

Report of second Global School-based Student Health Survey in Myanmar (2016)



REGIONAL OFFICE FOR

**World Health
Organization**
South-East Asia

Report of second Global School-based Student Health Survey in Myanmar (2016)

Ministry of Health and Sports

The Republic of the Union of Myanmar

and

World Health Organization

Regional Office for South-East Asia,
New Delhi, India

August 2018



REGIONAL OFFICE FOR

**World Health
Organization**

South-East Asia

This survey and report have been made possible by the joint efforts of the United States Centers for Disease Control and Prevention (CDC), the World Health Organization Regional Office for South-East Asia and the Ministry of Health and Sports, The Republic of the Union of Myanmar.

Online repositories for Myanmar GSHS can be found at:

www.cdc.gov/gshs/countries/seasian/myanmar.htm

www.who.int/chp/gshs/myanmar/en/

<http://www.searo.who.int/nts/publications>

<https://nada.searo.who.int/index.php/home>

Previous survey report: Ministry of Health, Union of Myanmar. Myanmar Global School-based Student Health Survey 2007. Nay Pyi Taw: Ministry of Health and Sports, the Republic of the Union of Myanmar; 2008 (<http://www.searo.who.int/nts/publications>)

Report of the second Global School-based Student Health Survey (2016) in Myanmar

ISBN: 978-92-9022-659-8

© World Health Organization 2018

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition".

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization.

Suggested citation: Report of the second Global School-based Student Health Survey (2016) in Myanmar. New Delhi: World Health Organization; 2018. World Health Organization, Regional Office for South-East Asia and Ministry of Health and Sports, Republic of the Union of Myanmar Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at <http://apps.who.int/iris>.

Sales, rights and licensing. To purchase WHO publications, see <http://apps.who.int/bookorders>. To submit requests for commercial use and queries on rights and licensing, see <http://www.who.int/about/licensing>.

Third-party materials. If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

Cover photo credit: Dr Win Lae Htut

Printed in India

Contents

Acknowledgements	v
Abbreviations and acronyms.....	vi
List of tables	vii
Foreword by Director General	viii
Foreword by the WHO Regional Director for South-East Asia	ix
Executive summary	xi
1. Introduction.....	1
1.1 Background.....	1
1.2 Objectives	2
2. Methods.....	3
2.1 Sampling of schools.....	3
2.2 Questionnaire and its administration.....	4
2.3 Data management and analyses	5
3. Results.....	7
3.1 Diet and physical activity	8
3.2 Tobacco, alcohol and substance use.....	14
3.3 Mental health.....	20
3.4 Violence and injury.....	25
3.5 Knowledge on HIV infection or AIDS.....	30
3.6 Personal hygiene	31
4. Discussion	34
4.1 Nutrition status, dietary behaviours and physical activity	34

4.2	Tobacco, alcohol and substance use.....	35
4.3	Mental health.....	37
4.4	Violence and injuries	38
4.5	HIV/AIDS knowledge	38
4.6	Personal hygiene	39
5.	Challenges and recommendations.....	40
	References.....	42
Annexes		
1.	GSHS Myanmar questionnaire, 2016	45
2.	Comparison of key indicators between 2016 and 2007 GSHS data among students 13–15 years of age in Myanmar.....	67
3.	Detailed tabulations for all indicators on web only	
4.	GSHS Myanmar Questionnaire 2016 (Burmese) on web only (https://nada.searo.who.int/index.php/catalog/22)	

Acknowledgements

The Ministry of Health and Sports, Republic of the Union of Myanmar, expresses sincere and profound gratitude to all individuals and organizations that contributed immensely towards the conduct of Myanmar's second Global School-based Student Health Survey (GSHS) in 2016. Many individuals and organizations were involved in the planning of, pretesting for and conduct of the survey, as well as in the analysis of the data and writing of the report for the Myanmar GSHS.

The survey was carried out under the main responsibilities of School Health Division of the Department of Public Health, State and Region, District and Township Health Department. We would like to acknowledge all the supporters and participants from different levels of the Ministry of Health and Sports.

We would also like to thank Dr Laura Kann, Yoshimi Yamakawa, Tim McManus, Connie Lim and Denise Bradford from the Centers for Disease Control and Prevention (CDC), Atlanta; Ms Leanne Riley from WHO headquarters, Geneva; Dr Thaksaphon Thamarangsi, Dr Manju Rani, Mr Naveen Agarwal and Dr Rizwan SA from the WHO Regional Office for South-East Asia; and Dr Stephan Paul Jost, Dr Myo Paing and Ms Steller Mynt from the WHO Country Office for Myanmar for their valuable technical support and constant guidance.

We would also like to express our gratitude to the Department of Basic Education, Ministry of Education, which is the main partner for school health. Without participation from the Ministry of Education, this survey could not have been conducted.

Last, we would like to sincerely thank the principals, teachers and school health coordinators for their support during the stage of data collection. Last but not least, we are extremely thankful to all the students and parents for their participation in this survey.

Abbreviations and acronyms

BMI	body mass index
CDC	Centers for Disease Control and Prevention
CI	confidence interval
GDP	gross domestic product
GSHS	Global School-based Student Health Survey
GYTS	Global Youth Tobacco Survey
NCD	noncommunicable disease
OCR	optical character recognition
SD	standard deviation
SHS	second-hand smoke
STI	sexually transmitted infection
TB	tuberculosis
UNFPA	United Nations Population Fund
WHO	World Health Organization
YIC	Youth Information Corners

List of tables

- Table 1.** Demographic characteristics of the respondent population, Myanmar, GSHS, 2016
- Table 2.** Nutritional status and key dietary behaviours among students 13–17 years of age in Myanmar, GSHS, 2016
- Table 3.** Patterns of physical activity among students 13–17 years old in Myanmar 2016
- Table 4.** Patterns of tobacco use among students 13–17 years of age in Myanmar, GSHS, 2016
- Table 5.** Patterns of alcohol use among students 13–17 years of age in Myanmar, GSHS, 2016
- Table 6.** Patterns of drug use among students 13–17 years of age in Myanmar, GSHS, 2016
- Table 7.** Mental health of students 13–17 years of age in Myanmar, GSHS, 2016
- Table 8.** Levels of parental engagement among students 13–17 years of age in Myanmar, GSHS, 2016
- Table 9.** Violence and bullying among students 13–17 years of age in Myanmar, GSHS, 2016
- Table 10.** Injuries among students 13–17 years of age in Myanmar, GSHS, 2016
- Table 11.** HIV/AIDS knowledge among students 13–17 years of age in Myanmar, GSHS, 2016
- Table 12.** Oral hygiene, handwashing practices, and access to clean drinking water among students 13–17 years of age in Myanmar, GSHS, 2016
- Annex 2.** Comparison of key indicators between 2016 and 2007 GSHS data among students 13–15 years of age in Myanmar

Foreword by Director General



Young people are future of our nation and occupy 28% of our population. Evidences show that young people who are healthy and happy can contribute to the communities as well as development of country. As a result, health and well-being of young people become the major concern globally. Poor behavioral risk factors among young people can go on to become the lifestyles of adults leading to chronic health problems. Therefore, those risk factors should be monitored and establish trends to meet the needs of young people.

In Myanmar, Global School-based Student Health Survey was conducted in 2007 and 2016 with the purpose of providing accurate data on the behavioral risk factors and protective factors related to the leading causes of morbidity and mortality among young people aged 13 to 17 years. This study can provide the evidence based information for our country to develop priorities within School and Youth Health program and all the stakeholders. Expectantly, all related programs and all the correlated sectors can use their valuable information to create the better future for our country's young people.

2016 Myanmar GSHS was successfully accomplished by joint effort of Ministry of Health and Sports, Ministry of Education and technical and financial support from World Health Organization (WHO) and Centre of Disease Control (CDC). I would like to sincerely appreciate all stakeholders and development partners for their efforts and continuous support. In the future, we do hope such collaboration to implement successive GSHS studies with more comprehensive ways.

A handwritten signature in blue ink, appearing to read 'Thar Tun Kyaw' with the date '15/10/16' written below it.

Dr Thar Tun Kyaw
Director General
Department of Public Health
Ministry of Health and Sports

Foreword by the WHO Regional Director for South-East Asia



Adolescents constitute an important social and demographic group in the WHO South-East Asia Region, accounting for almost one fifth or 18.8% (362.2 million individuals) of the total regional population. Of this group, 13–17 year olds account for 181 million or nearly one tenth (9.4%) of the total regional population. Adolescent health is not only important in its own right, but is also an important predictor of overall adult disease burden in the future. Given the importance of understanding health risk behaviours among adolescents, WHO is actively supporting the implementation of integrated adolescent risk factor surveys in all Member States of the Region as part of the Global School-based Student Health Survey (GSHS) Initiative.

The purpose of an integrated adolescent risk factor survey such as the GSHS is to generate comprehensive and nationally representative data on major health risk factors among adolescents, ranging from nutritional status and dietary habits to mental health issues, to violence and unintentional injuries and risky sexual behaviours. If implemented regularly (every 3–5 years), these surveys will provide valuable data not only for tracking the health of adolescents but also for predicting the overall future disease burden, with almost 35% of the global burden of disease having its roots in adolescence.

I congratulate the Ministry of Health and Sports of the Government of the Republic of the Union of Myanmar for successfully carrying out the second GSHS 2016, and providing its full support and commitment to promoting the adolescent health agenda.

While the survey revealed low levels of household food insecurity and drug use among schoolgoing adolescents in Myanmar, the findings on increasing trends in some of the risk factors and health issues such as tobacco use, and violence and mental health issues, needs urgent attention.

I hope that the findings of the survey will prove useful for policy and programme implications to promote adolescent health and wellbeing in the country.



Dr Poonam Khetrpal Singh
Regional Director
WHO South-East Asia Region

Executive summary

The second Global School-based Student Health Survey (GSHS 2016) in Myanmar was conducted among schoolchildren aged 13–17 years attending grades 7–10 to assess the trends in the prevalence of key health behaviours and protective factors among adolescents. This second survey is similar in methodology to the first GSHS survey done in Myanmar in 2007 but targets a wider age group of 13–17 year olds (compared to only 13–15 year olds included in the 2007 survey) and includes some new indicators. A two-stage cluster sampling method was used to select a nationally representative sample of 50 schools and 2972 students, out of which 45 schools and 2838 students participated, giving an overall response rate of 86%. Students anonymously self-administered a 70-item questionnaire covering demographics (age, gender), nutritional status, dietary behaviours and physical activity, violence and unintentional injuries, mental health, tobacco, alcohol and substance use, HIV/AIDS knowledge and personal hygiene habits. Out of 2838 students who completed the questionnaires, 46.6% were male and 53.4% were female; 11.7% were 12 years or younger and 0.6% were 18 years or older. The main report presents findings only for the 13–17 years age group (n=2502, 1156 male and 1329 female students). When comparing the 2016 results with the 2007 survey, data are compared only for those 13–15 years old, the age group included in 2007 survey.

The key findings from the 2016 survey are the following:

- ◆ **Nutritional status.** While only 2.3% students reported going hungry most of the time or always because of lack of sufficient food in their homes, a much higher proportion of students (18%) were measured to be underweight. On the other hand, the problem of overweight/obesity also seems to be emerging, with 7.6% and 1.9% of students measured to be overweight and obese, respectively.
- ◆ **Risky dietary behaviours and limited physical activity.** About 45% of the students reported drinking carbonated soft drinks one or more times per day and a similar proportion (46.4%) reported eating junk food on two or more days in the past 7 days. On the other hand, only 18.2% of the students reported usually eating fruits two or more times per day and 17.9% reported usually eating vegetables three or more times a day. Compared to 2007, the proportion of 13–15-year-old students eating fruit one or more times per day declined from

76.3% to 61.2% and there was no significant change in vegetable consumption. Less than one in five students (14.2%) reported being physically active for at least 60 minutes per day on 5 or more days during the 7 days before the survey.

- ◆ **Tobacco.** 9.8% of students reported using either a smoking or smokeless tobacco product (such as snuff, chewing tobacco or betel quid with tobacco); current tobacco smoking was 7.2% and current smokeless tobacco use was 8.5%. About 69% reported first smoking tobacco before the age of 14 years among those who ever smoked. The prevalence of second-hand smoke (SHS) exposure was very high; 72.4% of the students reported people smoking in their presence on at least one or more days in the past 7 days, and 43.1% of the students reported that their parents or guardians used some form of tobacco. Encouragingly, 88% of current tobacco users reported that they tried stopping use of tobacco products in the past 12 months.
- ◆ **Alcohol and substance use,** the prevalence of current alcohol use and ever drug use were 4.7% and 1.1%, respectively.
- ◆ **Mental health.** Nearly 9% of the students reported attempting suicide one or more times during the 12 months before the survey, and a similar percentage of students reported seriously considering suicide during that period. Also, about 7% of the students had made a plan to attempt suicide in that period. A marker for impending depression, feeling so sad or hopeless that usual activities were stopped for two or more weeks in a row, was reported by more than a quarter of the students (27.2%).

In 2016, only about half of the participants reported that their parents or guardians took an interest in their lives and were supportive. There was a significant deterioration in perceived parental engagement between 2007 and 2016 on all the three dimensions examined in the survey. No significant change was observed in the proportion of those who reported having no close friends, missing classes without permission or other students in the school being kind or helpful.

- ◆ **Violence and injuries.** The survey indicated a high prevalence of physical violence; about one in four students (24.3%) reported being in a physical fight one or more times and 32.7% of students reported being physically attacked at least once in the past year. Half (50.1%) of the students reported being bullied on one or more days during

the 30 days before the survey. Among those who were bullied, most of them were bullied by making fun of their body (24%).

