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Impact of pre-departure preparation on the health and wellbeing of Australian gap year travellers

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ABSTRACT

Background: Medical problems are prevalent among young travellers. A quasi-experimental study was conducted to investigate the impact of country-specific pre-departure preparation in the occurrence of medical and psychological problems among Australian gap year.

Methods: Participants were recruited during two periods, 2013-14 and 2017-18 from an organisation that specialises in gap year placements. Based on results of our previous study of the 2013-14 cohort, improvements in the pre-departure preparation were introduced. Demographic, placement, and pre-departure preparation characteristics as well as psychological stressors, coping mechanisms, and medical problems were collected and compared between the two cohorts.

Results: Demographic and placement characteristics were similar between the two cohorts. There was a significant increase in the proportion of travellers that read the briefing material (from 80% to 100%; p-value < 0.001), carried a first aid kit (from 26% to 62%; p-value < 0.001), and accessed information on how to deal with common health problems (from 46% to 61%; p-value = 0.047). All psychological stressors decreased, except for feeling home sick that remained high (72%). Medical problems remained prevalent; half of the gap year travellers sought medical attention, yet there was a significant reduction in sunburn (from 59% to 37%; p-value = 0.040), diarrhoea/food poisoning (from 44% to 21%; p-value = 0.015), weight change (from 41% to 16%; p-value = 0.006), and skin infections (from 38% to 9%; p-value < 0.001).

Conclusions: Gap year travellers are exposed to a wide range of health risks and experience higher proportion of medical problems than standard tourists. A comprehensive country-specific pre-departure preparation had a positive impact on the gap year travellers' wellbeing.

1. Introduction

Over the last decade increasing numbers of young adults are travelling overseas for extended periods after the completion of high school. This "gap year" is typically taken prior to commencing tertiary education or employment. Commercial and not-for-profit organisations facilitate opportunities for participants to undertake volunteer work in developing countries, where they can potentially be exposed to a wide range of health risks (e.g. travel-related infectious diseases, injuries, accidents) in locations where medical infrastructure may be poor. Medical problems are common among gap year travellers [1–4] and these problems may persist after returning home [2,5]. Medical problems may differ across age groups as young travellers are more likely to have risk-taking attitudes [6] and engage in high-risk activities than older travellers.

In our initial study, using data from a 2013-14 cohort of young Australian gap year travellers, we found high prevalence of psychological stressors as well as medical problems that may have been preventable (e.g. sunburn) [1]. Findings from the initial study were reported to the organisation that coordinated the gap year placements. As a result, changes in the pre-departure procedures and on-site support were instigated. Among the most significant changes implemented by the organisation were the introduction of a compulsory country-specific briefing session and a support plan for use in-country for all gap year travellers who had health conditions noted during the pre-departure medical screening. We therefore conducted a follow-up study on a 2017-18 cohort of gap year travellers to investigate changes in the health problems and coping mechanisms they used during their placement as well as to contrast the findings with the 2013-14 cohort of gap year travellers.

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2. Materials and methods

2.1. Study setting and participants

A quasi-experimental study was conducted to assess the effectiveness of the interventions put in place to reduce medical problems and better manage psychological stressors. Gap year travellers from Lattitude Global Volunteering (www.lattitude.org.au), an international youth development non-profit organisation that specialises in gap year placements, were invited to participate in the study. Participants were recruited in Australia during the periods of December 2013 to April 2014 (i.e. 2013-14 cohort) [1] and November 2017 to June 2018 (i.e. 2017-18 cohort).

The same data collection procedures were used for both cohorts, i.e. two online self-administered questionnaires using Qualtrics (www.qualtrics.com), a secure cloud-based data collection and management system. A web-link with the pre-travel questionnaire was sent by Lattitude Global Volunteering to the gap year travellers to obtain demographic data, previous travel experience, placement destination and duration, and pre-departure preparation. Upon return from their placement, a web-link with the post-travel questionnaire was sent to collect information about their experiences overseas, issues around health and wellbeing, and challenges encountered. Two reminders were sent two weeks apart to the gap year travellers who did not respond to the online questionnaires.

The study received the approval of the Human Research Ethics Committee of the Australian National University (2019/460). All the participants provided written informed consent.

