from host nationals	0.55	0.11	5.02	< .001	
Age	0.00	0.01	-0.04	.97	
Socioemotional support from host nationals x Age	-0.00	0.01	-0.12	.91	

N = 165. Unstandardized regression coefficients are reported.

Table C.2 – Regression for moderation: socioemotional support (host) and interdependent happiness

					R <sup>2</sup>
	Outcome: Interdependent happiness				.15
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from host nationals	0.41	0.08	5.26	< .001	
Age	0.00	0.01	0.25	.81	
Socioemotional support from host nationals x Age	-0.00	0.01	-0.15	.88	

N = 165. Unstandardized regression coefficients are reported.

Table C.3 – Regression results for moderation: socioemotional support (host) and depression

					R <sup>2</sup>
	Outcome: Depression				.05
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from host nationals	-0.16	0.06	-2.76	.01	
Age	-0.01	0.00	-1.20	.23	
Socioemotional support from host nationals x Age	-0.00	0.01	-0.52	.61	

N = 165. Unstandardized regression coefficients are reported.



Table C.4 – Regression results for moderation: socioemotional support (co) and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.08
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from co-nationals	0.46	0.13	3.66	< .001	
Age	0.00	0.01	0.33	.74	
Socioemotional support from co-nationals x Age	0.00	0.01	0.15	.88	

N = 165. Unstandardized regression coefficients are reported.

Table C.5 – Regression for moderation: socioemotional support (co) and interdependent happiness

					R <sup>2</sup>
	Outcome: Interdependent happiness				.07
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from co-nationals	0.31	0.09	3.49	.001	
Age	0.00	0.01	0.58	.56	
Socioemotional support from co-nationals x Age	0.00	0.01	0.10	.92	

N = 165. Unstandardized regression coefficients are reported.

Table C.6 – Regression results for moderation: socioemotional support (co) and depression

					R <sup>2</sup>
	Outcome: Depression				.09
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from co-nationals	-0.23	0.06	-3.75	< .001	
Age	-0.01	0.00	-1.85	.07	
Socioemotional support from co-nationals x Age	0.01	0.01	0.88	.38	

N = 165. Unstandardized regression coefficients are reported.

Table C.7 – Regression results for moderation: socioemotional support (other) and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.08
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from other international migrants	0.41	0.11	3.64	< .001	
Age	0.00	0.01	0.43	.67	
Socioemotional support from other international migrants x Age	0.01	0.01	0.71	.48	

N = 165. Unstandardized regression coefficients are reported.

Table C.8 – Regression for moderation: socioemotional support (other) and interdependent happiness

					R <sup>2</sup>
	Outcome: Interdependent happiness				.08
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from other international migrants	0.29	0.08	3.62	< .001	
Age	0.00	0.01	0.63	.53	
Socioemotional support from other international migrants x Age	-0.01	0.01	-0.90	.37	

N = 165. Unstandardized regression coefficients are reported.

Table C.9 – Regression results for moderation: socioemotional support (other) and depression

					R <sup>2</sup>
	Outcome: Depression				.05
	Coeff.	SE	<i>t</i>	<i>p</i>	
Socioemotional support from other international migrants	-0.15	0.06	-2.63	0.01	
Age	-0.01	0.01	-1.52	.13	
Socioemotional support from other international migrants x Age	0.01	0.01	0.97	.33	

N = 165. Unstandardized regression coefficients are reported.

Table C.10 – Regression results for moderation: instrumental support (host) and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.11
	Coeff.	SE	<i>t</i>	<i>p</i>	
Instrumental support from host nationals	0.48	0.11	4.30	< .001	
Age	-0.00	0.01	-0.38	.71	
Instrumental support from host nationals x Age	-0.01	0.01	-0.58	.56	

N = 165. Unstandardized regression coefficients are reported.

Table C.11 – Regression for moderation: instrumental support (host) and interdependent happiness

					R <sup>2</sup>
	Outcome: Interdependent happiness				.11
	Coeff.	SE	<i>t</i>	<i>p</i>	
Instrumental support from host nationals	0.36	0.08	4.42	< .001	
Age	-0.00	0.01	-0.11	.92	
Instrumental support from host nationals x Age	0.00	0.01	0.15	.88	

N = 165. Unstandardized regression coefficients are reported.

