Non-infectious Health Risks of Young Adults Serving in International Volunteer Services

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A – the preparation of the research project
B – the assembly of data for the research undertaken
C – the conducting of statistical analysis
D – interpretation of results
E – manuscript preparation
F – literaturere view

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Abstract

Introduction: Young people serving as volunteers in international projects show a different risk profile to "normal" travellers. Data are scarce. While infectious risks were published elsewhere we focus now on non-infectious risks.

Material and methods: 153 questionnaires, obtained from volunteers returning from their project were evaluated. Questions included age, situation abroad (living space and work), travel experience, region of the project, language skills, pre-travel advise, type of problems abroad (accidents, traffic, violence, robbery, sexual assault, psychosocial stress etc.).

Results: Several factors, normally not included in pre-travel advice, cause significant psychosocial stress which decreases a bit during the stay. Special problems are insufficient language skills, (subjective) safety at night, traffic / transport, and violence. Psychosocial stress was the most important reason to stop the activity and to return home ahead of schedule (4% of all volunteers).

Conclusions: Pre-travel advice of young volunteers should include psychosocial factors and other topics additional to infectious diseases, vaccination, and hygiene. Sufficient training in common but minor medical problems (headache, sunburn, minor wounds) is a "must". A comprehensive advice and training may need two days and may be realized in groups of 5 to 12 participants. Health and safety should become a more important topic of all projects.

Keywords: volunteer service, safety, health, pre-travel advice, accidents, violence, psychosocial stress, sexual activity

Introduction

Travel medicine usually focuses on health risks associated with holiday trips or, more rarely, with business travel and expatriates´ situations. Young volunteers, however, who between school and university spend a year or so in projects abroad caring for underprivileged groups, seem to belong to a high-risk group, as judged by travel medicine counsellors in Germany. First studies support [1]. Various schemes to go abroad into social, cultural or environmental projects have pushed annual numbers of such volunteers to more than 10,000 over the last years in Germany and more than 100,000 work worldwide [2]. Such young adults might lack any previous experience of living abroad, or of living on their own and yet be exposed to living conditions holiday makers or business travellers would never encounter. At the same time, support from the organization sending them, any occupational health care or social security provisions might be weak or missing. As literature on health risks of such volunteers was either from well-established agencies like Peace Corps [3,4] or did not fit the age range or exposure time of our clients [5,6], we devised a retrospective questionnaire study to describe health risks, health behaviour and views of returned young adult volunteers. This was meant to be instrumental in selecting relevant topics for preparatory courses. This paper gives a summary of those risks considered not to confer infectious diseases, primarily. The infectious diseases arm of the evaluation has been published elsewhere [7].

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Material and methods

A questionnaire comprising 69 items to be answered in a multiple choice fashion and 13 spaces for individual comments was e-mailed to 745 returnees, who were required to be between 18 and 30 years of age and to have spent 6 to 18 months in a volunteer project abroad in the preceding 7 years. To address returned volunteers, we cooperated with the Cologne-based FID volunteer agency (Freiwillige Internationale Dienste, Voluntary International Services), which since more than 20 years convenes preparatory courses with one of the authors (B.R.) being involved as a facilitator. FID does not contract volunteers, but is mandated to prepare, insure and accompany them by some 20 volunteer organizations, which are mostly church related, comprising dioceses, parishes and charities of widely varying size. Answered questionnaires were to be either e-mailed back to an address created for this purpose only and then passed on without the sender´s mail address or to be sent by letter to one of the medical faculty not involved in the actual data processing. The envelope would then be destroyed and the questionnaire passed on without any possibility for re-identification. Ethics committee clearance was obtained ahead of questionnaire distribution (RWTH Aachen University, EK 133/07).

Replies were then copied into a MicrosoftTM Excel sheet and cross-checked for correct transfer. Statistical aggregation was performed as detailed in the results section. Acknowledging limited comparability of answer sets due to differing years and lengths of stay, analysis for significance appeared unjustified.

Results

Demography and destinations

Of 745 addresses of returned volunteers, 94 (12.6%) were no more operational. We received 173 questionnaires, resulting in a response rate of 26.6%. Of those, 20 responses did not meet the inclusion criteria, so that 153 questionnaires (23.5%) could be evaluated. This quorum consisted of 80 women and 71 men (2 did not specify) and was 20.0 (18-27) years of age. Most of them (146, 95.4%) had left high school, had no experience in long term travel (131, 92.9%) to a tropical or Eastern European country and moderate knowledge of the project country´s language (Fig. 1). For details see Table 1.