2.2. Changes in the pre-departure preparation and on-site support

In 2013–14, before departure, all gap year travellers underwent medical screening by a Medical Advisor. All gap year travellers were invited to a face-to-face generic pre-travel briefing session that covered culture shock, safety and security, practical preparation, and common challenges. If the gap year traveller could not attend the briefing, the material was posted to them to read. Whilst on placement, gap year travellers attended an orientation on arrival and had a dedicated mentor at their placement to support them with day-to-day issues. Gap year travellers were also visited by Lattitude Global Volunteering staff to check on their progress and they had access to a 24/7 emergency number manned by experienced staff from Lattitude Global Volunteering in Australia.

In 2017–18, the compulsory medical screening remained unchanged. The generic face-to-face briefing session was replaced by online compulsory country-specific briefing sessions. If the gap year traveller could not join to the online briefing session, a link of the recording was sent to them. In these sessions the gap year travellers received 1) an overview of the program in their country of placement (e.g. general country information, a typical day at placement, where the placements are located, accommodation); 2) pre-departure essential actions (e.g. visas, passports, medications, vaccines); 3) in-depth country-specific health, safety, and security information; including an electronic version of the book “Travelling Well: The ‘Must Have’ Guide to a Safe and Healthy Journey” [7] and the smartphone app Travel Health Guide [8]; and 4) how to access ladder of support (i.e. first contact placement host, then country manager followed by the coordinator in Australia). During the online briefing sessions, the gap year travellers also saw videos detailing the experiences from returned gap year travellers about key challenges in that country, first impressions, culture shock, reverse culture shock, and communication issues. Gap year travellers also received information regarding post-placement travel (e.g. extending visas, returning home). Lattitude Global Volunteering verified that the gap year travellers understood the information provided in the briefing sessions and read the briefing material, thus an online assessment was introduced, and the gap year travellers had to pass each assessment to continue and complete the pre-departure training.

Another change was the instigation of mandatory and customised support plans for all gap year travellers with identified pre-existing health conditions (e.g. asthma) in case they needed support during their placement. A Medical Advisor examined the gap year travellers, reviewed their medical records and provided a detailed plan of action (medications and recommendations) should the condition deteriorate while on placement. These gap year travellers also received regular follow-ups by country managers.

2.3. Statistical analysis

The dataset was de-identified before statistical analysis. Chi-squared test and *t*-test were used to compare categorical and numerical variables between the 2013-14 and 2017-18 cohorts. All the analyses were conducted in Stata MP 14 (StataCorp, College Station, TX, USA).

3. Results

In 2013-14 and 2017–18, 88 (out of 185) and 86 (out of 104) gap year travellers agreed to participate and completed the pre-travel questionnaire, respectively. Demographics, financial responsibilities, and placement characteristics were similar between the 2013-14 and 2017-18 cohorts. The only difference observed was in the continent of placement; in 2017-18 a higher proportion of gap year travellers were placed in Europe and North America (from 51.1% to 76.7%), while the proportion of gap year travellers to Asia decreased compared to 2013–14 (from 28.4% to 11.6%). However, the difference in placement destination (tropical versus non-tropical [p-value = 0.721] or high income versus mid/low income [p-value = 0.773]) were not associated with the need to seek medical attention by the gap year travellers. There was an increase in the proportion of gap year travellers reporting previous experience in the type of work assigned during the placement (from 22.7% to 34.9%), but this was not statistically significant (Table 1).

Pre-departure preparation improved between the study periods. In 2017–18, 100% of gap year travellers reported reading the briefing material provided by Lattitude Global Volunteering as compared to 80.7% in 2013–14. There was a significant increase in the proportion of gap year travellers carrying first aid kits (from 26.1% to 61.6%), as well as accessing information on how to deal with common health problems (e.g. Dr Deb's Travelling Well book) (from 45.5% to 60.5%). The proportion of gap year travellers that contacted previous gap year participants before their placement decreased by 15.8%. The proportion of gap year travellers attending a specialised travel medicine clinic prior to their placement remained low at 30.2% (Table 1).

The response rate for post-travel questionnaires improved from 38.6% in 2013-14 to 77.9% in 2017–18. The proportion of gap year travellers that engaged in outdoor activities and risky behaviours was similar between cohorts, except for bungee jumping and/or skydiving which was higher in 2017–18. The latter cohort travelled less within the country of their placement (Table 2).

In terms of psychological stressors, feeling homesick remained the main problem faced by gap year travellers. Nearly three-quarters of them reported feeling homesick at some stage during their placement. There was a significant decrease in all other psychological stressors (i.e. culture shock, difficulty communicating, and difficulty with the work assigned). Sixty-two (92.5%) of the gap year travellers in the 2017-18 cohort reported that the coping techniques they used were effective. Between the two cohorts, coping mechanisms employed by the gap year travellers shifted from “mainly trying to work out a solution by themselves” to “communicating with others” and “seeking advice” (e.g. call home to talk to friends/family) (Table 3). Some of the explanations provided by the gap year travellers explaining why their coping mechanism worked were:

Table 1
Gap year travellers' and placement characteristics.