- ◆ More than one third of the students reported having suffered a serious injury in the past 12 months. Among them, the most common type of injury was a cut or stab wound (33.7%), the most common activity at the time of serious injury was playing sports (37.8%), the most common cause of the serious injury was reported as a fall (40.9%) and the most common mode of serious injury was that they hurt themselves by accident (71%).
- ◆ **HIV/AIDS knowledge.** The knowledge of HIV/AIDS was high; 92.9% of the students reported having ever heard about HIV/AIDS. More than two thirds of the students reported that they were taught about HIV/AIDS in class, on how to avoid HIV/AIDS and about reproductive health in general.
- ◆ **Personal hygiene.** Less than one in 10 students (8.6%) reported never or rarely washing their hands after using the toilet, while 6.8% reported never or rarely washing their hands before eating and more than 90% reported that they regularly brushed their teeth. Toothbrushing practices did not change much between the two GSHS surveys but the proportion of 13–15 year olds who did not wash their hands increased significantly from 2.8% to 6.6% (before eating) and from 3.4% to 8.6% (after using the toilet). The survey showed that access to a clean water source at schools seemed to be high (92.8%).

The survey revealed many encouraging findings, such as a high level of personal hygiene practices, low levels of drug use, moderately high levels of parental engagement and high levels of HIV/AIDS knowledge. However, some of the worrisome findings were the increasing levels of tobacco and alcohol use, increasing incidence of reported physical violence and bullying, deteriorating mental health (please refer to section 4 for detailed discussion on trends between 2007 and 2016 survey), and adversely changing dietary habits with the emergence of a dual burden of underweight and overweight and low levels of physical activity. Myanmar's schoolgoing adolescents require urgent and focused interventions to reduce exposure to these risk factors. Holistic policy and programmatic measures need to be developed to intervene early, as these behaviours may be sustained into adult life, fueling an NCD epidemic and mental health problems. Action may be needed at both the upstream policy level as well as the downstream programmatic community and school level to ensure the physical, mental and social well-being of adolescents and youth.

1. Introduction

1.1 Background

Adolescence is a critical transition period in human life, during which the foundations for health and well-being are established. The rapid biological and psychosocial changes that occur during this period bring about new health needs and risks, and thereby make this age group especially vulnerable. The health status in adults is mostly an outcome of health behaviours initiated at younger ages. Several behavioural risk factors such as an unhealthy diet, lack of physical activity, poor personal hygiene and sanitation, depression, drug use and tobacco and alcohol consumption deserve special attention. Many of these risk factors (tobacco use, physical inactivity, harmful use of alcohol, unhealthy diet) are initiated in adolescence, leading to noncommunicable diseases (NCDs) in adulthood and finally contributing to premature mortality. Prevention or control of these risk factors later during life becomes extremely difficult because over time these habits become an integral part of people's lifestyle. Therefore, primary prevention of risk factors in children and adolescents is critical.

Myanmar, a lower-middle-income country with an estimated per capita gross domestic product (GDP) of US\$ 1275 in 2016 (1) and a total population of 51.5 million is currently experiencing a demographic transition and at the receiving end of a demographic dividend where the age structure is dominated by 10–19 year olds who constitute 19.4% of the total population (2).

Recognizing the public health and sociodemographic importance of this age group, Myanmar's Ministry of Social Welfare and Resettlement recently rolled out the "Five-Year Strategic Plan for Young People's Health (2016–2020)" (3), which recognizes the importance of improving adolescent health in Myanmar for the benefit of its society. The Plan identified injuries, interpersonal violence, HIV/AIDS, substance use, mental health problems, undernutrition, micronutrient deficiencies and infectious diseases such as tuberculosis (TB) and malaria as major public issues among adolescents. The Plan flags several nutritional problems among adolescents in Myanmar, including a high prevalence of stunting (38% of boys and 30% of girls) and anaemia (26%) among adolescent schoolgirls and the widely prevalent use of tobacco products (3). About 20% of adolescents were estimated to suffer from mental health issues such as depression and mood disorders, and the 15–29 years age group had the highest incidence of injuries (3).

Considering the importance of monitoring health behaviours among adolescents, Myanmar has been collaborating with the World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) to periodically monitor health risk factors among adolescents as a part of the global initiative of the “Global School-based Student Health Survey (GSHS)”. GSHS generate nationally representative data on adolescents (4). Such repeated cross-sectional GSHS data can be used to develop policies, determine priorities, and establish and evaluate programmes to protect and promote the health of the youth and the future generation as a whole. In addition, Myanmar has been implementing tobacco-specific surveys every 3–5 years among schoolgoing adolescents since 2001 as a part of the Global Youth Tobacco Survey (GYTS) initiative.

The current report presents the results from the second GSHS done in Myanmar in 2016. The survey aimed at generating nationally representative data on various health behaviours, such as dietary habits, hygienic behaviour, physical violence, mental health and substance use (including tobacco, alcohol and drug use) among secondary school students aged 13–17 years. The first GSHS was done in 2007. Where possible, comparative data for indicators collected in both GSHS surveys are presented among 13–15-year-old schoolgoing adolescents, as GSHS 2007 mainly included 13–15-year-old students.

1.2 Objectives

The goal of the present survey was to obtain information on selected risk behaviours among adolescents, using schools as the sampling units to support youth health programmes and policies in Myanmar.

The purpose of the survey was to provide accurate data on health behaviours and protective factors among students:

- (1) to help Myanmar develop priorities, establish programmes and advocate for resources for school health and youth health programmes and policies;
- (2) to establish trends in the prevalence of health behaviours and protective factors to evaluate school- and youth health policies and programmes;
- (3) to allow the government, international agencies and others to make comparisons with other countries and within country.

2. Methods

The GSHS is a school-based cross-sectional survey conducted primarily among students aged 13–17 years. It measures behaviours and protective factors related to the leading causes of mortality and morbidity among youth. The GSHS initiative has developed a standardized scientific sample selection process; common school-based methodology; and standardized questionnaire modules with core and expanded questions, and country-specific questions that can be administered during one regular class period. The GSHS uses anonymous reporting by respondents in a self-administered questionnaire. It is difficult to obtain accurate data from adolescents during in-person household surveys, as adolescents may not respond accurately on certain behaviours considered social taboos. Hence, anonymous self-reported surveys may provide better results. In addition, using schools as a sampling unit rather than households reduces the survey costs and offers more privacy for accurate reporting, though this strategy misses the “out-of-school” youth. In 2014, while the gross school enrolment at the primary level (ages 5+ to 9+ years) in Myanmar was almost universal (99.7%), it declined significantly to 51% at the secondary level (ages 10+ to 15+ years) (1).

2.1 Sampling of schools

Myanmar’s school education system consists mainly of State-run schools with a relatively small proportion of private schools. The entry age for the formal school system is 5 years. According to the new education system, kindergarten (KG)+12 schooling consists of primary school (kindergarten and grades 1–5), 4 years of school (grades 6–9) at the lower secondary level and grades 10, 11 and 12 at the upper secondary level. The present GSHS was done among students enrolled in classes 7–10 (mainly secondary school levels). The Ministry of Education provided a complete list of schools, classes and number of students (5). Similar to the 2007 survey, the 2016 GSHS survey employed a two-stage cluster sampling design to produce a nationally representative sample of all students enrolled in classes 7–10, which are typically attended by students aged 13–17 years, though some students might be younger or older than this age group. In the first stage, 50 schools were selected with a probability proportional to enrolment size using a random start. At the second stage, systematic equal probability sampling with a random start was used

to select classes from each of the sampled schools. All the students in the selected classes were eligible to participate in the survey.

A total of 50 schools and 2972 students were sampled for inclusion, out of which 45 schools and 2838 students completed the questionnaires, giving an overall response rate of 86%.

2.2 Questionnaire and its administration

The questionnaire (Annex 1) had 70 questions that comprised core, expanded and country-specific questions. These questionnaires were developed in collaboration with WHO and CDC as part of the GSHS initiative. The questionnaires were originally developed in English and translated into the local Burmese language and then again back-translated into English to ensure the validity of the instrument. The Burmese version was used in the survey. Several different recall periods such as 7 days, 30 days, past year and “within the school year” were used for the different questions. The questionnaire addressed the following topics:

- (a) Nutritional status and physical activity: dietary behaviours, physical activity;
- (b) Substance and drug use: tobacco use, alcohol use, drug use;
- (c) Mental health and social relationships: suicidal ideation, feeling of loneliness, worry and depression; relationship with parents and friends;
- (d) Violence and injuries: prevalence of physical violence, bullying and incidence of serious injuries;
- (e) Knowledge on HIV infection or AIDS
- (f) Personal hygiene (oral hygiene, handwashing) and access to clean water.

The field work was carried out from mid-September to mid-October 2016. Questionnaire administration and other survey procedures were designed to protect the privacy of students by allowing for anonymous and voluntary participation. The survey was reviewed and approved by Ethical Review Committee of the Department of Public Health, Ministry of Health and Sports.

2.3 Data management and analyses

Students were asked to fill in the intended circles on the answer sheets (optical character recognition [OCR] form). After completion of the survey, the OCR answer sheets were sent to CDC where these were scanned and responses imported into a database. CDC carried out the necessary cleaning for inconsistencies and missing responses. A weight was applied to each question/response to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of non-response. The weight used for the estimation is given by:

$$W = W1 * W2 * f1 * f2 * f3$$

W1 = the inverse of the probability of selecting the school;

W2 = the inverse of the probability of selecting the classroom within the school;

f1 = a school-level non-response adjustment factor calculated by school size category (small, medium, large). The factor was calculated in terms of school enrolment instead of number of schools;

f2 = a student-level non-response adjustment factor calculated by class;

f3 = a post stratification adjustment factor calculated by grade.

A complex sample analysis was done to obtain weighted estimates of prevalence and 95% confidence intervals (CIs) for key indicators. To assess the significance of differences in the key indicators by sex and age of the students, 95% CIs were used.

3. Results

Table 1 gives the sample characteristics in terms of age, sex and school class of the students who finally participated in the survey.

Table 1. Demographic characteristics of the respondent population, Myanmar, GSHS, 2016

	Males		Females		Total	
	N	% of total sample	N	% of total sample	N	% of total sample
Age (years)						
12 or younger	125	4.8	170	6.8	300	11.7
13–15	905	35.1	1038	39.0	1957	74.0
16–17	251	6.4	291	7.4	545	13.7
18 and older	18	0.4	8	0.2	26	0.6
Missing	2	-	4	-	10	-
Grade						
Class 7	359	14.0	366	15.0	734	29.1
Class 8	257	13.6	286	14.7	548	28.3
Class 9	314	11.1	393	12.8	710	23.8
Class 10	361	7.8	457	10.9	821	18.6
Other	2	0.1	1	0.0	3	0.1
Missing	8	-	8	-	22	-
Total (all age groups)	1301 (46.6%)		1511 (53.4%)		2838 (100%)	
Total (13–17 years)	1156 (41.5%)		1329 (46.3%)		2502 (87.7%)	

The percentages of 13-17 year olds were presented as a proportion of all students of all ages, that is why they only add up to 87.7%. The denominator is 2838.

Annex 2 provides detailed tabulations by age, class and age for the all the key indicators under each domain and information on the sample/denominator used in the computation of those indicators. Even though the intention was to sample 13 to 17 years old, as the sampling inclusion criteria were based on class level and not on age, some students under 12 years and some over 18 years also got sampled. For the sake of uniformity and comparison, the results in the following sections are presented for the age group 13–17 years (N=2502) only, though the tables in Annex 2 provide results for those under 12 and over 18 years as well, for the people who might be interested in class-level results rather than age-wise results.

3.1 Diet and physical activity

3.1.1 Diet and nutritional status

Nutritional deficiencies (protein–energy malnutrition, vitamin and different micronutrients) as a result of either food insecurity or inappropriate dietary habits affect adolescents’ overall development and their learning. In addition, changing dietary habits (e.g. increased consumption of sugary drinks, fast food) is leading to problems of overweight and other associated NCD risk factors. Hence, assessment of the dietary behaviours of adolescents is important for informing the formulation of appropriate youth- and school health policies and to check the rising prevalence of NCDs. The survey assessed the prevalence of hunger, and the consumption of fruits and vegetables, carbonated drinks and fast food. In addition, anthropometric measurements (height and weight) were done for all students to assess body mass index (BMI).

Diet and nutritional status at a glance

Percentage of students (13–17 years old) who:

reported going hungry	2.3
were underweight	18.0
were overweight	7.6
were obese	1.9
perceived that they were overweight	18.9
did not eat any fruit during the past 30 days	11.1
did not eat any vegetable during the past 30 days	1.7
took carbonated drinks ≥ 1 time per day	44.9
ate junk food ≥ 2 days in the past week	46.4

Nutritional status

Nutritional status was assessed by measuring the BMI (kg/m²) based on measured weight (in kilogram) and height (in metres). Students who had less than -2 standard deviation (SD) of the median for BMI for age and sex were classified as underweight. Students who had more than +1 SD from the median for BMI for age and sex were defined as overweight, whereas students with more than +2 SD from the median for BMI by age and sex were defined as obese.

The prevalence of underweight was 18% with significant differences between males (25%) and females (12.2%). Compared to these observed high rates of underweight, only 2.3% of students reported going hungry most of the time or always because there was not enough food in their home during the past 30 days, with no significant differences by sex. No change was observed in the proportion of students reporting going hungry between 2007 and 2016.

The problem of overweight seems to be clearly emerging, with nearly 7.6% and 1.9% of students being measured as overweight and obese, respectively. The prevalence of overweight among 13–15 year olds seems to have increased between 2007 and 2016, from 5.1% to 8% and obesity from 0.7% to 1.9%, though these differences were not statistically significant. In addition, a substantially higher proportion of students (18.9%) perceived themselves to be slightly or very overweight; of these, a significantly higher proportion were female students (25.5%) compared to male students (11.7%).