Figure 1. Language proficiency over project time (n = 153)

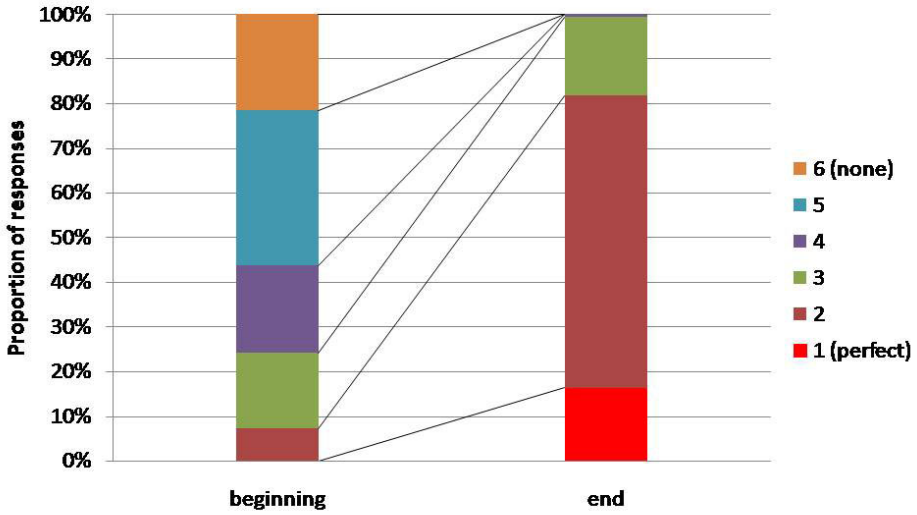


Table 1. Demographic characteristics atonset of project (n = 153)

Category	Subcategory	Number/proportion
gender		80 w, 71 m, 2 not specified
mean age		20.0 y (18-27)

education	high school ("Abitur")	146 (95.4%)
	occupational school ("Realschule")	5 (3.3%)
	basic secondary school ("Hauptschule")	1 (0.7%)
	professional training	14 (9.2%)
	academic degree	4 (2.6%)
self assessedproject language competence (speaking, hearing)	mother tongue = 1	0 (0%)
	2	11 (7.2%)
	3	26 (17%)
	4	30 (19.6%)
	5	53 (34.6%)
	no previous knowledge = 6	33 (21.6%)
long term (> 2 mo) travel experience in a tropical country or Eastern Europe	none	131 (92.9%)
	yes	10 (7.1%)
	if yes, average duration of stay	3.4 mo

This group spent an average of 11.2 months in their projects. 100 (65.4%) went to Latin American countries, 22 (14.4%) into projects in Africa, 15 (9.8%) to Asia and 16 (10.5%) to other destinations, including 5 to Romania, 2 to Sweden, 2 to Australia, 1 to the USA and one each to 6 more European countries. 26 (17.9%) were living at heights of more than 2,500 m above sea level, 5 (3.4%) exceeded 3,500 m, all of them in Latin America. Project details are given in Table 2.

Table 2. Project characteristics (n = 153)

Category	Subcategory	Number/proportion
continent of project	Latin America	100 (65.4%) Bolivia: 23, Brazil: 17, Chile: 13, Nicaragua: 8, Ecuador: 8, Argentina: 7, Mexico: 7, Honduras: 5, Peru: 5, Guatemala: 3, El Salvador, Colombia, Paraguay, Chile + Bolivia, Latin America (unspecified): 2
	Africa	22 (14.4%) Kenya: 5, Zambia: 4, Tanzania: 4, South Africa: 3, Uganda: 2, Burkina Faso, DR Congo, Ghana, Namibia
	Asia	15 (9.8%) India: 6, Bangla Desh: 5, Nepal: 3, Philippines
	others	16 (10.5%) Romania: 5, Australia: 2, Sweden: 2, Estonia, France, Great Britain, Italy, Lithuania, USA, Hungary
no. of inhabitants in project community	> 1 million	33 (21.9%)
	> 100,000 to 1 million	37 (24.5%)
	> 20,000 to 100,000	25 (16.6%)
	> 5,000 to 20,000	9 (6.0%)
	> 500 to 5,000	28 (18.5%)
	< 500	19 (12.6%)
project community elevation	< 0–0 m sea level	2 (1.4%)
	> 0–1,500 m	84 (57.5%)
	> 1,500–2,500 m	33 (22.6%)
	> 2,500–3,500 m	5 (3.4%)