Table C.12 – Regression results for moderation: instrumental support (host) and depression

					R <sup>2</sup>
	Outcome: Depression				.07
	Coeff.	SE	<i>t</i>	<i>p</i>	
Instrumental support from host nationals	-0.18	0.06	-3.16	.002	
Age	-0.00	0.01	-0.91	.36	
Instrumental support from host nationals x Age	-0.01	0.01	-1.03	.30	

N = 165. Unstandardized regression coefficients are reported.

Table C.13 – Regression results for moderation: instrumental support (co) and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.05
	Coeff.	SE	<i>t</i>	<i>p</i>	
Instrumental support from co-nationals	0.33	0.12	2.83	.005	
Age	0.00	0.01	0.22	.83	
Instrumental support from co-nationals x Age	0.01	0.01	0.83	.41	

N = 165. Unstandardized regression coefficients are reported.

Table C.14 – Regression results for moderation: instrumental support (co) and depression

					R <sup>2</sup>
	Outcome: Depression				.06
	Coeff.	SE	<i>t</i>	<i>p</i>	
Instrumental support from co-nationals	-0.17	0.06	-3.00	.003	
Age	-0.01	0.01	-1.64	.10	
Instrumental support from co-nationals x Age	-0.00	0.01	-0.68	.50	

N = 165. Unstandardized regression coefficients are reported.

Table C.15 – Regression results for moderation: instrumental support (other) and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.05
	Coeff.	SE	<i>t</i>	<i>p</i>	
Instrumental support from other international migrants	0.32	0.11	2.85	.005	
Age	0.00	0.01	0.17	.87	
Instrumental support from other international migrants x Age	0.00	0.01	0.35	.73	

N = 165. Unstandardized regression coefficients are reported.

Table C.16 – Regression for moderation: instrumental support (other) and interdependent happiness

					R <sup>2</sup>
	Outcome: Interdependent happiness				.03
	Coeff.	SE	<i>t</i>	<i>p</i>	
Instrumental support from other international migrants	0.16	0.08	2.02	.05	
Age	0.00	0.01	0.29	.78	
Instrumental support from other international migrants x Age	-0.00	0.01	-0.12	.91	

N = 165. Unstandardized regression coefficients are reported.

Table C.17 – Regression results for moderation: instrumental support (other) and depression

					R <sup>2</sup>
	Outcome: Depression				.04
	Coeff.	SE	<i>t</i>	<i>p</i>	
Instrumental support from other international migrants	-0.14	0.06	-2.42	0.02	
Age	-0.01	0.01	-1.49	.14	
Instrumental support from other international migrants x Age	0.00	0.01	0.32	.75	

N = 165. Unstandardized regression coefficients are reported.

## Appendix D – Tables for moderation analysis: future time perspective

Table D.1 – Regression results for moderation: open FTP and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.48
	Coeff.	SE	<i>t</i>	<i>p</i>	
Open future time perspective	0.91	0.08	12.06	< .001	
Age	0.01	0.01	1.17	.25	
Open future time perspective x Age	0.01	0.01	0.63	.53	

N = 165. Unstandardized regression coefficients are reported.

Table D.2 – Regression results for moderation: open FTP and interdependent happiness

					R <sup>2</sup>
	Outcome: Interdependent happiness				.55
	Coeff.	SE	<i>t</i>	<i>p</i>	
Open future time perspective	0.70	0.05	14.07	< .001	
Age	0.01	0.00	1.69	.09	
Open future time perspective x Age	-0.00	0.01	-0.55	.59	

N = 165. Unstandardized regression coefficients are reported.

Table D.3 – Regression results for moderation: open FTP and depression

					R <sup>2</sup>
	Outcome: Depression				.34
	Coeff.	SE	<i>t</i>	<i>p</i>	
Open future time perspective	-0.38	0.04	-8.93	< .001	
Age	-0.01	0.00	-2.43	.02	
Open future time perspective x Age	-0.00	0.00	-0.22	.83	

N = 165. Unstandardized regression coefficients are reported.