Fruit and vegetable intake

About 11% and 1.7% of the students reported not eating any fruit (such as bananas, mangoes, papayas, guava, palms, watermelon, pineapples, grapes, apples, oranges) and vegetables (such as ka-zun, chin-baung, spinach, cucumber, cabbage, beans), respectively, during the 30 days preceding the survey. Only 18.2% of students reported usually eating fruits two or more times per day, with no significant differences by sex or age. Similarly, only 17.9% of students reported usually eating vegetables three or more times per day, with no significant differences by sex or age. In the 2007 survey, 76.3% of 13–15-year-old students reported eating fruits one or more times per day during the past 30 days as compared to 61.2% in the 2016 survey and this was statistically significant. However, the percentage of 13–15-year-

old students who reported eating vegetables one or more times per day was 89.2% in 2007 as compared to 88.1% in 2016.

Consumption of carbonated soft drinks, junk food and breakfast

The survey explored the students' habits of consuming carbonated soft drinks (such as Coca Cola or Sprite but not including diet soft drinks). Nearly half (44.9%) of the students reported drinking carbonated soft drinks one or more times per day with no significant differences by sex or age. About 46% of the students reported eating junk food (such as potato chips, grilled meat, fried foods, instant noodles, hot dogs or ice bars from street vendors) on 2 days or more in the past 7 days, with no significant difference by sex. About 74% of the students reported that they ate breakfast most of the time or always in the past 30 days with no significant differences by age or sex. In the 2007 survey, 81% of 13–15-year-old students reported eating breakfast most of the time or always in the past 30 days as compared to 73.9% in the 2016 survey.

The results of the survey show that Myanmar is already facing a double burden of underweight and overweight. The latter may be due to emerging changes in dietary and physical activity habits as shown in the survey (e.g. increase in the consumption of carbonated soft drinks and junk food and decrease in the consumption of fruit and vegetables) and limited physical activity (see section 3.1.2 of this report).

Table 2. Nutritional status and key dietary behaviours among students 13–17 years of age in Myanmar, GSHS, 2016

	Underweight	Overweight	Obese	Went hungry ^a	Fruits ≥2 times/day ^b	Vegetables ≥3 times/day ^b	Carbonated drinks ≥1 times/day ^b	Junk food ≥2 days ^b	Ate breakfast mostly or always ^c
Sex	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Male	25.0*	7.2	2.3	2.8	17.8	17.4	44.1	47.7	71.1
Female	12.2	8.0	1.6	1.8	18.5	18.4	45.3	45.1	75.2
Age (years)									
13–15	18.8	8.0	1.9	2.4	18.9	18.4	46.1	46.2	73.9
16–17	13.9	5.6	1.8	1.9	14.5	15.2	38.6	47.2	73.5
Total (13–17)	18.0	7.6	1.9	2.3	18.2	17.9	44.9	46.4	73.8

*Differences across groups are statistically significant at 95% level.

a During the past 30 days, because there was not enough food at home; **b** During the past 7 days; **c** During the past 30 days

3.1.2 Physical activity

Adequate physical activity helps in promoting both physical and psychological well-being (6). Participating in adequate physical activity throughout the lifespan and maintaining normal body weight are the most effective ways of preventing many chronic diseases, including cardiovascular diseases and diabetes. Therefore, regular physical activity should be encouraged right from childhood, as patterns of physical activity acquired during childhood and adolescence are more likely to be maintained throughout the lifespan (7).

Physical activity at a glance in

Percentage of students (13–17 years old) who:	
were not physically active for at least 60 min/day on any day during the week	31.5
were physically active for at least 60 min on 5 or more days/week	14.2
spent ≥ 3 hours/day doing sitting activities	16.4
did not walk or ride a bike to school	17.3
attended physical education classes ≥ 3 days/week	18.1

Physical activity

About one third (31.5%) of the students reported that they were physically inactive, i.e. not physically active for at least 60 minutes per day on any of the days during the 7 days before the survey, with no significant differences by age or sex. Only 14.2% of students reported being physically active¹¹ for at least 60 minutes per day on 5 or more days during the 7 days before the survey (Table 3). The percentage of 13–15-year-old students who reported being physically active at least 60 minutes per day on all 7 days during the past 7 days declined significantly from 15.9% in 2007 to 10.1% in 2016.

1 Physical activity is any activity that increases your heart rate and makes you get out of breath some of the time. Physical activity includes sports, playing with friends or walking to school. Some examples of physical activity are running, fast walking, biking, dancing, football, jumping rope, htoke-see-toe, sein-pyay-lite, rattan ball, volleyball and badminton.

Sedentary behaviours

About 17% of the students did not walk or ride a bicycle to or from the school, with no significant difference by age or sex, and a similar proportion of students (16.4%) spent three or more hours per day doing sedentary activities², with no significant difference by age or sex (Table 3). The percentage of 13–15-year-old students who did not walk or ride a bicycle to or from the school during the past 7 days declined from 18.8% in 2007 to 17.2% in 2016, and the percentage of those who spent three or more hours per day doing sedentary activities increased significantly from 10.5% in 2007 to 16.4% in 2016.

Participation in physical education classes

Nearly one fifth of the students (18.1%) reported attending physical education classes on three or more days (each week during this school year), with no significant differences by age or sex.

Table 3. Patterns of physical activity among students 13–17 years old in Myanmar 2016

	were not physically active for at least 60 min/day on any day during the week	were physically active for at least 60 min on 5 or more days/week	spent ≥3 hours/day doing sitting activities	did not walk or ride a bike to school	attended physical education classes ≥3 days/week
Sex	(%)	(%)	(%)	(%)	
Male	27.9	17.0	17.5	16.5	19.9
Female	34.9	11.9	15.1	17.9	16.4
Age (years)					
13–15	30.5	14.0	16.4	17.2	18.9
16–17	37.0	15.8	16.4	18.1	13.7
Total (13–17)	31.5	14.2	16.4	17.3	18.1

2 Sitting and watching television, playing computer games, talking with friends or doing other sitting activities, such as using smart phones, gambling or chatting at the teashop

3.2 Tobacco, alcohol and substance use

Most of the current users of tobacco, alcohol and drugs often initiate use in the early adolescent years, sometimes just out of curiosity or under peer pressure and then go on to become regular users. Smokers have a markedly increased risk of multiple cancers, particularly lung cancer, and are at a greater risk of heart disease, stroke, emphysema and many other fatal and non-fatal diseases. Similarly, cancer of the lip, tongue and mouth are highly associated with tobacco chewing.

The use of tobacco, alcohol and drugs not only has an adverse impact on the users, but also on their families and communities. It is important to prevent adolescents from initiating the use of these as quitting later is much more difficult and resource intensive.

Tobacco, alcohol and substance use at a glance

Percentage of students (13–17 years old) who:

currently use any tobacco product	9.8
currently smoke tobacco	7.2
currently use smokeless tobacco	8.5
currently drink alcohol	4.7
ever got heavily drunk	3.7
ever used drugs	1.1

3.2.1 Tobacco use

Current tobacco use

About 10% of the students reported currently using any tobacco product (smoked or smokeless) on at least one day during the 30 days before the survey, with significant differences by sex (18.3% in males versus 2.4% in females) and age (9.0% in 13–15 year olds versus 14.6% in 16–17 year olds).

Smoked tobacco

About 7% of the students reported currently smoking any tobacco product³, with significant differences by sex (14.9% of males versus 0.5% of females).

Smokeless tobacco

A slightly higher proportion of students (8.5%) reported current use of smokeless tobacco than smoked tobacco⁴, with a significant difference by sex (15.7% of males and 2.4% of females).

Age at initiation

Among those tobacco users who ever smoked, about two thirds of students (68.6%) had tried tobacco before the age of 14 years. This shows that adolescents start tobacco use very early, and any tobacco control programme would have to focus on young adolescents.

Parents' or guardian's tobacco use

Nearly half of the students (43.1%) reported that their parents or guardians used any form of tobacco, with no significant differences by age or sex.

Exposure to second-hand smoke (SHS)

Almost three quarters of the students reported that people smoked in their presence (on one or more days during the 7 days before the survey), with no significant differences by sex or age.

No significant differences were observed in reported parental tobacco use and exposure to SHS between 2007 and 2016.

Desire to quit

Among students who reported the use of any tobacco product, 88.4% reported that they had tried to quit the habit during the 12 months before the survey, with no significant differences by age or sex.

3 Cigarette, pipes, cheroots, cigars, hand-rolled corn cheroots, water pipes or bidis

4 Smokeless tobacco, including snuff, chewing tobacco or betel quid with tobacco

To summarize, adolescents have very high rates of SHS exposure, including from parents at home, and start using tobacco very early in life with high current rates of use.

Table 4. Patterns of tobacco use among students 13–17 years of age in Myanmar, GSHS, 2016

	Currently use any tobacco product ^a	Currently smoke tobacco ^b	Currently use smokeless tobacco	Tried smoking tobacco before age 14 ^c	Tried to quit any form of tobacco ^d	People smoked in their presence ^e	Parents/guardians use any form of tobacco
Sex	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Male	18.3*	14.9*	15.7*	63.1	88.6	75.2	43.1
Female	2.4	0.5	2.4	Small N	Small N	69.9	43.1
Age (years)							
13–15	9.0*	6.7	7.6	74.8*	88.2	72.7	42.5
16–17	14.6	9.7	13.7	42.4	Small N	70.5	46.4
Total (13–17)	9.8	7.2	8.5	68.6	88.4	72.4	43.1

*Differences across groups are statistically significant at 95% level.

a On at least one day during the 30 days before the survey, and includes the use of cigarettes and other tobacco products (cigarettes, pipes, cheroots, cigars, hand-rolled corn cheroots, water pipes or bidis, chewing tobacco or betel); **b** On at least one day during the 30 days before the survey; **c** For the first time among students who ever smoked cigarettes; **d** Among students who used any form of tobacco during the 12 months before the survey; **e** On one of more days during the 7 days before the survey.

Small N means fewer than 100 students in this subgroup.

3.2.2 Alcohol use

Worldwide, harmful use of alcohol causes 3% of all deaths each year. Besides the direct effects of intoxication and addiction, alcohol use causes esophageal cancer, liver disease, homicide and other intentional injuries, epilepsy and motor vehicle accidents. Heavy alcohol use also places one at greater risk for cardiovascular disease (8). In most countries, alcohol-related mortality is highest among those 45–54 years of age, but the relationship between the

age at initiation of alcohol use and the pattern of its use and use in adulthood makes the study of alcohol consumption among adolescents important (9).

Unintentional injuries are the leading cause of death among those aged 15–25 years and many of these injuries are related to alcohol use. Problems with alcohol use can impair adolescents' psychological development and influence both the school environment and leisure time negatively (10). GSHS 2016 used a set of seven questions to assess alcohol use patterns among surveyed students.

Prevalence of current alcohol use

About 5% of students reported currently drinking alcohol⁵, defined as taking at least one drink of alcohol on at least one day during the 30 days before the survey. Significant differences were observed by age (3.9% among 13–15 year olds and 9.3% among 16–17 year olds) and by sex (8.3% in males versus 1.4% in females). Among students who reported current alcohol use, 7.2% reported that they usually had two or more drinks per day on the days that they drank alcohol.

Compared to 2007, the prevalence of alcohol consumption among 13–15 year olds had significantly from 0.8% to 3.9% and the proportion of heavy drinking increased from 1.4% to 3% (not significant).

Age at initiation

Among students who had ever had a drink of alcohol other than a few sips, 57% of students reported that they started drinking alcohol before the age of 14 years among those who ever drank alcohol, with no significant differences by age or sex.

Source of alcohol

More than one in four students (28.9%) who reported currently drinking alcohol said that they usually obtained the alcohol from friends. More importantly, more than one third of the students (35.3%) bought the alcohol they drank in a store, shop or from a street vendor. This is in contravention of the minimum legal age of 18 years in Myanmar to purchase alcohol (8).

⁵ This includes drinking beer, whisky, wine, palm juice, rum or cocktails. Drinking alcohol does not include drinking a few sips of wine for religious purposes. A "drink" is a glass of wine, a bottle of beer, a small glass of liquor or a mixed drink.

Drunkenness and consequence of drinking

Among current alcohol drinkers, about 4% of students reported that they had ever drunk so much alcohol that they were really drunk⁶ (one or more times in their life), with significant differences by sex (7.1% of males versus 0.8% of females) and age (3% of younger versus 8% of older students). A small proportion of students (1.8%) reported that they got into trouble with their family or friends, missed school or got into fights as a result of drinking alcohol (one or more times during their life) with significant differences by sex (3.1% of males versus 0.5% of females).

Table 5. Patterns of alcohol use among students 13–17 years of age in Myanmar, GSHS, 2016

	Currently drink alcohol ^a	Drank 2 or more drinks per day ^b	First drank alcohol before age 14 ^c	Ever got heavily drunk ^d	Got into trouble or fights as a result of alcohol used	Obtained alcohol from friends ^e	Parents/guardians drank alcohol
Sex	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Male	8.3*	6.2	53.3	7.1*	3.1*	Small N	30.5
Female	1.4	Small N	Small N	0.8	0.5	Small N	26.6
Age (years)							
13–15	3.9*	7.5	68.4	3.0*	1.6	Small N	28.5
16–17	9.3	Small N	Small N	8.0	3.1	Small N	28.6
Total (13–17)	4.7	7.2	57.4	3.7	1.8	27.6	28.5

* Differences across groups are statistically significant at 95% level.

a At least one drink of alcohol on at least one day during the 30 days before the survey; **b** On the days they drank alcohol among students who drank alcohol during the 30 days before the survey; **c** For the first time among students who had ever had a drink of alcohol other than a few sips; **d** One or more times during their life; **e** Among students who drank alcohol during the 30 days before the survey.