Work, accommodation and safety in the host country

Main project activities covered a wide spectrum. Categories mentioned most often were educating and supervising (e.g. at schools): 116 (75.8%), playing sports and games: 98 (64.1%) and office work: 45 (29.4%), but also included repair work: 23 (15.0%), caring for sick and old people: 13 (8.5%) and protecting the environment: 5 (3.3%). We asked for involvement in risk-prone activities. Wound care was mentioned by 33 respondents (37.5%), caring for the sick by 18 (20.5%), rendering first aid by 11 (12.5%), working on scaffolds and trees by 14 (15.9%), disposing of waste, sewerage and faecal material by 30 (34.1%). More details are given in Table 3.

Table 3. Risk-prone project activities

Activity	No. of responses
wound care	33 (37.5%)
disposing of waste, sewerage and fecal material	30 (34.1%)
car driving during daytime	30 (34.1%)
animal contact	23 (26.1%)
working with instruments or machines that can cause injuries	22 (25.0%)
caring for the sick	18 (20.5%)
working on scaffolds and trees by	14 (15.9%)
car driving at nighttime	12 (13.6%)
rendering first aid with accidents	11 (12.5%)
servicing electric or gas appliances	7 (8.0%)
other	6 (6.8%)

Accommodation was usually in a separate room (110, 74.8%), but was shared with one (24, 16.3%) or more persons (13, 8.8%). This room could not be locked with 18 respondents (11.9%), wasn´t locked although it could be with 77 (51.0%), was locked at nighttime with 15 (9.9%) and was always kept locked with 41 (27.2%). 27 (18.2%) reported thefts (money, electronic equipment, travel documents) from their rooms. Toilet facilities were mostly Western style, but far more simple at the place of work (Fig. 2). While in the street, volunteers experienced a feeling of security at daytime, but this waned considerablyat night (Fig. 3).

Figure 2. Toilet facilities at place of residence and place of work (n = 153)

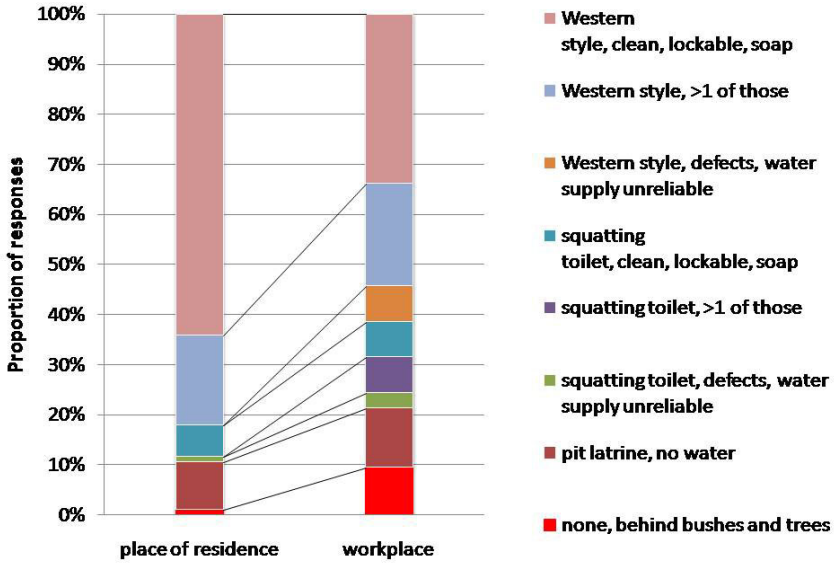
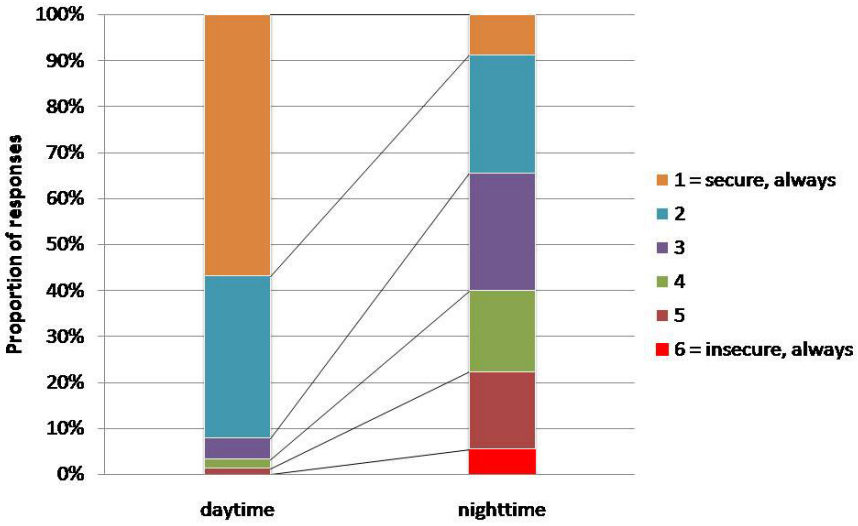


