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Impact of Youth Health Ambassador Programme on health awareness in youths in Singapore

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Abstract:

BACKGROUND: The Youth Health Ambassador Programme (YHAP) is a health educational program aimed at empowering youths to become health ambassadors in the community through raising their health awareness and training them in primary health prevention. This study evaluates the effectiveness of YHAP in improving the knowledge, attitudes, and practices (KAP) of participants in physical and mental health.

MATERIALS AND METHODS: This study followed a single-group quasi-experimental design, with a pre- and postworkshop KAP survey. Participants were junior college (JC) and polytechnic students in Singapore enrolled in YHAP. In total, 131 responses were analyzed for changes in KAP for physical and mental health before and after the program. This article also studied the participants' barriers to educating others, including environment factors, intrinsic factors, and receptiveness of the target audience.

RESULTS: Mean scores of all six KAP domains increased from the preworkshop survey to the postworkshop survey, with significant improvements ($P < 0.05$) in all domains except mental health knowledge. Individually, 16 out of 29 questions in the KAP sections had a significant increment in mean score after the program ($P < 0.05$). Mean scores for intrinsic barriers also decreased significantly ($P < 0.001$) postintervention, indicating that participants were less likely to agree that intrinsic factors were a barrier to educating people around them about health postintervention.

CONCLUSION: YHAP is effective in improving the KAP of physical health and the attitudes and practices of mental health JC and polytechnic students and may reduce the effect of intrinsic barriers that participants face when teaching others.

Keywords:

Adolescent, health education, health literacy, mental health, preventive medicine

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Introduction

Singapore faces a rapidly aging population, with at least 15.2% of the resident population being 65 years old and above as of 2020, and is projected to reach at least 32% by 2035 and makeup almost half of the population by 2050.[1] However, the longer lifespan is not matched with an increase in years of life spent disease free. Noncommunicable diseases contributed to 80.3% of the total disability-adjusted life years (DALYs) in 2017, with cardiovascular diseases and cancer accounting for the most disease burden of 14.2% and 13.4% of total DALYs, respectively. However, mental disorders were the largest contributor to the burden of years of life lost to disease among Singaporean youths, and overall, second largest among all Singaporeans. These aspects of physical and mental health remain important issues to target in improving the quality of life of Singaporeans.[2]

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Even though cardiovascular diseases generally concern older adults, factors for cardiovascular disease risk and development are identifiable even in the youth.[3] As such, development and maintenance of risk-reduction strategies to prevent cardiovascular disease should occur in youths and would demonstrably lead to favorable cardiovascular outcomes in adults.[4,5]

Mental health literacy is also crucial, and the consequences of poor mental health literacy include underreporting and poor understanding of mental health conditions, which trigger downstream effects of untreated mental disorders, unemployment, caregiver stress, morbidity, and loss of lives from suicides or homicides.[6] In addition, a Singaporean Mental Health Study conducted in 2016 has found that Singaporean youths are more vulnerable and disproportionately affected by mental health disorders, and hence primary prevention strategies should be put in place to help them.[7]

It has been demonstrated that changing health and disease outcomes via a bottom-up approach could be an alternative to top-down public programs.[8] For community health education strategies to be effective, it is important for community involvement in the program development and implementation, which builds a sense of responsibility and trains those involved. These programs should foster long-term behavioral changes, challenge norms in the community, and be well-rounded in targeting many factors as well as employing multiple methods to change health behavior.[9]

Public health service (PHS) in Singapore was created in 2004 by medical students from the Yong Loo Lin School of Medicine, National University of Singapore, and employs a population-based approach, employing the principles of primary and secondary prevention of disease. Each year, PHS hosts two events—a public health screening and the Young Health Ambassador Programme (YHAP).

YHAP is an initiative that was started in collaboration with the National University Health System, one of three healthcare clusters in Singapore. It is designed to be a ground-up educational program targeted at junior college (JC) and polytechnic students to equip them with health knowledge and empowerment to bring about change to health practices in their communities. Workshops were focused on relevant health topics such as physical and mental health. YHAP 2020 was conducted at the height of the Coronavirus disease 2019 (COVID-19) pandemic in Singapore, thus all activities were conducted online over Zoom. We hypothesize that after the program, the participants' knowledge on physical and mental health would improve. Secondarily, we hypothesize that their current attitudes and practices regarding their own health and being ambassadors of health in their communities would improve after the program. Thus, this study evaluates the effectiveness of YHAP in training health ambassadors using pre- and postworkshop KAP surveys.