Table D.4 – Regression results for moderation: limited FTP and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.03
	Coeff.	SE	<i>t</i>	<i>p</i>	
Limited future time perspective	-0.20	0.10	-1.99	.05	
Age	-0.00	0.01	-0.18	.86	
Limited future time perspective x Age	0.00	0.01	0.32	.75	

N = 165. Unstandardized regression coefficients are reported.

Table D.5 – Regression results for moderation: limited FTP and interdependent happiness

					R <sup>2</sup>
	Outcome: Interdependent happiness				.13
	Coeff.	SE	<i>t</i>	<i>p</i>	
Limited future time perspective	-0.33	0.07	-4.88	< .001	
Age	0.00	0.01	0.46	.65	
Limited future time perspective x Age	0.01	0.01	0.75	.46	

N = 165. Unstandardized regression coefficients are reported.

Table D.6 – Regression results for moderation: ambiguous FTP and life satisfaction

					R <sup>2</sup>
	Outcome: Life satisfaction				.21
	Coeff.	SE	<i>t</i>	<i>p</i>	
Ambiguous future time perspective	-0.67	0.11	-6.28	< .001	
Age	-0.01	0.01	-1.28	.20	
Ambiguous future time perspective x Age	-0.01	0.01	-0.82	.41	

N = 165. Unstandardized regression coefficients are reported.

Table D.7 – Regression results for moderation: ambiguous FTP and interdependent happiness

					R <sup>2</sup>
	Outcome: Interdependent happiness				.30
	Coeff.	SE	<i>t</i>	<i>p</i>	
Ambiguous future time perspective	-0.59	0.07	-8.21	< .001	
Age	-0.01	0.01	-1.35	.18	
Ambiguous future time perspective x Age	0.01	0.01	0.73	.47	

N = 165. Unstandardized regression coefficients are reported.

Table D.8 – Regression results for moderation: ambiguous FTP and depression

					R <sup>2</sup>
	Outcome: Depression				.24
	Coeff.	SE	<i>t</i>	<i>p</i>	
Ambiguous future time perspective	0.36	0.05	6.92	< .001	
Age	-0.00	0.00	-0.21	.84	
Ambiguous future time perspective x Age	0.01	0.01	0.94	.35	

N = 165. Unstandardized regression coefficients are reported.



## Appendix E – Tables for mediation analysis

Table E.1 – Regression results for mediation of open FPT: acculturation and life satisfaction

	Open Future Time Perspective		Life Satisfaction	
	B	SE	B	SE
<i>Total effect</i>				
Constant			2.96 ***	0.40
Mainstream Acculturation			0.35 ***	0.07
<i>Direct effect</i>				
Constant	1.78 ***	0.30	1.43 ***	0.35
Mainstream Acculturation	0.33 ***	0.05	0.06	0.06
Open Future Time Perspective			0.86 ***	0.08
<i>Indirect effect</i>				
Mainstream Acculturation			0.29	0.05
95% Bootstrap CI for ab			0.19	0.39
R <sup>2</sup> =	0.19		0.47	
	F (1, 162) = 37.71 ***		F (2, 161) = 72.43 ***	

N = 165. Unstandardized regression coefficients are reported. 5000 bootstrap samples; LL – lower limit; UL – upper limit; CI – Confident interval. \*\*\*  $p < 0.001$

Table E.2 – Regression for mediation of open FPT: acculturation and interdependent happiness

	Open Future Time Perspective		Interdependent Happiness	
	B	SE	B	SE
<i>Total effect</i>				
Constant			2.09 ***	0.28
Mainstream Acculturation			0.28 ***	0.05
<i>Direct effect</i>				
Constant	1.78 ***	0.30	0.93 ***	0.23
Mainstream Acculturation	0.33 ***	0.05	0.06	0.04
Open Future Time Perspective			0.66 ***	0.06
<i>Indirect effect</i>				
Mainstream Acculturation			0.31	0.05
95% Bootstrap CI for ab			0.20	0.40
R <sup>2</sup> =	0.19		0.55	
	F (1, 162) = 37.71 ***		F (2, 161) = 98.83 ***	