Figure 3. Feeling of security at day- and nighttime (n = 151/148)



Illness abroad

Among volunteers, illness of variable significance and cause occurred during project time. As this paper refers to non-infectious health risks only, we refer readers interested in the disease spectrum presumed to be infectious to the corresponding publication [7], again. Injuries requiring a physician´s treatment happened once per half year to 38 volunteers (26.0%), quarterly to 11 (7.5%) and monthly to 4 (2.7%). Road traffic accidents happened half-yearly to 16 (10.7%), quarterly to 1 (0.7%), but not at all to most volunteers (153, 88.7%). Accidents at work or at home were more frequent, happening half-yearly to 31 (20.7%) and quarterly to 6 (4.0%).

Among health problems we specifically asked for, sunburn was mentioned most frequently. It happened monthly to 20 (13.2%), quarterly to 62 (41.1%) and half-yearly to 49 (32.5%) of volunteers. Dental problems happened to 5 volunteers once in a month (3.4%), to one (0.7%), once in a quarter and to 24 (16.3%) once in half a year. Skin eruptions, headache and allergies were listed less common. Psychiatric disease was a problem for 12 volunteers, but was not mentioned under pre-existing diseases, however. Medication was taken from what was brought along or from other volunteers, but also locally acquired by ¾ of volunteers, in part on a monthly basis. 16 (10.8%) were subjected to examinations involving x-rays, 17 (11.1%) went for a dentist, 9 (5.9%) were admitted to a hospital, though none to ICU. Traditional treatment was employed monthly by one (0.7%), by 8 (5.4%) once a quarter, by 21 (14.2%) once in half a year. Physical diseases made few volunteers think of leaving for good: 9 (5.9%) had such thoughts once per half year, one (0.7%) once daily, even. By far more often did psychiatric disorders or complaints induce such thoughts. This will be elaborated upon in the psychosocial stress section later.

Transport and traffic

The role of different means of transport is highlighted in Table 4. This shows considerable variation by continent, as trains for interurban transport were largely used in “other” destinations than Asia, Africa and Latin America, whereas in those three, buses and, in the case of Africa, collective cabs predominated. Some 80% judged the means of transport not roadworthy by European standards, with the exception of the “other” destinations comprising many European, US and Australian destinations. Of those 85 volunteers who were surprised by other people´s behaviour in road traffic, 9 (13.2%) said they were shocked by it. 113 (76.9%) of 147 volunteers answering that question admitted to behaving more risky than at home, 19 (13.0%) to even far more risky.