Materials and Methods

Study design and setting

This study followed a single-group quasi-experimental design, with a pre- and postworkshop survey. The same survey was administered to participants before and after the educational intervention, with the goal of comparing the difference between pre- and postworkshop scores.

Educational Intervention

YHAP 2020 was the education intervention in this study and was open to JC and polytechnic students in Singapore. The three-day workshop was conducted online in December 2020 due to COVID-19 safe distancing measures. Lectures on different physical and mental health topics were given by local experts who had been invited to the workshop. The physical health topics included: metabolic syndrome, exercise, nutrition, hypertension, and obesity. The mental health topics included: geriatric depression, dementia, caregiver burnout, and adolescent depression and stress management. The content of the educational intervention was validated by local content experts and doctors from the National University Health System.

On top of the health talks, the students also took part in a motivational interviewing workshop, aimed at equipping them with strategies to change health behaviors, and empowering them with the confidence to influence their communities appropriately and effectively. The students were tasked with showcasing the knowledge they received in the form of creative and engaging posters and videos. They presented their finalized tasks to a panel of judges consisting of internal committee members and invited representatives from our partner organizations.

Study participants and sampling

The inclusion criteria were students from Singapore JCs or polytechnics who had participated in YHAP 2020. Invites for YHAP 2020 were sent to all the JCs and polytechnics in Singapore. There were 180 YHAP 2020 participants invited to take part in the study. The number of participants who had completed both the pre- and postworkshop survey was 131 (72.8%), and these were used for data analysis. Participation in the survey was voluntary and did not affect the participants' participation in YHAP 2020. Individuals

whose numerical codes were not found in either the pre- or postworkshop survey (i.e. did not complete YHAP or who did not complete either the pre- or postworkshop survey) were excluded from the final analyses.

Data collection and technique

Questionnaire

Questions on physical health were adapted from the National Health Survey 2010 Singapore.[10] A pilot study was conducted with the adapted questionnaire in 2018. The questionnaire was divided into four segments: demographics, physical health, mental health, and barriers. Each of the physical and mental health sections was divided into knowledge, attitudes, and practices (KAP). The knowledge section comprised multiple-choice questions where four options were given with one correct answer. The attitudes and practices sections assessed the participants based on a 5-point Likert scale on how likely or how often they engaged in healthy practices. The full questionnaire can be found in S1 Table.

Participants in the program completed questionnaires voluntarily at the beginning and end of the workshops, assessing their KAP in the domains of physical health and mental health before and after the workshops. Two additional clusters of questions assessed participants' perceptions of the barriers to educating others about positive health practices, and their demographic characteristics.

Physical health

The physical health knowledge section tested participants' knowledge of the content taught during the workshop lectures. There were 12 questions in this section. A higher score indicates more questions answered correctly.

Questions on physical health attitudes centered around participants' perceived likelihood of encouraging their parents to adopt healthy physical habits. There were four questions in this section. The Cronbach alpha coefficient of this section was 0.839, indicating good internal consistency. A higher score indicates better attitudes toward physical health.

Questions on physical health practices revolved around participants' frequency of encouraging their families and friends to adopt healthy exercise habits and diets. There were two questions in this section. The Cronbach alpha coefficient of this section was 0.650. Even though the preworkshop survey, Cronbach's alpha coefficient was < 0.7, the questions were still analyzed together as they were judged to be similar in nature and the low Cronbach alpha could also be due to there being only two items in this section. A higher score indicates better physical health practices.

Mental health

Similarly, the mental health knowledge section tested the participants' knowledge of the mental health content taught in the lectures during YHAP. This section had seven questions in total. A higher score indicates more questions answered correctly.

Questions on mental health attitudes centered around participants' perceived likelihood of paying attention to their loved ones' mental health. There were two questions in this section. The Cronbach alpha coefficient found in this section was 0.721, indicating acceptable internal consistency. A higher score indicates better attitudes toward mental health.