Small N means fewer than 100 students in this subgroup.

Parental use of alcohol

More than one fourth (28.5%) of the students reported that their parents/guardians drank alcohol with no significant differences by age or sex.

⁶ Staggering when walking, not being able to speak properly and throwing up are some signs of being really drunk.

3.2.3 Drug use

Prevalence of drug use and age at initiation

About 1% of the students reported ever using drugs such as marijuana, amphetamines, cocaine, inhalants and sniffing glue in their lives, with a significant difference by sex (2.1% among males and 0.2% among females). Compared to the 2007 survey, the proportion of 13–15-year-old students who reported ever using drugs increased from 0.4% to 1.1%. About three quarters of the students reported that they were taught in any of their classes about the problems associated with drug use, with no significant differences by age or sex. The number of responses to determine the most commonly used drug and age at initiation of drug use was too small to make valid estimations. The most commonly mentioned drugs by the students were tranquilizers⁷ and some other drug. Although the students were given a list of options to select from, such as marijuana or hashish, amphetamines, tranquilizers, methamphetamines, crack or cocaine, solvents or inhalants and others, many did not select any option. Therefore, the list of drug names should be expanded and given in the local name in the next survey to get more valid responses.

Table 6. Patterns of drug use among students 13–17 years of age in Myanmar, GSHS, 2016

	Ever used drugs in their life ^a	Taught in any of the classes about problems associated with drugs use ^b
Sex	(%)	(%)
Male	2.1 *	70.7
Female	0.2	68.6
Age (years)		
13–15	1.1	76.8
16–17	1.6	69.2
Total (13–17)	1.1	75.6

*Differences across groups are statistically significant at 95% level.

a One or more times during their life; **b** During the school year

7 Taking tranquilizers or sedatives, such as diazepam, without a doctor or nurse asking you to do so

3.3 Mental health

A substantial proportion of young people suffer from various mental health issues and are unable to get a proper diagnosis, support and treatment. These young people are at risk for failure in school, abuse and neglect, alcohol and other drug use, suicide, engagement in violent and criminal activities, and continuing mental illness in adulthood.

Mental health at a glance

Percentage of students (13–17 years old) who:

attempted suicide	8.8
felt so worried that they could not sleep	3.9
felt so bad or hopeless that they stopped usual activities almost every day for ≥ 2 weeks in a row	27.2
felt lonely	8.7
had no close friends	3.7

3.3.1 Suicidal behaviour

Suicidal behaviour at a glance

Percentage of students (13–17 years old) who:

attempted suicide	8.8
seriously considered attempting suicide	9.4
made a plan to attempt suicide	6.8

In the current survey, almost one in 10 students (8.8%) reported attempting suicide one or more times during the 12 months before the survey, with no significant differences by sex or age. A similar proportion of students reported that they had seriously considered attempting suicide (9.4% overall, 7.9% of males versus 10.9% of females) and made a plan about how they would attempt suicide (6.8% overall, 4.9% of males versus 8.6% of females) during the 12 months before the survey with no significant differences by sex or age.

In addition, 3.9% of the students reported feeling so worried most of the time or always about something that they could not sleep at night during the past 12 months, with no significant differences by sex or age. Worryingly, more than a quarter of the students reported that they felt so sad or hopeless that they stopped doing their usual activities almost daily for two weeks or more in a row, which is an important marker for depression, with no significant differences by age or sex.

Between 2007 and 2016, the proportion of 13–15-year-old students who seriously considered attempting suicide or made a plan to commit suicide increased significantly from 0.7% to 9.2% and from 0.1% to 6.8%, respectively. Also, the proportion of those who felt so worried that they could not sleep at night mostly or always in the past 12 months increased significantly from 1.8% to 3.9%, as did the proportion of those who felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing their usual activities during the past 12 months from 15% to 26.1%.

3.3.2 Loneliness

Being liked and accepted by peers is crucial to young people's mental health development and those who are not socially integrated are more likely to exhibit difficulties with their physical and emotional health. Isolation from peers in adolescence can lead to feelings of loneliness and psychological symptoms. Interaction with friends tends to improve social skills and strengthen the ability to cope with stressful events. Hence, the study elicited the feeling of loneliness/worrying, and having friends among the adolescents.

In this survey, 8.7% of students reported that they felt lonely most of the time or always during the 12 months before the survey, with no significant differences by sex or age. Contrary to this, only 3.7% of students reported that they did not have any close friends. Compared to 2007, the proportion of 13–15-year-old students who reported feeling lonely most of the time or always in the past 12 months increased significantly from 3.8% to 8.3%. However, no statistically significant change was observed in the proportion of students who reported having no close friends (3.5% vs 3.6%).

Table 7. Mental health of students 13–17 years of age in Myanmar, GSHS, 2016

	Attempted suicide ^a	Seriously considered attempting suicide ^a	Made a plan to attempt suicide ^a	Worried so much that could not sleep ^b	Felt so sad or hopeless & stopped doing usual activities ^c	Felt lonely ^b	Did not have any close friends	Missed classes without permission ^d	Reported most of the students in their school were kind and helpful ^e
Sex	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Male	6.9	7.9	4.9	3.7	25.8	7.2	3.5	33.0*	33.8
Female	10.6	10.9	8.6	4.0	28.5	10.1	4.0	22.4	41.7
Age (years)									
13–15	8.4	9.2	6.8	3.9	26.1	8.3	3.6	25.6*	38.9
16–17	11.2	10.9	6.8	4.0	33.4	11.2	4.4	38.2	32.5
Total (13–17)	8.8	9.4	6.8	3.9	27.2	8.7	3.7	27.6	37.9

* Differences across groups are statistically significant at 95% level.

a One of more times during the 12 months before the survey; **b** Most of the time or always during the 12 months before the survey; **c** Almost every day for two weeks or more in a row during the 12 months before the survey; **d** On one or more days during the 30 days before the survey; **e** Most of the time or always during the 30 days before the survey.

3.3.3 Missing classes and school experience

Adolescents who have a positive relationship with teachers and positive attitudes towards school are less likely to indulge in substance use, and less likely to experience depression.

Missing classes is a signal for an unfavourable environment in the schools, or dislike or illness. This may imply that students need more care and support. Slightly more than a quarter of students (27.6%) missed classes or school without permission on one or more days during the 30 days before the survey, with significant differences by sex (33.0% of males versus 22.4% of females) and age (25.6% of younger versus 38.2% of older students).

In addition, 37.9% of the students reported that most students in their school were helpful and kind most of the time or always during the 30 days before the survey, with no significant differences by sex or age.

No statistically significant change was observed between 2007 and 2016 in the proportion of 13–15-year-old students who reported missing classes without permission (19.9% vs 25.6%) or other students in the school being kind or helpful (43.3% vs 38.9%).

3.3.4 Parental engagement

Parental engagement at a glance

Percentage of students (13–17 years old) who reported that their parents or guardian most of the time or always:

knew what they were doing with their free time	56.9
understood their problems/worries	52.3
checked to see if their homework was done	47.3

Adolescents who live in a social environment that provides meaningful relationships, encourages self-expression, and provides a structure and boundaries are less likely to initiate sex at a young age, experience depression and or indulge in substance use. Parental bonding and connection are associated with lower levels of depression and suicidal ideation, alcohol use, sexual risk behaviours and violence. The survey assessed the perceived parental engagement with them using four questions, with a recall period of 30 days before the survey.

About 57% reported that their parents/guardians most of the time or always really knew what they were doing in their free time, with a significant difference by sex (50.5% of males versus 62.9% of females). More than half (52.3%) of the students reported that their parents/guardians, most of the time or always, understood their problems and worries, with a significant difference by sex (47.6% of males versus 56.6% of females). Slightly less than half (47.3%) reported that their parents/guardians most of the time or always checked to see if their homework was done and 58.6% said that their parents never or rarely went through their things without their approval, with no significant differences by age or sex.

Table 8. Levels of parental engagement among students 13–17 years of age in Myanmar, GSHS, 2016

	Parents knew what they doing with their free time ^a	Parents understood their problems and worries ^a	Parents checked to see if their homework was done ^a	Parents never or rarely went through their things without their approval ^b
Sex	(%)	(%)	(%)	(%)
Male	50.5*	47.6*	46.3	59.9
Female	62.9	56.6	48.2	57.3
Age (years)				
13–15	56.8	52.0	47.0	58.8
16–17	57.0	54.1	48.5	57.5
Total (13–17)	56.9	52.3	47.3	58.6

*Differences across groups are statistically significant at 95% level.

a Most of the time or always during the 30 days before the survey; **b** Never or rarely during the 30 days before the survey.

There was a significant deterioration in perceived parental engagement between 2007 and 2016, with the percentage of students who perceived that their parents most of time or always checked to see that their homework done, understood their problems and worries, and knew what they are doing with free time decreasing significantly from 57.7% to 47%, from 62.6% to 52.0% and from 69.3% to 56.8%, respectively (Annex 2).

3.4 Violence and injury

Adolescents are more prone to injury, intentional or unintentional, than their older counterparts (11). Unintentional injuries are a major cause of death and disability among young children. Each year, globally, about 875 000 children under the age of 18 years die from injuries and 10 –30 million are affected by injury throughout their lives (11).

Violence and injury at a glance

Percentage of students (13–17 years old) who were:

physically attacked	32.7
in a physical fight	24.3
bullied	50.1
seriously injured	36.3
sustained motor vehicle accidents	8.5

3.4.1 Physical violence

Physical violence in schools reflects a prevailing deteriorating psychosocial environment in the schools.

About one third of the students (32.7%) reported being physically attacked one or more times during the past 12 months with a significant difference by sex (39.8% of males versus 26.3% of females). About a quarter of the students (24.3%) reported being in a physical fight with other student(s) during the past 12 months. A significantly lower proportion of females (17.5%) reported being in physical fights than males (31.4%).

Worryingly, the reported prevalence of physical attacks and physical violence increased significantly from 2007 levels (Annex 2. The proportion of students (13–15 years old) who reported being physically attacked and being in physical fights significantly increased, from 20.8% to 32.8%, and from 14.6% to 24.1%, respectively.

3.4.2 Bullying in schools

Victims of bullying have increased stress and a reduced ability to concentrate, and are at increased risk for substance use, aggressive behaviour and suicide attempts. The survey included two specific questions that assessed the reported prevalence of bullying and how the students were bullied in the past 30 days.

Half of the students (50.1%) reported being bullied⁸ on one or more days during the 30 days before the survey, with no significant differences by age or sex. Among students who were bullied, 24.3% were bullied by making fun of their bodies, with significant difference by sex (18.3% of males versus 29.9% of females), 18.6% were bullied by making fun of their race, 15.3% were bullied most often by being hit, kicked, pushed, shoved around or locked indoors, with a significant difference by sex (23.5% of males versus 8.1% of females) and about 21% were bullied in some other way with no significant differences by sex or age. The reported numbers were too small to estimate the proportion of students who were bullied and could not sleep at night during 12 months before the survey.

Between 2007 and 2016, the proportion of 13–15 year olds who reported being bullied more than doubled, from 19.4% to 50.1%, which was significant. The percentage of those who were bullied most often by being hit, kicked, pushed, shoved around or locked indoors declined from 28.6% to 16.2%.

⁸ Bullying occurs when a student or group of students say or do bad and unpleasant things to another student. It is also bullying when a student is teased a lot in an unpleasant way or when a student is left out of things on purpose. It is not bullying when two students of about the same strength or power argue or fight or when teasing occurs in a friendly and fun way.

Table 9. Violence and bullying among students 13–17 years of age in Myanmar, GSHS, 2016

	Students who were physically attacked ^a	Students who were in a physical fight ^a	Students who were bullied ^b	Students who were bullied most often by making fun of their body ^c	Students who were bullied most often by making fun of their race ^c	Students who were bullied most often by being hit, kicked, etc. ^c	Students who were bullied most often in some other way ^c
Sex	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Male	39.8*	31.4*	51.0	18.3*	22.2	23.5*	18.4
Female	26.3	17.5	49.1	29.9	14.9	8.1	23.9
Age (years)							
13–15	32.8	24.1	50.1	24.1	18.3	16.2	21.1
16–17	32.0	25.0	50.1	25.4	19.7	11.0	21.2
Total (13–17)	32.7	24.3	50.1	24.3	18.6	15.3	21.1

*Differences across groups are statistically significant at 95% level.

a One or more times during the 12 months before the survey; **b** On one or more days during the 30 days before the survey; **c** Among students who were bullied during the 30 days before the survey

3.4.3 Serious injuries

More than one third of the students (36.3%) reported having suffered a serious injury⁹ during the past 12 months, with a significant difference by sex (44.1% of males and 29.3% of females) but not by age. Among the students who were seriously injured during the past 12 months, 35.6% had a cut or stab wound, 33.7% reported that something else happened as a serious injury (significant difference by sex; 28.7% of males versus 40.2% of females) and 21% reported that they had a broken or dislocated joint, with a significant difference by sex (27.3% of males and 13% of females). When asked what they were doing at the time the most serious injury occurred, 37.8% reported that they were playing a sport, with a significant difference by sex (52.5% of males versus 20.5% of females), 17.3% reported that they were walking or running, with a significant difference by sex (12% of males versus 23.8% of females) and 14.1% reported riding a bicycle, with no significant differences

by age or sex. The major cause of the most serious injury was reported as a fall by 40.9% of the students, with no age or sex differences, 23.6% reported that something else was the cause, 16.8% reported that something fell on them or hit them, with no age or sex differences, and 8.5% reported that they were involved in a motor vehicle accident, with no significant differences by age or sex. When asked how the most serious injury happened, 71% reported that they hurt themselves by accident, with no significant differences by age or sex, 18.5% said that someone hurt them by accident, with a significant sex difference (22.7% of males versus 13.7% of females), 6.3% said that someone had hurt them on purpose and 4.5% said that they hurt themselves on purpose, with no age or sex differences.