	2017-18 cohort (n = 86)	2013-14 cohort [1] (n = 88)	p-value
Female	63 (73.3)	64 (72.7)	0.937
Mean age (SD)	18.4 (1.1)	18.5 (0.9)	0.512
Nationality			0.872[a]
Australian	83 (96.4)	86 (97.7)	
New Zealander	1 (1.2)	1 (1.1)	
American	1 (1.2)	1 (1.1)	
British	1 (1.2)	0 (0.0)	
Financial responsibility			
Manage their own finances/ budget	72 (83.7)	65 (73.9)	0.112
Pay their own bills (e.g. credit card)	55 (64.0)	49 (55.7)	0.266
Continent of placement			**< 0.001**[a]
Europe	**44 (51.1)**	**30 (34.1)**	
North America	**22 (25.6)**	**15 (17.0)**	
Asia	**10 (11.6)**	**25 (28.4)**	
Oceania	**6 (7.0)**	**11 (12.5)**	
South America	**4 (4.7)**	**0 (0.0)**	
Africa	**0 (0.0)**	**7 (8.0)**	
Mean placement duration in months (SD)	7.1 (3.0)	6.8 (2.7)	0.4889
Type of work during the placement			0.224[a]
School assistant/teacher	46 (53.5)	55 (62.5)	
Outdoor activities instructor	27 (31.4)	23 (26.1)	
Caring/medical assistant	7 (8.1)	9 (10.2)	
Multiple types of work	4 (4.7)	0 (0.0)	
Community worker	2 (2.3)	1 (1.1)	
Previous experience in the work assigned	30 (34.9)	20 (22.7)	0.076
Pre-departure preparation			
Read the briefing material	**86 (100.0)**	**71 (80.7)**	**< 0.001**
Contacted the manager in their designated placement	67 (77.9)	64 (72.7)	0.428
Carried a first aid kit	**53 (61.6)**	**23 (26.1)**	**< 0.001**
Accessed information on how to deal with common health problems	**52 (60.5)**	**40 (45.5)**	**0.047**
Spoke to previous gap year travellers	**44 (51.2)**	**59 (67.0)**	**0.033**
Attended a travel medicine clinic[b]	26 (30.2)	24 (27.3)	0.666

Statistically significant results are in bold.
SD standard deviation.
[a] Fisher's exact test used to compare proportions due to expected cell size assumption not met.
[b] It is compulsory that all gap year travellers pass a medical screening prior to departure. This screening is often done by a general practitioner.

- "Talking to people I trusted and I was close to or that I respected helped me gain different perspectives on situations and comforted me when necessary…"
- "Having another set of eyes looking at a problem helped come up with solutions to get me through."
- "Allowed me to vent any frustrations whilst also finding solutions to any problems. Made me realise that others were in the same boat as I was."

The proportion of gap year travellers that sought medical attention remained high; 46.3% sought medical attention or were admitted to a hospital. However, there was a significant decrease in certain medical conditions including sunburn, diarrhoea/food poisoning, weight change, and skin/wound infection. It is notable that the risk of all of these conditions are modifiable by individual behaviour. Respiratory tract infections (58.2%), stress/anxiety/depression (32.8%), and dehydration (23.9%) remained common medical conditions afflicting the gap year travellers and the rates did not significantly change between the two cohorts. The consumption of analgesics and cold/flu medication increased, while antibiotics decreased. Antimalarial medication use also decreased, probably related to the difference in destinations (2017-18 gap year travellers did not travel to Africa) (Table 4).

Table 2
Activities during the placement.

	2017-18 cohort (n = 67)	2013-14 cohort [1] (n = 34)	p-value
Outdoor activities			
Swimming in the ocean	44 (68.8)	21 (61.8)	0.698
Bungee jumping and/or skydiving	**22 (34.4)**	**2 (5.9)**	**0.003**
Rode a motorbike	8 (12.5)	7 (20.6)	0.248
Scuba diving	1 (1.6)	1 (2.9)	0.999[a]
Travel			
Travelled independently to urban areas	**54 (87.1)**	**33 (97.1)**	**0.031**[a]
Travelled independently to rural areas	**41 (66.1)**	**34 (100.0)**	**< 0.001**
Travelled using guided tours	36 (58.1)	22 (65.7)	0.292
Risky behaviours			
Excessive drinking	42 (65.6)	22 (64.7)	0.842
Smoking cigarettes	11 (17.2)	8 (23.5)	0.387
Use of illicit drugs (e.g. marijuana)	9 (14.1)	3 (8.8)	0.746[a]
Engaged in a 'one night stand'	4 (6.3)	4 (11.8)	0.437[a]

Statistically significant results are in bold.
[a] Fisher's exact test used to compare proportions due to expected cell size assumption not met.