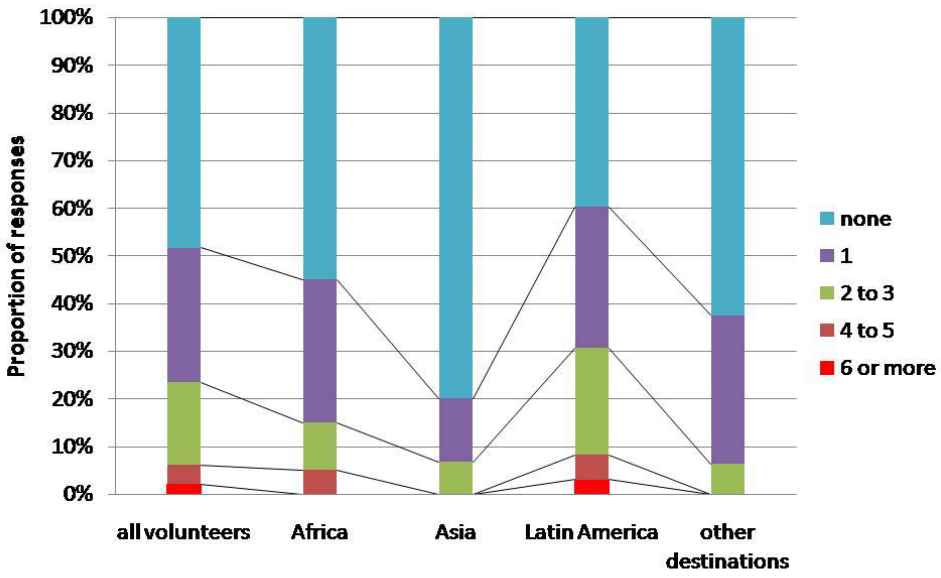
Table 4. Modes of transport

Mode of transport	Short distances, in town	Long distances
bicycle	47 (30.7%)	10 (6.5%)
car, as a passenger	39 (25.5%)	72 (47.1%)
car, as a driver	22 (14.4%)	24 (15.7%)
motorbike, as a passenger	8 (5.2%)	11 (7.2%)
motorbike, as a driver	5 (3.3%)	5 (3.3%)
public bus	85 (55.6%)	136 (88.9%)
private collective taxi	42 (27.5%)	42 (27.5%)
taxi	40 (26.1%)	12 (7.8%)
train	6 (3.9%)	18 (11.8)
horseback, cart	1 (0.7%)	1 (0.7%)
walked, only	26 (17%)	1 (0.7%)

Sexual activity

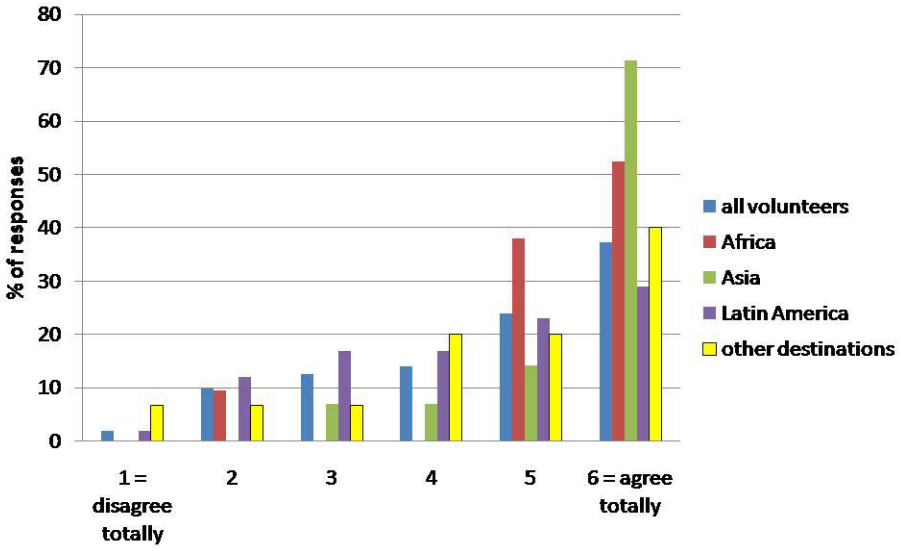
We asked for new sexual partners during project time, specifically excluding partners from at home who might be visiting. Usually, sexuality is seen in the context of acquiring infections. We include these data here as they relate to unwanted pregnancies and possible psychosocial stressors as well. Roughly half of all volunteers (51.7%) had such new partners. Of those 77 who had, 42 (54.5%) had one new partner, 26 (33.8%) had 2 to 3, 6 (7.8%) had 4 to 5 new partners and 3 (3.9%) had 6 or more new partners (Fig. 4). These were local inhabitants in 83.1%, European volunteers in 28.6% and others in 5.2% of answers. Numbers of new partners showed considerable regional difference (Fig. 4). Contraceptive methods employed were condoms (71, 92.2%), oral contraceptives (24, 31.2%) and diaphragm (1, 1.3%). When asked for pregnancies, 32 of the 80 women (40%) did not answer. Of those 48 who did, one (2.1%) got pregnant and induced abortion in Germany, one more (2.1%) had a delayed and more intense bleeding but did not undergo pregnancy testing.