Questions on mental health practices centered around participants' perceived likelihood of encouraging the elderly in their communities to adopt healthy mental habits and practices. There were two questions in this section. The Cronbach alpha coefficient found in this section was 0.926, indicating excellent internal consistency. A higher score indicates better mental health practices.

Barriers

Questions on barriers to educating others were grouped into environmental factors, intrinsic factors, and factors related to the receptiveness of the target audience. Items were crafted based on literature search and consulting the relevant experts on what to include in the survey. A higher score indicates that the participant agreed more that the statement was a barrier to educating others.

Environmental factors such as time, support from healthcare professionals and others, and the suitability of the environment were analyzed individually as the Cronbach alpha coefficient was <0.7. Thus, the questions were analyzed individually.

Barriers relating to the receptiveness of the target audience, such as their readiness to learn about the health issue and their denial that they need to learn about the health issue, had a Cronbach alpha coefficient of 0.709, indicating acceptable internal consistency.

The intrinsic factors domain, which consisted of questions assessing the participant's opinions that they lack the knowledge, motivation, and understanding of their loved ones' learning styles, as well as language barriers and differences in literacy levels, had a Cronbach alpha coefficient of 0.743, indicating acceptable internal consistency.

Statistical analysis

Data from surveys were analyzed using RStudio version 1.3.1073 and IBM SPSS Statistics, version 27. Bar graphs were drawn on Microsoft Excel Version 2205. Paired Independent *T*-tests were used to analyze paired differences between individual preworkshop survey and postworkshop survey scores. Bonferroni correction was applied to these tests in view of multiple hypothesis testing. Domains with Likert scale scores were normalized to a 0–100 scale for domain analyses using the min–max normalization formula ($x_{normalized} = x - x_{minimum}/x_{maximum} - x_{minimum}$), where x is the individual's summed score of their responses in each domain.[11] For the individual question analyses, raw scores were used to calculate the individual mean scores. For the knowledge questions, the maximum score for each question is 1, when the correct answer is obtained. For the attitudes and practices questions, the maximum score for each question is 5 as it is a 5-point Likert scale. Differences were calculated by subtracting the preworkshop survey mean score from the postworkshop survey mean score. A P value of less than 0.05 was considered to be significant.

Ethical consideration

This study was approved by the Institutional Review Board of the National University of Singapore (NUS) S-19-198. No personal data were collected, and participants were given numerical codes for matching during data analysis. Participants were shown the full consent form and participant information sheet on the landing page of the questionnaire, and implied consent was assumed if the participant had completed and submitted the questionnaire.

Results

There were 131 participants in this study. As participants were recruited from JC and polytechnics in Singapore, majority are 17 years old (83.2%), and the age range was 16–20 years old [Table 1]. Our cohort comprised 74.8% Chinese, 1.5% Malays, and 19.1% Indians, which was similar to Singapore's population, which is made up of 74.0% Chinese, 13.5% Malays, and 9.0% Indians, albeit with an under- and overrepresentation of Malay and Indian students, respectively.[12] In terms of housing type, our sample was skewed toward private properties, with 34.4% and 13.0% of participants staying in condominiums and landed estates, respectively, in contrast to the national statistics of 17.0% and 4.9%.[12]

There was a significant difference ($P < 0.05$) in pre- and postworkshop survey scores in all KAP domains except for the mental health knowledge domain [Table 2]. The largest increase was seen in the physical health knowledge domain (71.50–86.71, $P < 0.001$) and the smallest increase was seen in the mental health knowledge domain (82.55–84.73, $P = 0.072$).

For barriers to educating others, there was a significant difference for intrinsic factors between the pre- and postworkshop survey (47.60–38.63, $P < 0.001$). Thus, the perceived intrinsic barriers to educating others decreased in the postworkshop survey as compared to the preworkshop survey.

In the KAP survey, more than half (17 out of 29) of the questions showed a significant difference in mean scores pre- and postworkshop [Figure 1], of which 16 questions had a positive change in mean scores. For the knowledge section, the physical health knowledge question "What is the measurement used to diagnose obesity?" (Question 14) had the highest increase in mean score from the preworkshop to the postworkshop survey (0.21–0.76, difference = 0.54).

In the attitudes and practices sections whereby a 5-point Likert scale was used for responses, the mental health attitudes question "How likely are you to look out for signs of burnout in a caregiver you know?" (Question 30) had the highest absolute improvement between pre- and postworkshop survey scores (3.56–4.11, difference = 0.55) [Figure 1].