A large number of students chose “others” as the answer for many of the injury-related questions, which indicates that the list of options for the next survey needs to incorporate more options in these items to capture more valid responses.

Compared to the 2007 data, 13–15-year-old students who were seriously injured in the past 12 months increased significantly from 27% to 36.4%. Among those who were seriously injured, the proportion of those who had a broken bone or dislocated joint as the most serious injury declined from 21.3% to 20.7%, those who reported motor vehicle accidents as the cause of the most serious injury decreased from 10.5% to 7.9%, those who reported a most serious injury related to sports or playing increased significantly from 25.2% to 39.2%, and the proportion who hurt themselves by accident increased significantly from 58.9% to 70.6%.

9 An injury is serious when it makes you miss at least one full day of usual activities (such as school, sports or a job) or requires treatment by a doctor or nurse.

Table 10. Injuries among students 13–17 years of age in Myanmar, GSHS, 2016

	Students who were seriously injured ^a	Students who had a cut or stab wound ^b	Students to whom something else happened as a serious injury ^b	Students who had a broken bone or a dislocated joint ^b	Students who were playing a sport when the most serious injury happened ^b	Students who were walking or running when the most serious injury happened ^b	Students who were riding a bicycle when the most serious injury happened ^b	Students who fell ^b	Students who said something else was a major cause of injury ^b	Students who said something fell on them or hit them ^b	Students who reported that they were in a motor vehicle accident ^b	Students who hurt themselves by accident ^b	Students whom someone else hurt by accident ^b	Students whom someone else hurt on purpose ^b	Students who hurt themselves on purpose ^b
Sex	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Male	44.1*	36.9	28.7*	27.3*	52.5*	12.0*	12.5	41.6	21.1	15.0	10.2	66.6	22.7*	6.3	4.5
Female	29.3	33.8	40.2	13.0	20.5	23.8	15.7	40.1	27.1	18.2	6.4	75.5	13.7	6.4	4.4
Age (years)															
13–15	36.4	36.4	33.8	20.7	39.2	17.7	13.7	40.9	24.6	17.1	7.9	70.6	18.3	6.6	4.5
16–17	36.2	31.5	32.6	23.4	30.5	14.6	16.1	40.4	18.8	15.2	11.3	70.8	19.6	4.7	4.8
Total (13–17)	36.3	35.6	33.7	21.1	37.8	17.3	14.1	40.9	23.6	16.8	8.5	70.7	18.5	6.3	4.5

* Differences across groups are statistically significant at 95% level.

a One or more times during the 12 months before the survey; **b** Among students who were seriously injured during the 12 months before the survey

3.5 Knowledge on HIV infection or AIDS

Young people between the ages of 15 and 24 years are the most threatened group with regard to HIV, accounting for more than half of those newly infected with HIV. Studies show that adolescents who begin sexual activity at an early age are likely to have an increased risk of HIV exposure and are not likely to use condoms. In many countries, HIV infection and AIDS is reducing the average life expectancy and overall economic growth and development, overloading the health-care system and reducing school enrolment (12).

HIV/AIDS knowledge at a glance

Percentage of students (13–17 years old) who:

had ever heard about HIV infection/AIDS	92.9
were taught about HIV infection/AIDS	67.3
were taught how to avoid HIV infection/AIDS	68.9
ever talked with parents about HIV/AIDS	42.2
were taught in class about reproductive health	64.5

Overall, 92.9% of students reported that they had heard of HIV infection or the disease called AIDS, with no significant differences by age or sex. About two thirds of the students (67.3%) reported being taught in any of their classes about HIV infection or AIDS during the current school year, with a significant difference by age (70.1% of younger versus 52% of older students). Similarly, about two thirds (68.9%) reported being taught in any of their classes on how to avoid HIV infection or AIDS during this school year, with a significant difference by age (71.7% of younger versus 53.4% of older students). About 42% of the students reported that they could talk about HIV/AIDS with their parents, with no significant differences by age or sex. In addition to this, about two thirds (64.5%) were taught about reproductive health in their classes during the school year, with no age or sex differences.

Between 2007 and 2016, the proportion of 13–15-year-old students who had ever heard of HIV/AIDS declined significantly from 98.6% to 93%, the proportion of those who were taught in class about HIV/AIDS declined from

80.2% to 70.1% and students who ever talked with their parents/guardians about HIV/AIDS also declined significantly from 59.4% to 42.8%.

Table 11. HIV/AIDS knowledge among students 13–17 years of age in Myanmar, GSHS, 2016

	Ever heard of HIV infection or AIDS ^a	Taught about HIV infection or AIDS ^a	Taught on how to avoid HIV infection or AIDS ^a	Ever talked with parents about HIV/AIDS	Taught in classes about reproductive health ^a
Sex	(%)	(%)	(%)	(%)	(%)
Male	92.3	67.7	69.5	42.5	66.5
Female	93.5	66.8	68.4	42.1	62.5
Age (years)					
13–15	93.0	70.1*	71.7*	42.8	66.7
16–17	91.9	52.0	53.4	39.2	52.9
Total (13–17)	92.9	67.3	68.9	42.2	64.5

*Differences across groups are statistically significant at 95% level.

^a During this school year

3.6 Personal hygiene

Good personal hygiene can significantly improve overall health status and reduce the risk of communicable diseases. Oral and dental hygiene reduces the risk of dental caries and periodontal diseases as well as respiratory tract infections. Hygiene behaviours may also be linked to mental health status, as psychological distress, low self-esteem and unhappiness may be associated with poor personal hygiene. The GSHS assessed oral and hand hygiene behaviours with the help of one and three questions, respectively. It also elicited information about the source of clean drinking water and availability of separate toilets for boys and girls at school.

Oral and hand hygiene at a glance

Percentage of students (13–17 years old) who:

cleaned or brushed teeth ≥ 1 time/day	93.8
never/rarely washed hands before eating	6.8
never/rarely washed hands after using the toilet	8.6
never/rarely used soap when washing hands	5.9
had no access to clean drinking water at school	7.2

3.6.1 Oral hygiene

In GSHS 2016, 93.8% of students reported usually cleaning or brushing their teeth (one or more times per day during the 30 days before the survey), with no significant differences by sex or age.

3.6.2 Handwashing behaviours

Handwashing is an effective primary prevention method for reducing the incidence of diarrhoea and respiratory infections, including influenza. An estimated 1 million annual infectious disease deaths worldwide could be averted by improved hand hygiene practices.

In GSHS 2016, 6.8% of the students reported never or rarely washing their hands before eating (during the 30 days before the survey), with no significant differences by sex or age. A similar proportion of students (8.6%) never or rarely washed their hands after using the toilet or latrine (during the 30 days before the survey), with a significant difference by sex (11.5% of males versus 5.9% of females). In addition, 5.9% of the students never or rarely used soap when washing their hands during the 30 days before the survey, with no significant difference by age or sex. Among students who had a toilet or latrine at school, 8.5% did not have a place to wash their hands after using the toilet. About 7% of students reported no access to clean water for drinking at schools, with no significant difference by age or sex.

Between 2007 and 2016, the proportion of 13–15-year-old students who regularly brushed their teeth one or more times per day during the past 30 days declined from 95.6% to 93.8%, whereas the percentage of those who never or rarely washed their hands before eating increased significantly from 2.8% to 6.6%. The percentage of those who never or rarely washed their hands after using the toilet or latrine increased significantly from 3.4% to 8.6%, and those who never or rarely used soap for washing their hands also increased significantly from 3.3% to 5.8%. The proportion of students who did not have a clean source of drinking water at school increased from 4.3% to 6.6%.

Table 12. Oral hygiene, handwashing practices, and access to clean drinking water among students 13–17 years of age in Myanmar, GSHS, 2016

	Cleaned or brushed teeth \geq once/day ^a	Never/ rarely washed hands before eating ^a	Never/ rarely washed hands after using the toilet ^a	Never/ rarely used soap when washing hands ^a	No place to wash hands after using the toilet at school ^b	No source of clean water for drinking at school
Sex	(%)	(%)	(%)	(%)	(%)	(%)
Male	92.5	8.5	11.5*	7.1	7.7	7.6
Female	94.9	5.0	5.9	4.8	9.3	6.8
Age (years)						
13–15	93.8	6.6	8.6	5.8	8.3	6.6
16–17	93.7	7.6	8.6	6.2	9.6	10.4
Total (13–17)	93.8	6.8	8.6	5.9	8.5	7.2

• Differences across groups are statistically significant at 95% level.

a One or more times during the 30 days before the survey; **b** Among students who had toilets/ latrines at school

4. Discussion

Myanmar has one of the highest literacy rates (90% in those aged 15 years or more) in the WHO Southeast Asia Region. However, the school attendance rates decline substantially from about 70% at age 13 years to about 30% at age 17 years (2). Hence, while this report is about schoolgoing adolescents, it is worth mentioning here that out-of-school youth remain one of the most vulnerable populations in Myanmar, with the school dropout rate being as high as 55% in grade 11. Such youth may have worse indicators than those presented for schoolgoing adolescents in this report (13,14).

4.1 Nutrition status, dietary behaviours and physical activity

The GSHS 2016 revealed underweight to be a major problem among 13–17-year-old adolescents (18%). This is in line with and an improvement over the findings reported in the national nutritional survey (2002) among 10–19 year olds (15) (41.5% of boys and 22.2% of girls underweight; 38% of boys and 30% of girls stunted. However, while underweight is still pervasive, the problem of overweight and obesity also seems to be emerging slowly in this age group, with an increase in the prevalence of overweight among 13–15 year olds from 5.1% to 8% and obesity from 0.7% to 1.9% between 2007 and 2016. These are tell-tale signs of an emerging double burden of malnutrition and overnutrition in a transitioning health landscape. Interestingly, boys were twice as likely to be underweight compared to girls. The reasons for these differences in nutritional status by sex need further study.

These nutritional status indicators in Myanmar may be viewed in the context of dietary behaviours. WHO recommends that a healthy diet should include fruits, vegetables, legumes, nuts and whole grains, and at least 400 g of fruits and vegetables (or five servings) a day. However, only 18% of adolescents reported regularly eating fruits and vegetables two or more times, and three or more times per day, respectively.

WHO recommends the restriction of free sugar to less than 10% of the total energy intake as part of a healthy diet, and further limitation to 5% for additional health benefits. Sugary sweetened beverages led by carbonated drinks are the leading source of free sugars consumed by young people and

fast food outlets too often provide foods and beverages high in fat, sugar, salt and energy. In this survey, almost half the students reported consuming carbonated soft drinks one or more times per day and a similar proportion (46.4%) reported eating junk food such as potato chips, fried foods, instant noodles, etc. from street vendors. These poor dietary habits of adolescents noted in the current survey are in line with a previous study that noted >50% of adolescents eating unhealthy snacks, as a result of advertisement, curiosity or peer influence (16). A study conducted among adolescent schoolgirls in a delta region of Myanmar reported a very high prevalence of folate deficiency and highly inadequate dietary intake of vitamin A, vitamin C, vitamin B6 and calcium (17).

In addition to poor dietary habits, the majority of the youth failed to meet the WHO recommendations on physical activity; these indicators seem to be deteriorating since the 2007 survey.

These worsening dietary habits and physical activity patterns, along with an increasing prevalence of obesity are harbingers of an expanding NCD epidemic and should be taken seriously. School canteens and school health programmes may play a major role in promoting healthy dietary habits and physical activity among the youth. The Ministry of Education and Ministry of Health and Sports may need to work together to strengthen health-promoting schools in the country.

4.2 Tobacco, alcohol and substance use

The survey results show high levels of use of both smoked and smokeless tobacco, which shows no definite sign of decline ever since Myanmar started monitoring tobacco use among adolescents through the GYTS among 13–15 year olds in 2001. Tobacco use among adolescents – both smoked and smokeless – seems to be either stagnant at high levels or is increasing, based on an assessment of tobacco use data from five rounds of GYTS and two rounds of GSHS, though a high percentage of tobacco users (nearly about 80%) have reported trying to quit smoking in all of these surveys. This raises a concern about the effectiveness of current tobacco control measures carried out in Myanmar (18). A large proportion of adolescent tobacco users also reported starting tobacco use very early in life. Tobacco control interventions have thus to be initiated earlier than what is being currently practised.

Similar to tobacco use, the exposure to SHS remains high across the different rounds of GYTS and GSHS. There is a non-significant increase in the reported SHS exposure from 67% to 73% among 13–15 year olds between 2007 and 2016, as well as in different rounds of GYTS.

In Myanmar, the Control of Smoking and Consumption of Tobacco Product Law (2006) prohibits the sale of tobacco to or by minors under the age of 18 years and sale of tobacco products within the school compound or within 100 feet from the compound of the schools. The findings of this survey, especially the high reported use of tobacco in 13–17-year-old students, builds up a case for strengthening the enforcement of these laws. Myanmar needs a broad comprehensive tobacco control strategy that covers both smoked tobacco (cigarettes as well as other smoked tobacco products such as cheroots) and smokeless tobacco (chewing betel quid with tobacco).