4. Discussion

After the findings from our previous study [1], changes were implemented in the pre-departure preparation of Australian gap year travellers. This follow-up study revealed that young travellers are at high risk of medical problems, but an adequate pre-departure preparation program can have a positive impact on their wellbeing and a reduction of psychological stressors and preventable medical conditions.

Gap year volunteering is a growing industry. The number of organisations that offer placements is increasing and the number of gap year travellers is expected to increase in the future, yet there is currently limited evidence regarding strategies for managing the health risks in this group of travellers. Few studies have focused on young travellers [1,3,5]; nonetheless, they agree that this is a high-risk group that may be more likely to require medical care. Around 50% of young gap year travellers sought medical attention during their placement [1,3], compared to 8% among the 'standard' traveller [9]. This could be the result of gap year travellers undertaking longer trips: volunteers usually stay between 3 and 12 months, compared to a tourist whose average duration of travel is less than a month [10]. Another possible reason for increased need for medical care could be that young gap year travellers are more like to engage in high-risk activities [6]. Interestingly, previous studies reported similar hospital admission rates in young gap year travellers (6%–9%) [1,3] and the 'standard' traveller to developing countries (4–18%) [10]. The apparent contradictory findings may be due to the differences in demographics; gap year travellers are typically young, fit, and without comorbid conditions; whereas studies that examine 'standard' travellers include participants across a wider age range (including elderly persons) and with comorbid conditions which will put them at higher risk of hospital admission. There may also be a lack of confidence in the gap year travellers who may be travelling for the first time without parental support, who may have a lower threshold to seek assistance.

The proportion of gap year travellers that encountered difficulty with the assigned work decreased from 44.1% to 22.4%; likely because

Table 3
Psychological stressors and coping mechanisms during the placement.

	2017-18 cohort (n = 67)	2013-14 cohort [1] (n = 34)	p-value
Psychological stressors			
Feeling homesick	48 (71.6)	26 (76.5)	0.604
Experiencing culture shock	**16 (23.9)**	**18 (52.9)**	**0.003**
Having difficulty communicating with mentor/managers at placement	**16 (23.9)**	**15 (44.1)**	**0.037**
Encountering difficulty with assigned work	**15 (22.4)**	**15 (44.1)**	**0.024**
Having difficulty communicating with fellow gap year traveller	**13 (19.4)**	**15 (44.1)**	**0.009**
Having difficulty communicating with local people	**12 (17.9)**	**17 (50.0)**	**0.001**
Coping mechanisms			
Talking to fellow gap year traveller	51 (76.1)	26 (76.5)	0.969
Calling home to talk to friends/family	50 (74.6)	20 (58.8)	0.104
Trying to work it and manage it myself	**45 (67.2)**	**31 (91.2)**	**0.008**
Talking to placement mentor/manager	19 (28.4)	10 (29.4)	0.912
Talking to locals	13 (19.4)	9 (26.5)	0.416
Talking to gap year provider staff members	6 (9.0)	5 (14.7)	0.501[a]

Statistically significant results are in bold.
[a] Fisher's exact test used to compare proportions due to expected cell size assumption not met.

Table 4
Medical problems during the placement.