In the intrinsic domain, barriers including participant's feeling of incompetence, lack of motivation, lack of understanding of their loved ones' learning styles, and differences in literacy levels and language barriers between participants and their loved ones had highly significant decreases in mean scores pre- and

Table 1: Demographics of YHAP 2020 participants

Demographics	Number of participants (%)
Age	
16	5 (3.8)
17	109 (83.2)
18	13 (9.9)
19	2 (1.5)
20	2 (1.5)
Ethnicity	
Chinese	98 (74.8)
Malay	2 (1.5)
Indian	25 (19.1)
Others	6 (4.6)
Housing type	
3 room flat	13 (9.9)
4 room flat	26 (19.8)
5 room flat	24 (18.3)
Executive flat	6 (4.6)
Condominium	45 (34.3)
Landed estate	17 (13.0)

Table 2: Comparison of pre- and postworkshop survey mean scores

Results	Preworkshop score	Postworkshop score	*P*
Physical health			
Knowledge	71.50	86.71	<0.001***
Attitudes	83.78	87.31	0.003**
Practices	56.49	61.07	<0.001***
Mental health			
Knowledge	82.55	84.73	0.072
Attitudes	69.66	78.44	<0.001***
Practices	68.51	77.58	<0.001***
Barriers to educating others			
Environmental factors			
Lack of time	56.49	57.25	0.729
Lack of support from others	47.14	47.52	0.866
Unsuitable environment	43.13	41.30	0.590
Receptiveness of target audience	49.33	48.28	0.621
Intrinsic factors	47.60	38.63	<0.001***