The reported use of alcohol at 5%, though lower than tobacco use, seems to have increased significantly between 2007 and 2016 (0.8% to 3.9% among 13–15 year olds). There was an increase in heavy drinking (1.4% to 3%) as well, though the differences were not statistically significant. The proportion of students who reported ever use of drugs was low in both the GSHS rounds. Notwithstanding this relatively lower use reported in the GSHS, some smaller studies have pointed to a much higher level of use. A study among ninth grade students in Hlaing township reported alcohol consumption at 31% and ever drug use at 9% (19). Another study conducted among community youth aged 15–24 years in selected townships of Myanmar reported alcohol consumption among 32% of the respondents (20). This study also reported that exposure to parents' behaviour, having close friends with similar behaviour patterns, and peer pressure were influential in determining smoking and drinking among community youth (20). Although there are methodological differences between the GSHS and these studies, the high prevalence of alcohol consumption in these smaller studies and some anecdotal evidence that nine out of ten young people in the 15–19-year-old population were using drugs in certain parts of Shan East raises concerns about the possibility of hidden drug problems (21).

According to the WHO Global Status report on alcohol and health 2014 (8), while Myanmar has set a minimum legal age of 18 years for consumption and purchase of alcohol and a legal blood alcohol concentration level when driving, and regulates advertisements promoting alcohol, it has no national action plan or policy on alcohol control, no regulations on sale or promotion,

and no legal requirement for health warning labels on containers. Similarly, as of now, while Myanmar has national policies to control substance use and legislative provisions for persons with substance use disorders, the availability and coverage of treatment facilities are less than optimal (22,23). These policy gaps need to be overcome to prevent the harmful use of alcohol and substance use from emerging as major public health issues.

4.3 Mental health

Every year millions of adolescents attempt suicide worldwide, with suicide being the second most common cause of death among adolescents after road traffic injuries (24). In this survey, almost one in 10 respondents displayed suicidal ideation or reported feeling lonely. However, compared to the 2007 GSHS, the mental health indicators have worsened; the proportion of those who seriously considered attempting suicide increased significantly from 0.7% to 9.2% and those who felt lonely also increased significantly from 3.8% to 8.3%.

According to the WHO report (24) on balancing protection and risks for adolescents, a positive relationship with teachers and positive attitudes towards school seem to protect against depression. Parental bonding and connection is associated with lower levels of depression and suicidal ideation, alcohol use, sexual risk behaviours and violence. In 2016, more than half of the participants reported adequate parental engagement in their activities, indicating fair family support systems. However, the comparison of results from the 2007 and 2016 surveys show deterioration in reported parental engagement, with the proportion of parents or guardians who rarely knew what their children did with their free time increasing significantly from 11.2% to 20.4%. In addition, only one third of the respondents perceived other students in their school as helpful most of the time or always, and a little more than one quarter of the respondents reported missing school without permission. The reasons for missing school without permission and its association with other risk factors need to be explored further. School authorities and teachers should encourage supportive and respectful relationships among students to ensure the physical, mental and social well-being of adolescents in schools.

Myanmar's Mental Health Project was launched in 2006 and integrated into school health services as part of managing stress among schoolchildren (13). But there are several gaps in and challenges to promoting mental health among school adolescents in Myanmar. At present, the mental health

workforce is grossly inadequate; according to the Mental health atlas 2011, the number of psychiatrists per 100 000 population was just 0.09 (25). This shows that more innovative solutions are required to promote the mental health of adolescents than relying on the traditional health-care systems. Proactive suicide prevention programmes may be required as part of school education programmes. These programmes should include proactive identification of high-risk students by teachers and appropriate care and referral for these students.

4.4 Violence and injuries

Injuries and violence, particularly road traffic injuries, are a leading cause of death among adolescents. In addition, bullying has become a serious public health concern as victims of bullying have increased stress and a reduced ability to concentrate, and are at increased risk for substance use, aggressive behaviour and suicide attempts (11,26–28). The percentage of 13–15-year-old students who reported being seriously injured increased significantly from 27% to 36.4% between 2007 and 2016. The high prevalence of physical violence and bullying noted in the current survey, which seemed to have increased since 2007, calls for urgent attention and further assessment of this issue.

The Global status report on violence prevention, 2014 reported that Myanmar had a national action plan for preventing youth violence and has laws against weapons on school premises but limited control over gang membership in schools, limited form of youth violence prevention programmes, life skills, social development training, mentoring and for bullying in the school (28). These areas need to be strengthened further to reduce the high level of violence and bullying noted in Myanmar schools in this survey.

4.5 HIV/AIDS knowledge

The high level of knowledge of HIV/AIDS noted in the 2016 GSHS was in line with the findings of the behavioural surveillance survey (BSS), 2003 in which over 90% of youth reported having heard of HIV/AIDS. However, BSS 2003 also reported that a majority of youth had misconceptions regarding the spread of HIV/AIDS (29). Hence, a general overarching question employed in the GSHS may overestimate the knowledge of HIV/AIDS.

Myanmar is one of the Asian countries to be hardest hit by HIV/AIDS and, as a result, a successful control programme has raised the level of awareness among adolescents but as the country becomes more liberal and open to Western culture, the youth of the nation must be educated on the importance of safe sexual practices.

School health programmes can help the youth adopt lifelong attitudes and behaviours that support overall health and well-being, including behaviours that can reduce unwanted pregnancy and other sexually transmitted infections (STIs).

4.6 Personal hygiene

Overall, personal hygiene levels were noted to be satisfactory in this survey with no significant change in the situation since the 2007 survey. Less than 10% of the students reported lack of access to clean drinking water at schools. Toothbrushing practices did not change very much between the two GSHS rounds but the proportion of 13–15 year olds who did not wash their hands before eating significantly increased from 2.8% to 6.6%, and from 3.4% to 8.6% for after using the toilet. However, in contrast to these findings, a cross-sectional study among children aged 12–13 years in Yangon, Myanmar found that just 14% had good oral hygiene habits (30). Availability and access to safe water and improved sanitary facilities have an impact on the personal hygiene practices of children. According to the 2014 Myanmar Census report, 69.5% of all households had an improved water source and 74.3% of all households have improved sanitation facilities (2). Hence, there is much room for improvement with regard to improving access to clean drinking water across schools and households, and increased access to improved sanitation.

5. Challenges and recommendations

The results of the GSHS provide nationally representative findings on specific health behaviours and risk factors among 13–17-year-old schoolgoing adolescents in Myanmar. The results may be used to prioritize and inform policies, programmes and service development targeted towards adolescents. It is of utmost importance to remember that the GSHS only captures the behaviours of schoolgoing adolescents and any policy implications for the whole group of adolescents must take into account the vulnerability of out-of-school adolescents, who are undoubtedly at higher risk than their schoolgoing peers.

The survey revealed some encouraging findings, such as a high level of personal hygiene practices, moderately high levels of parental engagement and high levels of HIV/AIDS knowledge. But some of the worrisome findings were poor nutritional status, poor dietary habits and low levels of physical activity, high levels of tobacco use, relatively high incidence of injuries, physical violence, and bullying and poor mental health indicators.

Apart from the above finding of current high levels of certain risk factors and health problems, there were also some varying trends compared to the 2007 GSHS findings, such as a decline in the proportion of students eating fruits regularly, decline in regular physical activity, increase in sedentary activities, increase in alcohol consumption, increase in suicidal ideation, sleeplessness, loneliness and depressed mood, increase in school bullying, increase in the proportion of those who were seriously injured, decline in HIV/AIDS awareness and decline in proper handwashing habits.

These findings point out the need for comprehensive school health activities by related ministries and all stakeholders. Myanmar's schoolgoing adolescents are at increased need of focused interventions to reduce exposure to risk factors of NCDs, nutrition and mental health issues through multisectoral approaches.

Myanmar has to tread carefully to take full advantage of its demographic dividend to achieve greater socioeconomic prosperity for future generations. In this regard, government and all related sectors have to invest in the overall development of young people, especially focusing on education and health.

There are still challenges in providing equitable and accessible youth-friendly health services that are confidential and private (31), integrating the services at the community level, and training health staff to better cater to the needs of young persons. Innovative programmes such as the Youth Information Corners (YIC) run jointly by the United Nations Population Fund (UNFPA) and the Government should be expanded to bring more vulnerable youth into the safety net of community support programmes. Existing national policies and laws that affect adolescent health should be reviewed and strengthened to fill the gaps and their scope expanded to include focused interventions for adolescents.

Life skills education not only for in-school students but also for out-of-school youth should be strengthened and made a main part of the education and training system. Moreover, a well-organized and integrated information system needs to be considered for programme effectiveness.

Finally, community participation in development programmes for young people should be promoted to achieve socioeconomic development of the country.

References

1. Myanmar. In: The World Bank [online database]. World Bank; 2017. (<http://data.worldbank.org/country/myanmar> , accessed 22 June 2018).
2. The 2014 Myanmar population and housing census: highlights of the main results. Census report volume 2-A. Naypyitaw: Ministry of Immigration and Population; 2015 (<https://reliefweb.int/report/myanmar/2014-myanmar-population-and-housing-census-union-report-census-report-volume-2-b-enmy> , accessed 22 June 2018).
3. Five-year strategic plan for young people's health (2016–2020). Naypyitaw: Ministry of Health; 2016 (<http://myanmar.unfpa.org/publications/five-year-strategic-plan-young-peoples-health-2016-2020>, accessed 22 June 2018).
4. Global school-based student health survey (GSHS). In: World Health Organization [website]. Geneva: World Health Organization (<http://www.who.int/chp/gshs/en/>, accessed 22 June 2018).
5. Education system in Myanmar: self-evaluation and future plans. Naypyitaw: Ministry of Education; 2013 (<http://www.myanmar-education.edu.mm/dhel/education-system-in-myanmar/education-structure/>, accessed 22 June 2018).
6. Warburton DER, Nicol CW, Bredin SSD. Health benefits of physical activity: the evidence. *Can Med Assoc J.* 2006;174(6):801–9.
7. Global recommendations on physical activity for health. Geneva: World Health Organization; 2010 (<http://www.who.int/dietphysicalactivity/publications/9789241599979/en/>, accessed 22 June 2018).
8. Global status report on alcohol and health 2014. Geneva: World Health Organization; 2014 (http://www.who.int/substance_abuse/publications/global_alcohol_report/msb_gsr_2014_1.pdf?ua=1, accessed 22 June 2018).
9. Poikolainen K, Tuulio-Henriksson A, Aalto-Setälä T, Marttunen M, Lönnqvist J. Predictors of alcohol intake and heavy drinking in early adulthood: a 5-year follow-up of 15–19-year-old Finnish adolescents. *Alcohol Alcohol.* 2001;36(1):85–8.
10. Health behaviour in school-aged children: a WHO cross-national study (HBSC) international report. Copenhagen: World Health Organization Regional Office for Europe; 2000 (http://www.euro.who.int/__data/assets/pdf_file/0006/119571/E67880.pdf, accessed 22 June 2018).

11. Child and adolescent injury prevention : a global call to action. Geneva: World Health Organization; 2005 (http://apps.who.int/iris/bitstream/10665/43279/1/9241593415_eng.pdf, accessed 22 June 2018).
12. Global AIDS update 2016. Geneva: UNAIDS; 2016 (http://www.unaids.org/sites/default/files/media_asset/global-AIDS-update-2016_en.pdf, accessed 22 June 2018).
13. National service standards and guidelines on adolescent and youth health care. Naypyitaw: Ministry of Health; 2013 (http://www.burmalibrary.org/docs21/2013-National_Service_Standards&%20Guidelines_on_Adolescent&Youth_Health_Care-en-red.pdf, accessed 22 June 2018).
14. Report on situation analysis of population and development, reproductive health and gender in Myanmar. UNFPA; 2010 (<http://myanmar.unfpa.org/publications/report-situation-analysis-population-and-development-reproductive-health-and-gender>, accessed 22 June 2018).
15. National Nutrition Centre. National haemoglobin and nutritional status survey among adolescents. Myanmar: Ministry of Health; 2002.
16. Aung PP. Adolescent nutrition situation in Myanmar. Paper presented at WHO Regional Office for South-East Asia Regional Meeting for improvement of nutritional status of adolescents, Chandigarh, India, 17–19 Sept 2002.
17. Htet MK, Fahmida U, Thurnham DI, Hlaing LM, Akib A, Utomo B et al. Folate and vitamin B12 status and dietary intake of anaemic adolescent schoolgirls in the delta region of Myanmar. *Br J Nutr.* 2016;116:S36–41.
18. Myanmar 2011 country report global youth tobacco survey (GYTS). Naypyitaw: Ministry of Health; 2011.
19. Htoon P, Myint Y, Thwe M. Risk behaviors, attitudes and subjective norms among ninth standard students in Hlaing Township. *Regional Health Forum.* 1999;3:1–10.
20. Htay SS, Oo M, Yoshida Y, Harun-Or-Rashid M, Sakamoto J. Risk behaviours and associated factors among medical students and community youths in Myanmar. *Nagoya J Med Sci.* 2010;72:71–81.
21. UNFPA Myanmar annual report 2015. Yangon: UNFPA; 2015 (<http://myanmar.unfpa.org/publications/unfpa-myanmar-annual-report-2015>, accessed 22 June 2018).
22. The CIA world factbook: Burma. Washington, DC: Central Intelligence Agency; 2017 (https://www.cia.gov/library/publications/the-world-factbook/geos/print_bm.html, accessed 22 June 2018).

