

Health behaviors changes during COVID-19: a study of Australian immigrants

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Introduction: The COVID-19 pandemic has disproportionately affected different immigrant groups. The increase in health risk factors in times of COVID-19 has been under-researched, among the immigrant population of Australia. **Objectives:** This study aimed to investigate changes in health behaviors during COVID-19 in South Asian Australian immigrants. **Methods:** An online survey was administered between November 2020 and March 2021 among South Asian immigrants (n=304) to quantify changes in habitual levels of physical inactivity, tobacco and alcohol consumption, internet, and board games use for recreation. **Result:** Most immigrants (40.7%) reported an increase in alcohol consumption while only 5.3% reported a decrease. Tobacco use increased by 38.5 % while decreased by 3.5%. The increase in watching television (66.8%) and internet use for recreation (73.9%) were also noticeable. Physical inactivity increased in 41.1% of the participants and decreased in 32.4%. Participants from the high-income group were significantly associated with an increase in physical inactivity, alcohol consumption, and playing video games ($p < 0.005$). **Conclusions:** Longitudinal tracking is required to understand the effect of these changes in health behaviors and their health consequences in the immigrant population of Australia

Keywords: COVID-19, Immigrants, South Asia, Health behaviors, Australia, Pandemic

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Introduction

World Health Organisation (WHO) declared the COVID-19 outbreak as a global emergency on January 30, 2020 [1]. In a response to minimize the spread of the virus, a range of measures including social distancing, self-isolation, travel bans, cancellation of sporting and other mass participation events, and changes to work practices, have been implemented. The impact of these changes possibly comes at significant personal cost, including the onset, or worsening, of health disorders [2,3]. Available evidence suggests that physical well-being, chronic disease, and mental health, had a communal nature of relationship with key health behaviors such as smoking, physical inactivity, alcohol consumption, and diet [2,3]. The pandemic, along with the effects of social segregation, has detrimental effects on human health behaviors [2,3]. The mandated restrictions concerning engagement in physical activities can consequently contribute to common health disorders. Also, some people may manage social isolation and pandemic-related psychological distress by commencing or increasing smoking, alcohol, and internet use.

During the global COVID-19 pandemic, immigrants are found among one of the most impacted groups [4]. Immigrant race, ethnicity, type of migration, economic conditions, and social ties are mainly linked to the disproportionate impacts of the pandemic [4]. A review reported that chronic diseases and risk factors are presented differently in immigrants and the host populations [4]. While health behaviors are culturally and socio-demographically linked with immigrants' backgrounds [4]. The COVID-19 pandemic disproportionately impacted immigrant communities in the United States due to immigrants' high rates of comorbidities and lack of readily available, affordable, and culturally sensitive healthcare [5]. Despite the documented behavioral difference between immigrants and host populations [6], the increase in health risk behaviors in times of COVID-19 has been under-researched, among immigrant populations in Australia [6]. An increasing number of South Asian immigrants came to Australia from culturally and linguistically diverse backgrounds in recent years [7]. South Asian immigrants have shown differences in their health behaviors and an increased risk for the development of chronic

Diseases compared with the host country population in Australia [7]. It is, therefore, important to examine if the health behaviors of the Australian immigrant population have changed during the COVID-19 period to better understand the outcome consequences of the recent outbreak. This study aimed to explore the changes in health behaviors among South Asian adult immigrants in Australia during the COVID-19 restrictions.

Methods

Study setting and Method: This study was conducted among South Asian immigrants living in Australia. An online survey (from 1st November 2020 to 30th March 2021) was designed to quantify the health behaviors of the South Asian immigrants living in Australia during the COVID-19 pandemic.

Sampling Technique: The survey was disseminated through Simple random sampling. Participants were also approached through institutional and private networks (Twitter, Facebook, website, and mailing list, cultural centres, community gatherings and organizations.

Survey size: 304 participants

Inclusion and exclusion criteria: The study included adult immigrants (aged 18 or older) born in South Asian countries and who had lived in Australia for more than 2 years. Due to differences in their representation within the healthcare system (legal and financial barriers to accessing health care) asylum seekers, and refugees were not included in the study.