Figure 4. No. of new sexual partners abroad (n = 149; 20; 15; 98; 16)



When asked whether the idea of sexual abstinence during project time was realistic, 56 (37.3%) totally agreed, whereas 3 (2.0%) totally disagreed, again with some regional disparity (Fig. 5).

Figure 5. Is sexual abstinence during project time realistic? (n = 150)



Accidents and violence

Of those 151 who answered the question, a majority of 94 (62.3%) saw grave accidents happening to the population around, 79 (52.3%) observed this happening to friends. 6 (4.0%) suffered from such accidents themselves.

When asked for interpersonal violence, robbery or kidnapping, 145 volunteers answered. Only a minority of 52 (35.9%) had not witnessed this happening in the population around, while 17 (11.7%) said they did so once a day or once a week. Among their friends, they saw this happening more rarely, with answers "never" or "once per half year" amounting to 97 rsp. 66.9% of responses. As for themselves, 103 (71%) said they never fell victim to such violence, while 10 (6.9%) and 32 (22.1%) experienced this quarterly or once in half a year. Volunteers to Asia amounted to only 15 (10.3%) of respondents. They scored the highest "never" percentage in all violence exposure questions.

As for sexual violence and harassment, 91 of 153 respondents (59.5%) never saw this happening in the population, whereas 13 (8.5%) said they saw it happening once per week or per month. For witnessing such violence among friends, these figures shifted to 103 (67.3%) and 10 (6.5%), respectively. Falling victim to sexual violence and harassment themselves was stated to happen once in a month for 1 (0.7%), once or once per half year for 5 (3.3%) and never for 147 (96.1%). Those 64 of 153 (41.8%) who either saw or suffered sexual violence happening, we asked who were the perpetrators. 54 (84.4%) said they were unknown to them, 11 (17.2%) mentioned the clients of the project, 9 (14.1%) police, teachers or soldiers, 4 (6.3%) project employees, 1 (1.6%) another volunteer and 18 (28.1%) others, among them host family members (9, 14.1%), neighbours (4, 6.3%), priests (2, 3.1%) and acquaintances (2, 3.1%). There was no clear cut regional tendency to be observed.

We asked those 74 exposed to accidents, interpersonal or sexual violence for posttraumatic stress disorder (PTSD) symptoms. 33 (44.6%) mentioned flashbacks, 22 (29.7%) psychological repression, 29 (39.2%) depression and 13 (17.6%) feelings of guilt and self accusation. 35 (47.9%) said this lasted for a maximum of one week, with 16 (21.9%) for one month, with 11 (15.1%) for all the time in the project and for another 11 (15.1%) beyond. Asia and "other" volunteers seemed to cope better than Latin American and especially African ones.

Psychosocial stress

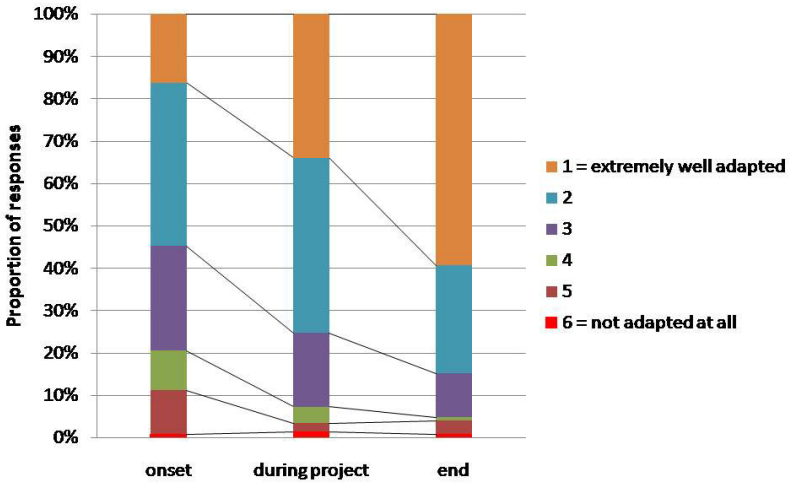
Disorders judged by volunteers to be psychological in origin were stated by 12 of the 147 (8.2%) who answered that question. 4 (2.7%) said they felt such symptoms daily, weekly or monthly. More than a quarter of volunteers thought of leaving for good because of any psychological symptoms: one (0.7%) thought of leaving the project prematurely every day, 3 (2.0%) once per week, 1 (0.7%) once per month, 5 (3.3%) every quarter and 31

(20.3%) once every half year.