23. Atlas on substance use: resources for the prevention and treatment of substance use disorders. Geneva: World Health Organization; 2010 (http://www.who.int/substance_abuse/publications/atlas_report/profiles/myanmar.pdf?ua=1, accessed 22 June 2018).
24. Broadening the horizon: balancing protection and risk for adolescents. Geneva: World Health Organization; 2002 (http://www.who.int/maternal_child_adolescent/documents/fch_cah_01_20/en/, accessed 11 June 2018)
25. Mental health atlas 2011. Geneva: World Health Organization; 2011 (http://www.who.int/mental_health/evidence/atlas/profiles/mmr_mh_profile.pdf?ua=1, accessed 22 June 2018).
26. Global estimates of health consequences due to violence against children. Background paper to the UN secretary-general's study on violence against children. Geneva: World Health Organization; 2006.
27. School bullying: key facts . Dublin: Trinity college; 2002 (http://www.wexfordcbs.ie/wp-content/uploads/2013/01/School_Bullying_-_Key_Facts.pdf, accessed 22 June 2018).
28. World Health Organization, United Nations Development Programme, United Nations Office on Drugs and Crime. Global status report on violence prevention 2014 . Geneva: World Health Organization; 2014 (http://www.who.int/violence_injury_prevention/violence/status_report/2014/en/, accessed 22 June 2018).
29. Behavioural Surveillance Survey (BSS) 2003, general population and youth. Naypyitaw: Ministry of Health; 2005 (<http://data.unaids.org/pub/report/2005/myanmar-bss-2003.pdf>, accessed 22 June 2018).
30. Phyto AZZ, Chansatitporn N, Narksawat K. Oral health status and oral hygiene habits among children aged 12-13 years in Yangon, Myanmar. Southeast Asian J Trop Med Public Health. 2013;44(6):1108–14.
31. Thin Zaw PP, Liabsuetrakul T, Htay TT, McNeil E. Equity of access to reproductive health services among youths in resource-limited suburban communities of Mandalay City, Myanmar. BMC Health Serv Res. 2012;12:458.

Annex 1.

GSHS Myanmar questionnaire, 2016

1. How old are you?

- A. 11 years old
- B. 12 years old
- C. 13 years old
- D. 14 years old
- E. 15 years old
- F. 16 years old
- G. 17 years old
- H. 18 years old or older

2. What is your sex?

- A. Male
- B. Female

3. In what grade are you?

- A. Grade 7
- B. Grade 8
- C. Grade 9
- D. Grade 10
- E. Some other grade

4. Who is most responsible for your care at home?

- A. My parents
- B. My grand parents
- C. My brother or sister
- D. Some other relative
- E. Someone else

5. Where do you live?

- A. At home
- B. In a hostel
- C. In a monastery
- D. In some other place

The next 6 questions ask about your height, weight, and when you eat.























6. How tall are you without your shoes on? ON THE ANSWER SHEET, WRITE YOUR HEIGHT IN THE SHADED BOXES AT THE TOP OF THE GRID. THEN FILL IN THE OVAL BELOW EACH NUMBER.

Example

Height (cm)		
1	5	3
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input checked="" type="radio"/>	<input type="text" value="1"/>	<input type="text" value="1"/>
<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>
	<input type="text" value="3"/>	<input checked="" type="radio"/>
	<input type="text" value="4"/>	<input type="text" value="4"/>
	<input checked="" type="radio"/>	<input type="text" value="5"/>
	<input type="text" value="6"/>	<input type="text" value="6"/>
	<input type="text" value="7"/>	<input type="text" value="7"/>
	<input type="text" value="8"/>	<input type="text" value="8"/>
	<input type="text" value="9"/>	<input type="text" value="9"/>
<input type="text" value="9"/>	I do not know	

7. How much do you weigh without your shoes on? ON THE ANSWER SHEET, WRITE YOUR WEIGHT IN THE SHADED BOXES AT THE TOP OF THE GRID. THEN FILL IN THE OVAL BELOW EACH NUMBER.

Example

Weight (kg)		
2	5	0
		
		
		
		
		
		
		
		
		
		
	I do not know	

8. During the past 12 months, have you been weighed and measured?

- A. Yes
- B. No

9. How do you describe your weight?

- A. Very underweight
- B. Slightly underweight
- C. About the right weight
- D. Slightly overweight
- E. Very overweight

10. During the past 30 days, how often did you go hungry because there was not enough food in your home?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

11. During the past 30 days, how often did you eat breakfast?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

The next 4 questions ask about what you might eat and drink.

12. During the past 30 days, how many times per day did you usually eat fruit, such as bananas, mangoes, papayas, guava, palms, water melon, pineapples, grapes, apples, or oranges?

- A. I did not eat fruit during the past 30 days
- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

13. During the past 30 days, how many times per day did you usually eat vegetables, such as Ka-zun, Chin-baung, spinach, cucumber, cabbage, or beans?

- A. I did not eat vegetables during the past 30 days

- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

14. During the past 30 days, how many times per day did you usually drink carbonated soft drinks, such as Coca Cola or Sprite? (Do not include diet soft drinks.)

- A. I did not drink carbonated soft drinks during the past 30 days
- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

15. During the past 7 days, on how many days did you eat junk food from street vendors, such as potato chips, grilled meat, fried foods, instant noodles, burgers, hot dogs, or ice-bars?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

The next 6 questions ask about cleaning your teeth and washing your hands.

16. During the past 30 days, how many times per day did you usually clean or brush your teeth?

- A. I did not clean or brush my teeth during the past 30 days
- B. Less than 1 time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 or more times per day

17. During the past 30 days, how often did you wash your hands before eating?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

18. During the past 30 days, how often did you wash your hands after using the toilet or latrine?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

19. Is there a place for you to wash your hands after using the toilet or latrine at school?

- A. There are no toilets or latrines at school
- B. Yes
- C. No

20. During the past 30 days, how often did you use soap when washing your hands?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

21. Is there a source of clean water for drinking at school?

- A. Yes
- B. No

The next question asks about physical attacks. A physical attack occurs when one or more people hit or strike someone, or when one or more people hurt another person with a weapon (such as a stick, knife, or gun). It is not a physical attack when two students of about the same strength or power choose to fight each other.

22. During the past 12 months, how many times were you physically attacked?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

The next question asks about physical fights. A physical fight occurs when two students of about the same strength or power choose to fight each other.

23. During the past 12 months, how many times were you in a physical fight?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

The next 5 questions ask about serious injuries that happened to you. An injury is serious when it makes you miss at least one full day of usual activities (such as school, sports, or a job) or requires treatment by a doctor or nurse.

24. During the past 12 months, how many times were you seriously injured?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

25. During the past 12 months, what was the most serious injury that happened to you?

- A. I was not seriously injured during the past 12 months
- B. I had a broken bone or a dislocated joint
- C. I had a cut or stab wound

- D. I had a concussion or other head or neck injury, was knocked out, or could not breathe
- E. I had a gunshot wound
- F. I had a bad burn
- G. I was poisoned or took too much of a drug
- H. Something else happened to me

26. During the past 12 months, what was the major cause of the most serious injury that happened to you?

- A. I was not seriously injured during the past 12 months
- B. I was in a motor vehicle accident or hit by a motor vehicle
- C. I fell
- D. Something fell on me or hit me
- E. I was attacked or abused or was fighting with someone
- F. I was in a fire or too near a flame or something hot
- G. I inhaled or swallowed something bad for me
- H. Something else caused my injury

27. During the past 12 months, what were you doing when the most serious injury happened to you?

- A. I was not seriously injured during the past 12 months
- B. Playing or training for a sport
- C. Walking or running, but not as part of playing or training for a sport
- D. Riding a bicycle or scooter
- E. Riding or driving in a car or other motor vehicle
- F. Doing any paid or unpaid work, including housework, yard work, or cooking
- G. Nothing
- H. Something else

28. During the past 12 months, how did the most serious injury happen to you?

- A. I was not seriously injured during the past 12 months
- B. I hurt myself by accident
- C. Someone else hurt me by accident
- D. I hurt myself on purpose
- E. Someone else hurt me on purpose

The next 2 questions ask about bullying. Bullying occurs when a student or group of students say or do bad and unpleasant things to another student. It is also bullying when a student is teased a lot in an unpleasant way or when a student is left out of things on purpose. It is not bullying when two students of about the same strength or power argue or fight or when teasing is done in a friendly and fun way.

29. During the past 30 days, on how many days were you bullied?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

30. During the past 30 days, how were you bullied most often?

- A. I was not bullied during the past 30 days
- B. I was hit, kicked, pushed, shoved around, or locked indoors
- C. I was made fun of because of my race, nationality, or color
- D. I was made fun of because of my religion
- E. I was made fun of with sexual jokes, comments, or gestures
- F. I was left out of activities on purpose or completely ignored

- G. I was made fun of because of how my body or face looks
- H. I was bullied in some other way

The next 7 questions ask about your feelings and friendships.

31. During the past 12 months, how often have you felt lonely?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

32. During the past 12 months, how often have you been so worried about something that you could not sleep at night?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

33. During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing your usual activities?

- A. Yes
- B. No

34. During the past 12 months, did you ever seriously consider attempting suicide?

- A. Yes
- B. No

35. During the past 12 months, did you make a plan about how you would attempt suicide?

- A. Yes
- B. No

36. During the past 12 months, how many times did you actually attempt suicide?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or more times

37. How many close friends do you have?

- A. 0
- B. 1
- C. 2
- D. 3 or more

The next 7 questions ask about use of smoking tobacco and smokeless tobacco.

38. How old were you when you first tried smoking tobacco including cigarette, pipes, cheroots, cigars, hand-rolled corn cheroots, water pipes, or bidis?

- A. I have never smoked tobacco
- B. 7 years old or younger
- C. 8 or 9 years old
- D. 10 or 11 years old
- E. 12 or 13 years old
- F. 14 or 15 years old
- G. 16 or 17 years old

H. 18 years old or older

39. During the past 30 days, on how many days did you use any form of smoking tobacco?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

40. During the past 30 days, on how many days did you use smokeless tobacco including snuff, chewing tobacco, or betel quid with tobacco?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

41. During the past 12 months, have you tried to stop using any form of tobacco?

- A. I did not use any form of tobacco during the past 12 months
- B. Yes
- C. No

42. During the past 7 days, on how many days have people smoked in your presence?

- A. 0 days
- B. 1 or 2 days
- C. 3 or 4 days
- D. 5 or 6 days
- E. All 7 days

43. Which of your parents or guardians use any form of tobacco?

- A. Neither
- B. My father or male guardian
- C. My mother or female guardian
- D. Both
- E. I do not know

44. During this school year, were you taught in any of your classes about the danger of tobacco use?

- A. Yes
- B. No
- C. I do not know

The next 7 questions ask about drinking alcohol. This includes drinking beer, whisky, wine, palm juice, rum, or cocktails. Drinking alcohol does not include drinking a few sips of wine for religious purposes. A "drink" is a glass of wine, a bottle of beer, a small glass of liquor, or a mixed drink.

45. How old were you when you had your first drink of alcohol other than a few sips?

- A. I have never had a drink of alcohol other than a few sips
- B. 7 years old or younger
- C. 8 or 9 years old
- D. 10 or 11 years old

- E. 12 or 13 years old
- F. 14 or 15 years old
- G. 16 or 17 years old
- H. 18 years old or older

46. During the past 30 days, on how many days did you have at least one drink containing alcohol?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

47. During the past 30 days, on the days you drank alcohol, how many drinks did you usually drink per day?

- A. I did not drink alcohol during the past 30 days
- B. Less than one drink
- C. 1 drink
- D. 2 drinks
- E. 3 drinks
- F. 4 drinks
- G. 5 or more drinks

48. During the past 30 days, how did you usually get the alcohol you drank? SELECT ONLY ONE RESPONSE.

- A. I did not drink alcohol during the past 30 days
- B. I bought it in a store, shop, or from a street vendor
- C. I gave someone else money to buy it for me
- D. I got it from my friends

- E. I got it from my family
- F. I stole it or got it without permission
- G. I got it some other way

Staggering when walking, not being able to speak right, and throwing up are some signs of being really drunk.

49. During your life, how many times did you drink so much alcohol that you were really drunk?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 or more times

50. During your life, how many times have you got into trouble with your family or friends, missed school, or got into fights, as a result of drinking alcohol?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 or more times

51. Which of your parents or guardians drink alcohol?

- A. Neither
- B. My father or male guardian
- C. My mother or female guardian
- D. Both
- E. I do not know

The next 4 questions ask about drug use. This includes using marijuana, amphetamines, cocaine, inhalants, and glue sniffing.

52. How old were you when you first used drugs?

- A. I have never used drugs
- B. 7 years old or younger
- C. 8 or 9 years old
- D. 10 or 11 years old
- E. 12 or 13 years old
- F. 14 or 15 years old
- G. 16 or 17 years old
- H. 18 years old or older

53. During your life, how many times have you used drugs, including marijuana, amphetamines, cocaine, or inhalants?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 or more times

**54. Which of the drugs listed below have you used most often?
(SELECT ONLY ONE RESPONSE.)**

- A. I have never used any of these drugs
- B. Marijuana or hashish
- C. Tranquilizers or sedatives, such as diazepam, without a doctor or nurse telling you to do so
- D. Amphetamines
- E. Methamphetamines
- F. Crack or other forms of cocaine
- G. Solvents or inhalants
- H. Some other drug

55. During this school year, were you taught in any of your classes, the problems associated with using drugs, such as marijuana, amphetamines, cocaine, or inhalants?

- A. Yes
- B. No
- C. I do not know

The next 3 questions ask about physical activity. Physical activity is any activity that increases your heart rate and makes you get out of breath some of the time. Physical activity can be done in sports, playing with friends, or walking to school. Some examples of physical activity are running, fast walking, biking, dancing, football, jumping rope, Htoke-see-toe, Sein-pyay-lite, rattan ball, volleyball, and badminton

56. During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? ADD UP ALL THE TIME YOU SPENT IN ANY KIND OF PHYSICAL ACTIVITY EACH DAY.

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

57. During the past 7 days, on how many days did you walk or ride a bicycle to or from school?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days

- G. 6 days
- H. 7 days

58. During this school year, on how many days did you go to physical education (PE) class each week?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 or more days

The next question asks about the time you spend mostly sitting when you are not in school or doing homework.

59. How much time do you spend during a typical or usual day sitting and watching television, playing computer games, talking with friends, or doing other sitting activities, such using smart phones, gambling, or chatting at the teashop?