Data collection procedure: The changes were assessed in a set of behaviors including physical inactivity, alcohol consumption, tobacco product use, watching television, internet use for recreation, playing video games, and playing board games before and during the pandemic restrictions. A four-point scale was used to record the answer: 1=increased, 2=decreased, 3=No change, and 4=N/A.

Ethical Compliance: The study received ethical approval from the Human Ethics Research Committee of the University of Queensland, Australia (Reference number: 2019001535)

Statistical Analysis: Pearson's Chi-squared test was used to assess the association between changes in behaviors by different participant

Characteristics including gender, age, education levels, work status, income groups, country of birth, and duration of stay in Australia.

Results

Table 1: Characteristics of the analytical sample (n=304)

Variables		Total number (N)	Percentages (%)
Sex	Male	170	56.0
	Female	133	44.0
Age (years)	18-40 years	170	56.0
	>41 years	124	41.0
Employment status	Full-time work	161	53.0
	Part-time work	76	25.0
	Unemployed	66	22.0
Highest educational qualification	Up to diploma	33	11.0
	Graduate	122	40.0
	Post-graduate	149	49.0
Gross annual household income (AUD)	\$0-36,400	76	25.0
	\$36400-93,600	127	42.0
	\$93,600+	100	33.0
Body mass index (BMI)	Healthy weight (<25)	112	37.0
	Overweight and obese (≥25)	192	63.0

Participants (n=304) were aged 18-80 years (M = 40.7, SD = 10.6) with 44% females. Overall, half of the participants (49.0%) had completed a postgraduate degree and 53% worked full-time. Nearly half (42 %) were from the middle-income group.

Approximately two-thirds (63%) were overweight/obese, 26% were current smokers, and 38% were consuming alcohol (Table-1).

During the COVID-19 pandemic, 41.1% of the participants reported an increase in their physical inactivity behaviors while 32.4% reported a decrease. Internet use for recreation was increased by 73.9%; similarly, habits of watching television also increased pronouncedly (66.8%) in the immigrant population.

Increased alcohol and tobacco consumption were also reported by 40.7%, and 38.5%, respectively, of the participants.

Engagement in video games (51.2%) and board games (49.3%) was also increased during the COVID-19 periods (Figure 1).

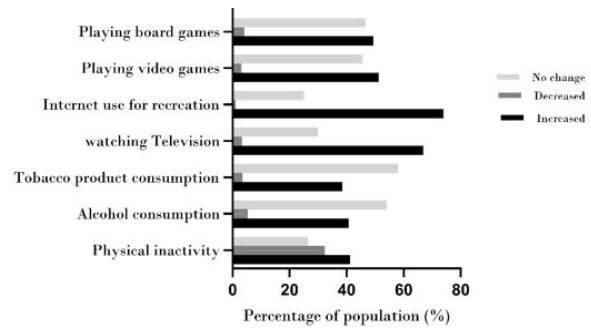


Figure 1. Changes in the health behaviors among south Asian immigrants during COVID-19 restrictions.

Changes in behaviors were not significantly associated with the age or gender of the participants, although male immigrants, compared to their female counterparts, reported slightly higher consumption of alcohol (45.4% and 29.3%, respectively) and tobacco (43.9% and 22.9%, respectively). Changes in some behaviors were significantly associated with participants' household income (Fig 2). Physical inactivity was significantly higher in a higher-income group compared to the lower- and middle-income groups (p<0.001). Similarly, higher-income group immigrants reported higher consumption of alcohol (p=0.001) and playing video games (p=0.035) than their counterparts in lower- and middle-income groups. The analysis did not find any significant association between country of birth and changes in health risk factors.

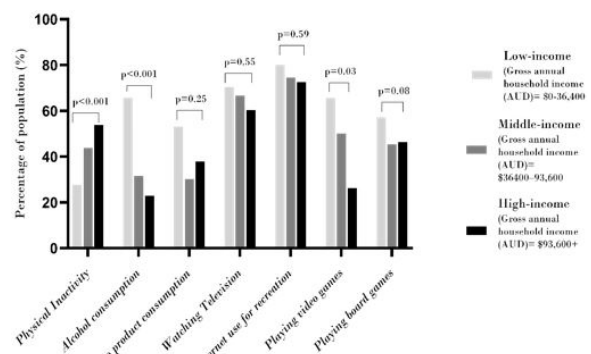


Figure 2. Increases in health behaviors by income groups of south Asian immigrants during COVID-19 restrictions.