We studied three potential sources of psychosocial stress – adaptation to living conditions, adaptation to project demands, and any feeling of social isolation, asking to rate their experience on a scale from 1 to 6 in each case. As for adaptation to living conditions in general, there was continuous improvement over time, with 84 of 153 respondents (55%) very well or extremely well adapted from the beginning, a proportion increasing to 115 (75%) during project time and to 130 (85%) towards the end. However, single responses stated at any time that they failed to adapt (Fig. 5). There was not much regional difference to be observed.

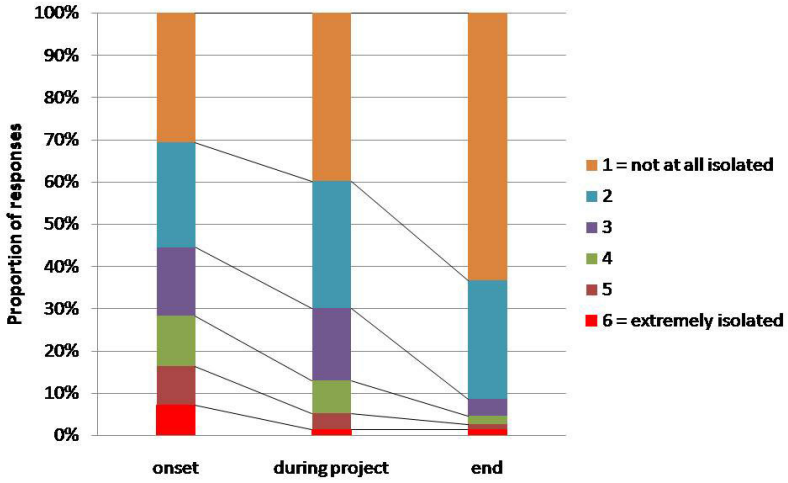
Concerning adaptation to project demands, the overall picture was similar: over time, 55 (36%), 92 (60%) and finally 123 (80.4%) considered themselves very well or extremely well adapted. However, 29 (19%), 7 (4.6%) and 7 (4.6%) were not adapted at all, very badly or bad adapted as project time went on. Again, there were no significant regional differences.

Figure 6. Adaptation to living conditions in host countries over project time (n = 153)



We then asked whether volunteers felt socially isolated at the beginning, in the course of and at the end of their stay, again giving them a scale from 1 ("not at all") to 6 ("totally"). Considerable or complete isolation was stated by 25 (16.3%), 8 (5.2%) and 4 (2.6%) of 153 respondents during these phases, respectively (Fig. 7). After the initial phase, none of the 15 volunteers in Asia felt isolated, but 12 (12%) and 3 (3%) of 100 Latin American volunteers did ($P < 0.01$), and 7 (31.8%) and 3 (13.6%) of 22 volunteers to Africa ($P < 0.01$).

Figure 7. Feeling of social isolation over project time (n = 153)



Of 142 respondents, 3 (2.1%) ended their projects prematurely for health reasons, 5/140 (3.5%) said "other" reasons made it impossible to finish their time abroad as planned. About 4% returned home ahead of schedule because of psychic problems. Concerning health risks, 117/140 (80.7%) would not change their behaviour if volunteering again. 24 (16.6%) would be more and 7 (4.8%) less cautious.

Discussion

Sharp et al. (1995) reported on pre-departure advice sought by 84% of European workers in Somalia [8]. On the other hand Han et al. found that only 19% of Americans < 18 years who travelled to unindustrialized countries received pre-travel advise and this was mainly purely for immunizations [9]. Obviously professional workers vs. young people are the extremes on the scale, while "normal" tourists to developing countries contact their physician for advice in 50-83% [10-14]. This difference between the groups and data published elsewhere [1] indicate the demand for specific advice for young volunteers in international projects. This situation is even more pronounced since only 24% of those young people who contact a physician for advice get it by a doctor specifically trained in travel medicine [15]. A significant portion gets the information by internet only or other sources which do not differentiate between "normal" travellers and young people or specific local risk factors [11-13,16,17]. Herewith specific aspects of young adults, long-term travel or work in social projects, get insufficient attention. This is in contrast to the actual study group which at least gets some specific advise how to organize their stay abroad as safe as possible. However, knowledge about specific risks is scarce and therefore the advice is still limited.