- A. Less than 1 hour per day
- B. 1 to 2 hours per day
- C. 3 to 4 hours per day
- D. 5 to 6 hours per day
- E. 7 to 8 hours per day
- F. More than 8 hours per day

The next 6 questions ask about your experiences at school and at home.

60. During the past 30 days, on how many days did you miss classes or school without permission?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days

- D. 6 to 9 days
- E. 10 or more days

61. During the past 30 days, how often were most of the students in your school kind and helpful?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

62. During the past 30 days, how often did your parents or guardians check to see if your homework was done?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

63. During the past 30 days, how often did your parents or guardians understand your problems and worries?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

64. During the past 30 days, how often did your parents or guardians really know what you were doing with your free time?

- A. Never
- B. Rarely

- C. Sometimes
- D. Most of the time
- E. Always

65. During the past 30 days, how often did your parents or guardians go through your things without your approval?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

The next 5 questions ask about HIV infection or AIDS.

66. Have you ever heard of HIV infection or the disease called AIDS?

- A. Yes
- B. No

67. During this school year, were you taught in any of your classes about HIV infection or AIDS?

- A. Yes
- B. No
- C. I do not know

68. During this school year, were you taught in any of your classes how to avoid HIV infection or AIDS?

- A. Yes
- B. No
- C. I do not know

69. Have you ever talked about HIV infection or AIDS with your parents or guardians?

- A. Yes
- B. No

70. During this school year, were you taught in any of your classes about reproductive health?

- A. Yes
- B. No
- C. I do not know

Annex 2.

Comparison of key indicators between 2016 and 2007 GSHS data among students 13–15 years of age in Myanmar

	2007				2016		
	Students aged 13–15 years				Students aged 13–15 years		
	Total	Males	Females	% (CI)	Total	Males	Females
	% (CI)	% (CI)	% (CI)	% (CI)	% (CI)	% (CI)	% (CI)
1. Nutritional status							
Overweight ^b	5.1 (3.2–7.0)	4 (1.9–6.1)	6 (3.6–8.4)		8 (5.2–12.2)	7.7 (5.2–11.3)	8.3 (5.0–13.3)
Obese ^c	0.7 (0.3–1.1)	0.6 (0.0–1.2)	0.7 (0.2–1.2)		1.9 (1.4–2.7)	2.3 (1.4–3.8)	1.6 (1.0–2.6)
Went hungry most of the time or always because there was not enough food during the past 30 days	2.6 (1.0–4.2)	2.3 (1.3–3.4)	2.9 (0.2–5.6)		2.4 (1.5–3.7)	3 (1.6–5.5)	1.8 (1.0–3.3)

2. Lifestyle behaviours						
2.1 Dietary behaviour						
Ate breakfast most of the time or always during the past 30 days	81 (77.0–85.0)	80.9 (75.6–86.3)	81 (76.5–85.5)	73.9 (69.4–77.9)	75.3 (70.3–79.7)	72.8 (68.1–77.1)
Ate fruit one or more times per day during the past 30 days	76.3 (72.6–79.9)	71.8 (67.2–76.5)	80.7 (77.1–84.4)	61.2 (57.8–64.6)	59.7 (56.1–63.2)	62.4 (57.9–66.7)
Ate vegetables one or more times per day during the past 30 days	89.2 (87.1–91.3)	86.7 (83.7–89.6)	91.7 (89.5–93.9)	88.1 (85.7–90.1)	87 (83.5–89.8)	89 (86.3–91.3)
2.2 Physical activity						
Physically active at least 60 minutes per day on all 7 days during the past 7 days	15.9 (13.5–18.3)	18.6 (15.6–21.5)	13.2 (9.8–16.7)	10.1 (8.3–12.3)	12.5 (10.0–15.4)	8.1 (6.1–10.8)
Did not walk or ride a bicycle to or from school during the past 7 days	18.8 (14.6–23.0)	19.2 (14.9–23.5)	18.4 (13.1–23.7)	17.2 (14.0–20.8)	16.7 (13.8–20.1)	17.3 (13.0–22.8)
Spent three or more hours per day sitting and watching television, playing computer games, or talking with friends, when not in school or doing homework during a typical or usual day	10.5 (8.4–12.5)	12.8 (10.3–15.2)	8.2 (5.9–10.4)	16.4 (13.8–19.3)	17.1 (13.8–21.1)	15.4 (13.0–18.2)

3. Tobacco, alcohol and substance use							
3.1 Tobacco use							
Students who reported that people smoked in their presence on one or more days during the past 7 days	67.1 (62.9–71.3)	71.6 (66.8–76.3)	62.6 (57.7–67.6)	72.7 (69.3–75.9)	74.8 (71.0–78.3)	70.9 (65.9–75.4)	
Students who had parents or guardians who used any form of tobacco	38.1 (34.3–41.9)	41.2 (36.9–45.5)	35.1 (30.5–39.6)	42.5 (39.3–45.7)	42.5 (39.0–46.2)	42.4 (38.0–46.9)	
3.2 Alcohol use							
Currently drank alcohol (at least one drink of alcohol on at least one day during the past 30 days)	0.8 (0.3–1.3)	1.1 (0.3–1.9)	0.5 (0.0–1.1)	3.9 (2.7–5.7)	6.6 (4.7–9.1)	1.3 (0.5–3.5)	
Students whoever drank so much alcohol that they were really drunk one or more times during their life	1.4 (0.7–2.2)	2.6 (1.2–3.9)	0.3 (0.0–0.7)	3 (2.1–4.2)	5.5 (4.0–7.4)	0.7 (0.2–2.3)	
3.3 Drug use							
Ever used marijuana, ecstasy, heroine, methamphetamines, tranquilizers or sedatives (one or more times during their life)	0.4 (0.0–0.9)	0.4 (0.0–0.9)	0.5 (0.0–1.3)	1.1 (0.7–1.7)	1.9 (1.1–3.1)	0.3 (0.1–1.0)	

4. Mental health						
Most of the time or always felt lonely during the past 12 months	3.8 (2.1–5.5)	3.9 (1.7–6.0)	3.8 (2.3–5.3)	8.3 (6.9–9.8)	6.3 (4.6–8.7)	10 (7.8–12.8)
Who did not have any close friends	3.5 (2.3–4.7)	3.9 (2.0–5.8)	3.1 (2.0–4.2)	3.6 (2.7–4.8)	3.5 (2.3–5.1)	3.7 (2.4–5.6)
Most of the time or always were so worried about something that they could not sleep at night during the past 12 months	1.8 (1.1–2.5)	2.3 (1.3–3.2)	1.4 (0.5–2.3)	3.9 (3.0–4.9)	3.8 (3.0–4.8)	3.9 (2.7–5.6)
Who felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing their usual activities during the past 12 months	15 (11.6–18.4)	15.7 (11.8–19.6)	14.3 (10.4–18.2)	26.1 (23.3–29.1)	24.6 (21.8–27.6)	27.4 (23.5–31.7)
Seriously considered attempting suicide during the past 12 months	0.7 (0.3–1.2)	0.8 (0.3–1.3)	0.7 (0.0–1.3)	9.2 (7.0–12.0)	7.6 (5.1–11.2)	10.6 (8.2–13.4)
Made a plan about how they would attempt suicide during the past 12 months	0.1 (0.0–0.2)	0 (0.0–0.0)	0.1 (0.0–0.3)	6.8 (5.0–9.2)	4.9 (2.7–8.8)	8.6 (6.4–11.5)

5. Social and parental relationships

Most of the students in their school were most of the time or always kind and helpful during the past 30 days	43.3 (36.8–50.0)	41 (34.4–48.0)	45.6 (38.4–52.9)	38.9 (35.2–42.7)	34.7 (30.0–39.7)	42.7 (38.6–46.9)
Parents or guardians most of the time or always checked to see if their homework was done during the past 30 days	57.7 (51.9–63.3)	55.6 (49.6–61.6)	59.8 (52.9–66.4)	47 (42.9–51.2)	46.2 (40.9–51.6)	47.9 (42.4–53.4)
Parents or guardians most of the time or always understood their problems and worries during the past 30 days	62.6 (58.5–66.4)	56.9 (51.6–62.2)	68.1 (63.4–72.5)	52 (49.2–54.8)	46.8 (42.8–50.9)	56.8 (52.9–60.6)
Parents or guardians most of the time or always really knew what they were doing with their free time during the past 30 days	69.3 (64.8–73.5)	63.7 (58.7–68.4)	74.9 (69.3–79.3)	56.8 (53.4–60.2)	49.8 (45.7–53.9)	63.4 (59.1–67.5)
Missed classes or school without permission on one or more days during the past 30 days	19.9 (16.1–23.8)	22.8 (17.9–27.7)	17 (13.0–21.0)	25.6 (21.4–30.4)	31.2 (25.8–37.1)	20.3 (16.5–24.7)

6. Violence and injury

Who were physically attacked (one or more times during the past 12 months)	20.8 (15.2–26.3)	26.9 (20.5–33.4)	14.6 (9.6–19.6)	32.8 (29.1–36.8)	40.5 (36.3–44.9)	25.9 (21.7–30.7)
Who were in a physical fight one or more times during the past 12 months	14.6 (10.4–18.7)	21 (16.2–25.8)	8.1 (4.6–11.7)	24.1 (20.4–28.3)	31.1 (27.4–35.1)	17.4 (13.3–22.4)
Who were bullied on one or more days during the past 30 days	19.4 (14.8–24.0)	22.9 (17.2–28.6)	16 (12.0–20.1)	50.1 (45.8–54.3)	51.4 (46.2–56.5)	48.7 (44.0–53.5)
Percentage of students who were bullied most often by being hit, kicked, pushed, shoved around or locked indoors (among students who were bullied during the 30 days before the survey)	28.6 (19.6–37.5)	33.6 (23.2–44.0)	21.6 (11.2–31.9)	16.2 (13.2–19.7)	25 (19.7–31.3)	8.2 (5.2–12.9)
Who were seriously injured one or more times during the past 12 months	27 (22.0–31.9)	31.4 (25.2–37.5)	22.5 (18.1–27.0)	36.4 (33.3–39.6)	44.3 (40.6–48.0)	29.1 (25.3–33.2)
Who had a broken bone or a dislocated joint as their most serious injury (among students who were seriously injured during the past 12 months)	21.3 (16.2–26.5)	25.1 (18.9–31.2)	16.1 (8.9–23.3)	20.7 (17.3–24.6)	27.2 (22.3–32.8)	12.1 (8.7–16.5)

Who reported that they were in a motor vehicle accident or hit by a motor vehicle when the most serious injury happened to them (among students who were seriously injured during the past 12 months)	10.5 (7.6–14.3)	13.8 (9.2–20.4)	5.5 (2.7–10.9)	7.9 (5.8–10.9)	9.6 (6.4–14.1)	5.8 (3.5–9.5)
Who were playing or training for a sport when the most serious injury happened to them (among students who were seriously injured during the past 12 months)	25.2 (20.3–30.7)	34.8 (28.1–42.0)	11.6 (6.5–19.9)	39.2 (36.1–42.3)	53 (47.8–58.2)	22.3 (17.6–27.8)
Who hurt themselves by accident (among students who were seriously injured the during past 12 months)	58.9 (54.9–62.8)	55.9 (50.3–61.2)	63.2 (57.3–68.7)	70.6 (67.2–73.8)	67.2 (63.2–70.9)	74.8 (69.5–79.4)
7. Sexual behaviours and knowledge of HIV/AIDS						
Ever heard of HIV infection or AIDS	98.6 (97.8–99.4)	98.5 (97.7–99.3)	98.7 (97.6–99.8)	93 (90.3–95.0)	92.4 (89.4–94.7)	93.7 (90.7–95.8)
Who were taught in any of their classes about HIV infection or AIDS during this school year	80.2 (75.7–84.7)	82 (77.7–86.3)	78.4 (73.3–83.6)	70.1 (62.9–76.3)	70.2 (63.0–76.6)	69.8 (62.2–76.5)
Ever talked about HIV infection or AIDS with their parents or guardians	59.4 (54.1–64.7)	60 (54.0–66.0)	58.9 (52.3–65.4)	42.8 (37.7–48.0)	42.8 (37.4–48.4)	42.9 (37.3–48.7)

8. Hygiene habits						
Cleaned or brushed their teeth one or more times per day during the past 30 days	95.6 (94.1–96.7)	94.2 (92.0–95.9)	97 (96.5–98.0)	93.8 (91.8–95.3)	92.6 (89.0–95.1)	94.8 (93.1–96.2)
Never or rarely washed their hands before eating during the past 30 days	2.8 (1.4–4.2)	4.8 (2.3–7.4)	0.8 (0.3–1.3)	6.6 (5.3–8.2)	8.4 (5.9–11.7)	4.8 (3.3–7.0)
Never or rarely washed their hands after using the toilet or latrine during the past 30 days	3.4 (2.3–4.6)	4.9 (3.2–6.7)	1.9 (1.0–2.8)	8.6 (6.8–10.9)	11.7 (9.1–15.0)	5.7 (3.7–8.7)
Never or rarely used soap when washing their hands during the past 30 days	3.3 (2.2–4.5)	3.6 (2.1–5.1)	3 (1.7–4.4)	5.8 (4.8–7.1)	6.5 (5.0–8.5)	5.2 (3.9–6.9)
Students who did not have a source of clean water for drinking at school	4.3 (2.4–6.2)	4.5 (2.6–6.4)	4 (1.7–6.3)	6.6 (5.0–8.7)	7 (4.9–10.0)	6.1 (4.8–7.9)

a < -2 SD from median for BMI by age and sex; **b** > +1 SD from median for BMI by age and sex; **c** > +2 SD from median for BMI by age and sex

* Fewer than 100 students in this subgroup

Blurb