Discussion

To the best of our knowledge, this is the first study to report changes in risk

Behaviors during the COVID-19 pandemic among the South Asian immigrant population in Australia. In addition to increasing use of the internet, immigrants reported a considerably high increase in alcohol and tobacco consumption and physical inactivity. Increases in risk behaviors such as physical inactivity, alcohol consumption, and playing video games were more common among immigrants from high-income groups than their counterparts from low- and middle-income groups.

Different studies reported the associations between social isolation and the risk of the development of major chronic diseases or their complications because of the increase in physical inactivity [3,8]. We found that 41.1% of our respondents reported an increase in their physical inactivity behaviors since the onset of the COVID-19 pandemic. Similarly, an increase in physical inactivity (48.9%), was also reported in the Australian general population since the onset of COVID-19 (2). The reported overall decline in physical activity is likely a consequence of social distancing, travel restrictions, the closure of usual exercise places, excessive internet use, or reluctance to change previous exercise habits [9]. However, more research is needed to identify short- and long-term changes in physical activity behaviors because of pandemic restrictions.

We found an overwhelming increase of 73.9% in internet use for recreation during the pandemic among respondents. This increase in internet use among immigrants may be due to its utilization as the only tool to connect with their friends and family living far away. An increase in internet gaming addiction may also result as a consequence of the WHO "Play apart Together" campaign [10]. This campaign suggested that playing video games provides a safe social activity as a stay-at-home strategy. However, excessive use of these activities can lead to significant psychosocial and behavioral problems [11].

Around 38.5% of the participants showed an increase in tobacco consumption during the COVID-19 pandemic. Since COVID-19 is a respiratory illness, and smokers are more susceptible to respiratory tract infections, there is significant potential for adverse events in this population. Furthermore, nearly half (40.7%) of our survey participants showed an increase in alcohol consumption during the period. This is less

Than what a recent study published by Australia's Foundation for Alcohol Research and Education showed. The study reported that 70% of Australians were drinking more than usual since the onset of COVID-19 (2). COVID-19 may not directly lead to an increase in alcohol and tobacco intake, but the stress of getting a COVID-19 infection or having a COVID-19 infection likely to increase negative emotions such as anxiety and depression (12). This anxiety and depression due to pandemic fear, homesickness, and economical concerns may lead to an increase in alcohol and tobacco consumption in immigrants (5).

Immigrants have also reported differences in health behaviors during the pandemic because of their economic situation (5). We found that the participants from high-income groups had a higher increase in their inactive lifestyle, alcohol consumption, and internet use for recreation. Some previous reports suggested that COVID-19 is likely to have significant impacts on people belonging to low-income groups in Australia and U.S (2, 5). However, our findings are not adjusted for potential confounding factors and as such, they may not represent the true relationships. Hence, more research is needed to identify socioeconomic factors affecting short- and long-term changes in health behaviors. The possible adverse effects of the COVID-19 pandemic on health behaviors and risk factors need careful consideration to maintain immigrants' health and wellbeing in Australia.

Conclusions

The present study suggests that COVID-19 pandemic restrictions in Australia may increase health risk behaviors among South Asian immigrants. The risk behavior of physical inactivity, alcohol consumption, and playing video games was more prevalent among immigrants from high-income groups than among immigrants from low- and middle-income groups. There is a need for longitudinal research to understand the short- and long-term impacts of these health behavior changes among the immigrant population.

What does this study add to existing knowledge?

The amount of research pertaining to the impact of Covid -19 on immigrant health behaviors is limited. This is the first study to investigate risk behavior

Changes in South Asian immigrants in Australia during the COVID-19 pandemic. This study is also unique as it examined the change in behaviors like watching television, internet use for recreation, playing video games, and playing board games in the adult immigrant population. Furthermore, this study provides new insight into how immigrant behavior varies in different income groups during the pandemic.

Author's contribution: Mehwish Nisar: Concept, research design, recruitment of participants, data preparation, data analysis, manuscript preparation. **Tracy L Kolbe-Alexander:** research design, manuscript review, supervision. **Asaduzzaman Khan:** Concept, research design, data analysis, manuscript review, supervision.

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