N = 165. Unstandardized regression coefficients are reported. 5000 bootstrap samples; LL – lower limit; UL – upper limit; CI – Confident interval. \*\*\*  $p < 0.001$

Table E.3 – Regression results for mediation of open FPT: acculturation and depression

	Open Future Time Perspective		Depression	
	B	SE	B	SE
<i>Total effect</i>				
Constant			2.34 ***	0.21
Mainstream Acculturation			-0.12 **	0.04
<i>Direct effect</i>				
Constant	1.78 ***	0.30	2.99 ***	0.20
Mainstream Acculturation	0.33 ***	0.05	0.01	0.04
Open Future Time Perspective			-0.37 ***	0.05
<i>Indirect effect</i>				
Mainstream Acculturation			-0.25	0.05
95% Bootstrap CI for ab			-0.35	-0.15
R <sup>2</sup> =	0.19		0.31	
F (1, 162) = 37.71 *** F (2, 161) = 36.57 ***				

N = 165. Unstandardized regression coefficients are reported. 5000 bootstrap samples; LL – lower limit; UL – upper limit; CI – Confident interval. \*\*  $p < 0.01$  \*\*\*  $p < 0.001$

Table E.4 – Regression results for mediation of ambiguous FPT: acculturation and life satisfaction

	Ambiguous Future Time Perspective		Life Satisfaction	
	B	SE	B	SE
<i>Total effect</i>				
Constant			2.96 ***	0.40
Mainstream Acculturation			0.35 ***	0.07
<i>Direct effect</i>				
Constant	3.92 ***	0.28	5.25 ***	0.55
Mainstream Acculturation	-0.12 *	0.05	0.28 ***	0.07
Ambiguous Future Time Perspective			-0.59 ***	0.10
<i>Indirect effect</i>				
Mainstream Acculturation			0.07	0.03
95% Bootstrap CI for ab			0.01	0.13
R <sup>2</sup> =	0.03		0.27	
F (1, 162) = 5.43 * F (2, 161) = 29.02 ***				

N = 165. Unstandardized regression coefficients are reported. 5000 bootstrap samples; LL – lower limit; UL – upper limit; CI – Confident interval. \*  $p < 0.05$  \*\*\*  $p < 0.001$

Table E.5 – Regression for mediation of ambiguous FPT: acculturation and interdependent happiness

	Ambiguous Future Time Perspective		Interdependent Happiness	
	B	SE	B	SE
<i>Total effect</i>				
Constant			2.09 ***	0.28
Mainstream Acculturation			0.28 ***	0.05
<i>Direct effect</i>				
Constant	3.92 ***	0.28	4.11 ***	0.36
Mainstream Acculturation	-0.12 *	0.05	0.22 ***	0.05
Ambiguous Future Time Perspective			-0.52 ***	0.07
<i>Indirect effect</i>				
Mainstream Acculturation			0.09	0.04
95% Bootstrap CI for ab			0.02	0.16
R <sup>2</sup> =	0.03		0.37	
F (1, 162) = 5.43 *			F (2, 161) = 47.59 ***	

N = 165. Unstandardized regression coefficients are reported. 5000 bootstrap samples; LL – lower limit; UL – upper limit; CI – Confident interval. \*  $p < 0.05$  \*\*\*  $p < 0.001$

Table E.6 – Regression results for mediation of ambiguous FPT: acculturation and depression

	Ambiguous Future Time Perspective		Depression	
	B	SE	B	SE
<i>Total effect</i>				
Constant			2.34 ***	0.21
Mainstream Acculturation			-0.12 **	0.04
<i>Direct effect</i>				
Constant	3.92 ***	0.28	0.99 ***	0.28
Mainstream Acculturation	-0.12 *	0.05	-0.08 *	0.04
Ambiguous Future Time Perspective			0.35 ***	0.05
<i>Indirect effect</i>				
Mainstream Acculturation			-0.08	0.04
95% Bootstrap CI for ab			-0.15	-0.14
R <sup>2</sup> =	0.03		0.26	
F (1, 162) = 5.43 *			F (2, 161) = 28.12 ***	

N = 165. Unstandardized regression coefficients are reported. 5000 bootstrap samples; LL – lower limit; UL – upper limit; CI – Confident interval. \*  $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$