	2017-18 cohort (n = 67)	2013-14 cohort [1] (n = 34)	p-value
Sought medical attention	31 (46.3)	19 (55.9)	0.361
Number of visits to the doctor			0.082
0	38 (56.7)	15 (44.1)	
1	13 (19.4)	7 (20.6)	
2	9 (13.4)	2 (5.9)	
3+	7 (10.5)	10 (29.4)	
Medical problems			
Respiratory infections	39 (58.2)	22 (64.7)	0.528
Sunburn	**25 (37.3)**	**20 (58.8)**	**0.040**
Stress/anxiety/ depression	22 (32.8)	10 (29.4)	0.727
Dehydration	16 (23.9)	13 (38.2)	0.132
Diarrhoea/food poisoning	**14 (20.9)**	**15 (44.1)**	**0.015**
Fatigue/exhaustion	13 (19.4)	7 (20.6)	0.888
Weight change (loss or gain)	**11 (16.4)**	**14 (41.2)**	**0.006**
Muscle/joint injury	11 (16.4)	9 (26.5)	0.231
Skin or wound infection	**6 (9.0)**	**13 (38.2)**	**< 0.001**
Animal bite/sting	6 (9.0)	3 (8.8)	0.982
Malaria	0 (0.0)	2 (5.9)	0.111[a]
Head injury	0 (0.0)	2 (5.9)	0.111[a]
Medications used			
Analgesics	**20 (64.5)**	**20 (58.8)**	**0.005**
For cold and flu	16 (51.6)	3 (8.8)	0.104[a]
Antidiarrheal	4 (12.9)	4 (11.8)	0.437[a]
Antibiotics	**4 (12.9)**	**10 (29.4)**	**0.004**[a]
Antimalarial	**2 (6.5)**	**7 (20.6)**	**0.006**[a]

Statistically significant results are in bold.
[a] Fisher's exact test used to compare proportions due to expected cell size assumption not met.

the proportion of gap year travellers that reported previous experienced in the work assigned increased from 22.7% to 34.9%. Although the allocation of work during the placement was not done intentionally to match the skills of the gap year travellers in the 2017-18 cohort, this could have had a positive effect in reducing psychological stressors as they were not exposed to new circumstances (e.g. learning a new skills required for a job).

Findings from the current study highlight the benefit of having robust systems for pre-departure preparation of gap year travellers. Customised information based on the destination, type of work, and problems which have been known to occur in previous cohorts is particularly useful for planning pre-departure programs. Young travellers are familiar with the use of modern technology; however, they are also more likely to use non-medical sources for pre-travel advice [11]. Therefore, a strategy was implemented to provide access to credible information on how to manage common health problems through electronic versions of books (e.g. Dr Deb's Travelling Well book) and smartphone apps.

It is common practice for gap year travellers undergo pre-travel medical screening, but this is usually done by general practitioners or family physicians rather than a travel medicine specialist [1–3,12–14]. The level of expertise for travel health advice however is unlikely to be standard across different general practitioners. Therefore, it is recommended that travellers with challenging trips (e.g. developing countries, volunteer work) receive pre-travel advice from travel medicine specialists.

The findings from the current study should be interpreted in light of some limitations. Low response rate is a common problem among this age group of travellers. Despite having a higher response rate than previous studies [2,3,6] and a significant improvement in the post-travel questionnaire response rate from 39% in 2013-14 to 78% in 2017–18, the rate of loss to follow-up is above the recommended attrition threshold (15%) and could be a source of bias. Randomisation of participants was not possible; however, most demographic and placement characteristics were similar between the 2013-14 and 2017-18 cohorts, except for continent of placement. In our previous study, we did not find an association between country of placement and failure to complete the placement (e.g. due to cultural shock or severe illness) [1]. Although in the current cohort, continent of placement was not (statistically) associated with health outcomes, we cannot rule out it may had an effect on the observed improvement in health outcomes. The proportion of gap year volunteers that travelled to “higher risk” continents (e.g. Asia, South America, and Africa) was two times higher in 2013–14 (36.4%) than in 2017–18 (16.3%); this difference could explain the reduction in some medical problems (e.g. sun burn and diarrhoea) that are known to differ by destination, which could also explain the reduction in antibiotic use in the 2017-18 cohort. It was not possible to assess the adequacy of vaccination in the pre-departure preparation. Findings from previous studies suggest that vaccination in this age group of travellers may be inadequate [15]; hence future studies in gap year travellers should emphasise this aspect during the pre-departure preparation.

In conclusion, our follow-up study confirmed that young travellers are at high risk of medical problems; however, adequate pre-departure preparation did have a positive impact. More research is needed to improve the health and wellbeing of this rapidly growing group of travellers, and we look forward to seeing other organisations adopt similar country-specific pre-departure programs and report their

findings. \

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CRediT authorship contribution statement

Luis Furuya-Kanamori: Methodology, Formal analysis, Data curation, Writing - original draft. **Colleen L. Lau:** Conceptualization, Methodology, Writing - original draft. **Sarah Banks:** Methodology, Data curation, Writing - original draft. **Deborah J. Mills:** Conceptualization, Methodology, Data curation, Writing - original draft.

Declaration of competing interest

The authors do not have any conflicts of interest to declare.

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