After conducting the medical part of preparation courses for young volunteers over many years, we found the risks incurred by project work in different countries and by personal behaviour were ill defined. Inferring them from what we know of travellers seems unconvincing, as young volunteers in international social projects usually are younger and less experienced than the average traveller they stay for much longer time and indulge in a range of more or less risk prone activities other than tourists do. We devised a questionnaire administered to young adults having returned from volunteer service previously. The 16-page document comprised many questions as to preparation, equipment, living and working conditions, exposure to infectious and non-infectious risks, sexual behaviour, violence witnessed or suffered, illness abroad, and health care required.

Results related to infectious diseases have been reported elsewhere [7]. We here focus on results without obvious relationship to infection, largely those related to accidents, exposure to violence and psychosocial stress.

One stress factor may be the sexual behaviour which is riskier in the group of volunteers than in other groups of travellers. The amount of sexual contacts varies over a wide range in different studies about travellers. While some report 5% of travellers only 20 [18,19], others report about 32% in medicine students [20,21] or 35% in British tourists at Tenerife [21]. Red Cross expatriates who stay at least 6 months abroad are within the same range (29%) [22]. Interestingly there are minimal differences between men and women [21,23]. Our results are comparable to these earlier studies. However, those 77 volunteers reported a minimum of 42 x 1 + 26 x 2 + 6 x 4 + 3 x 6 = 136 new partners. This indicates that sexual risk behaviour should definitively be addressed in training courses for volunteers.

Rarely addressed but ubiquitous are stress factors induced by the social situation. A notable portion of volunteers has insufficient language skills for the region of interest. This increases stress and social isolation and slows down the adaptation to the living conditions in the host countries. Part of the latter is also the hygienic situation, especially at the place of the project. A special problem is the subjective feeling of safety at night. This should be addressed specifically and include several different aspects as there are safety for pedestrians (groups only, avoid dark and/or regions known to be dangerous), safety at home (lock door and windows safe), prefer cars and never stop in unclear situations, and others. The amount of about 4% of volunteers who stopped their activity and returned home ahead of their schedule indicates how important this topic is – for the volunteers who may develop posttraumatic stress disorder and for the project, because of the costs and the necessity to find someone else immediately to continue the work for the project.

To our surprise traffic was obviously a minor objective problem, although most participants reported that they were shocked about the risk behaviour of the locals when being part of the traffic, independent from the kind (pedestrian or [taxi] driver). However, although the number of traffic accidents is relatively low this problem should be addressed, especially when the traffic direction differs from those at home (left hand traffic for persons from countries with right hand traffic and vice versa).

Limitations

Questionnaire length may have affected participation rate, but some delicate questions as to preparation, psychiatric symptoms, sexuality and unwanted pregnancies may have had a similar effect. Fears of being identifiable as the only volunteer in a small country in a specific year may have added to that. In a way, the study rather was intended to find the most relevant risks with the intention to place more emphasis on them during preparation.

It is possible that volunteers sent by smaller differ concerning their pre-travel training from larger institutions. In future studies organizations like Red Cross, Malteser (formerly Catholic) or Johanniter (formerly Protestant) should be included for comparison. It is also possible that the cooperation between FID and mostly

roman-catholic institutions (especially in South America) may have caused a bias. This may be also excluded when non-confessional institutions are included in future studies.

The low response rate and the delay between the stay abroad may have caused a bias, although such recall bias should be small here since an accident, violence or other significant incidences abroad and investigated here will unlikely cause a relevant recall bias. However, future studies should be planned prospective and the questionnaire integral part of the training and programme.

Conclusions

Pre-travel advice for young people working in international projects should not be limited to topics like infection, hygiene, and vaccinations. It should also include a proper preparation of language skills, cultural factors, traffic and traffic accidents, sanitary conditions (especially at the place of the project), sexual risk behaviour, and personal safety. Dependent on the region and the season the latter includes violence or robbery, safety at home and at night, safety when going or driving somewhere (especially at night), emergency routes, behaviour and communication in case of hurricane, flooding or other disasters, and other topics. We estimate that a proper training in all skills needed for health and safety for a longer stay abroad needs at least two full days. Whenever a person should go for a project again this training may be shortened significantly. However, actual and specific advice is necessary in any case, also when the next project will take place in the same country than the last one. A very important and often neglected topic is an emergency plan where to go in the case and how to organize an evacuation if necessary.

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Conflict of interest

There is no conflict of interest for any of the authors.

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