***P<0.001, **P<0.01, *P<0.05

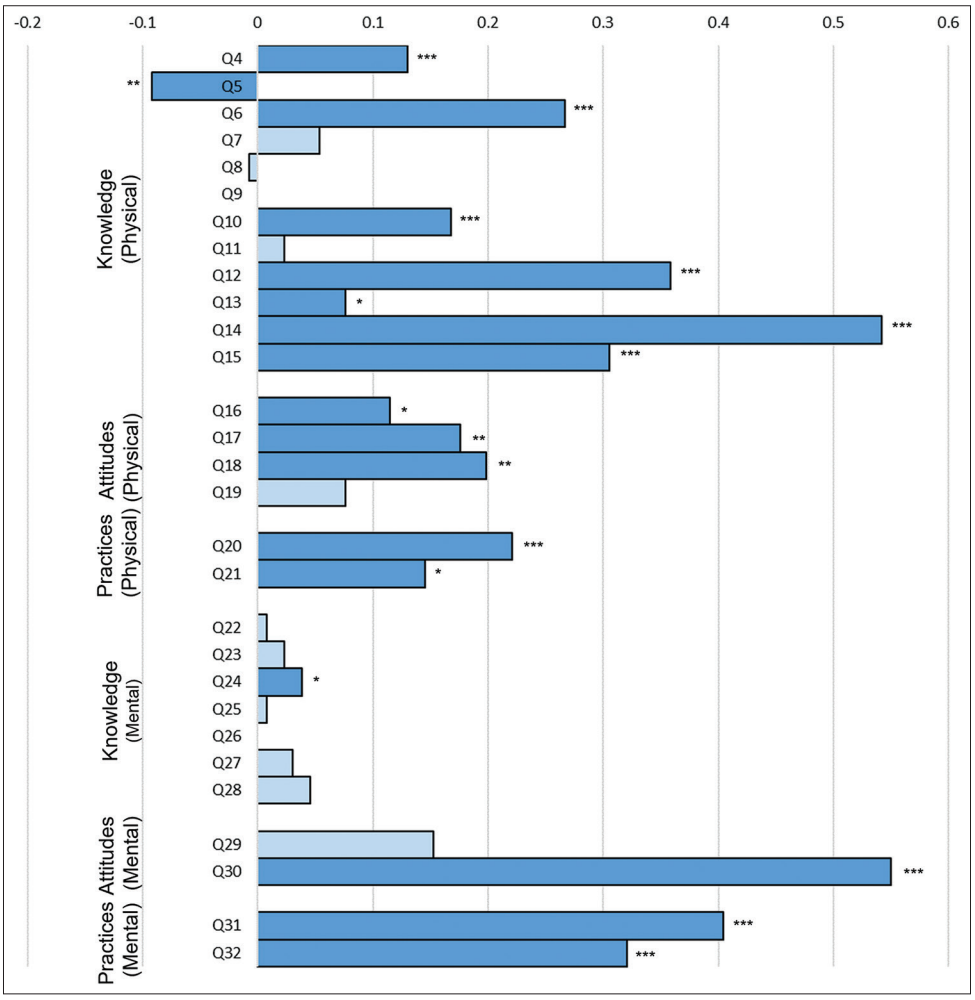

Figure 1: Comparison of differences in mean scores between the pre- and post-workshop survey in all KAP domains. Dark blue bars indicate differences that are statistically significant. ***p < 0.001, **p < 0.01, *p < 0.05

postworkshop survey, with the highest being Question 40, "I feel that I am not competent and able to share about health issues i.e. lack of knowledge" (3.44–2.82, difference = −0.63) [Figure 2]. Differences in mean scores

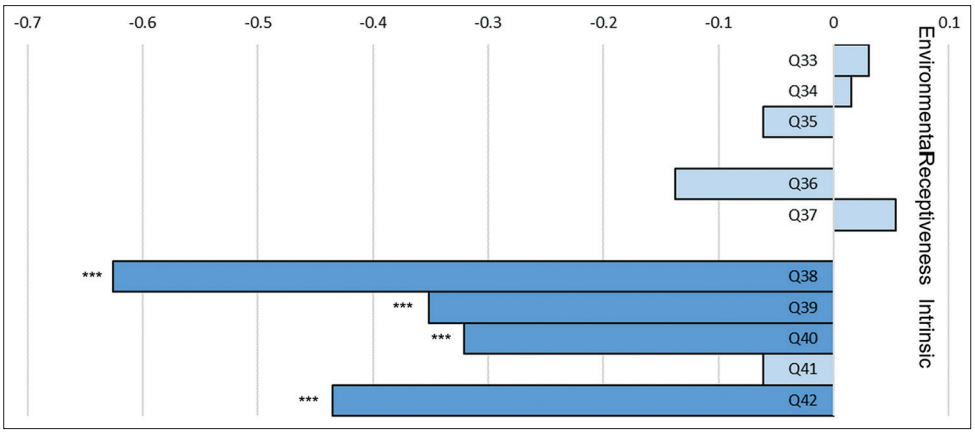

Figure 2: Comparison of differences in mean scores (5-point Likert Scale) between the pre- and post-workshop survey in all domains regarding barriers to educating others. Dark blue bars indicate differences that are statistically significant. ***p < 0.001

for environmental and receptiveness domains were not significant.

Discussion

Our findings show significant improvements in mean scores of the pre- and postworkshop surveys in the physical and mental health attitudes and practices and the physical health knowledge. For participants' perceptions of barriers toward educating others, the mean score for intrinsic factors decreased significantly, indicating that participants are now intrinsically more motivated to educate others. Hence, YHAP 2020 as an educational intervention has the potential to nurture Singaporean youths into young health ambassadors in their communities in the topics of physical and mental health.

Health literacy is an important stepping stone to improving health outcomes.[13] Findings from our study are consistent with similar studies which showed a measurable increase in health literacy and positive changes in attitudes of participants after attending health education programs.[14,15]

The idea of engaging youth in health promotion has gained traction in recent years.[14,16] In particular, the topic of mental health has been explored as an arena for youth to make meaningful contributions in health promotion.[17] Here, our study has shown that youths have the potential to be mobilized to do their part in promoting physical and mental health in the community.

In addition to the improvements in general knowledge and attitudes, our study also demonstrated a reduction in perceived intrinsic barriers to educating others about health issues. We postulate that the increase in knowledge and understanding of health issues after YHAP contributes to the increase in motivation to overcome these intrinsic barriers to educating others. The ability of training programs to empower youths to change the health situations around them has also been reported in the literature.[18,19] In other educational interventions, it is reported that there is an increase in interest and desire in the youths to want to influence the health of their communities for the better, and increased conviction that they can do so. Youths gain the courage to discuss health-related subjects with their peers and seniors and can champion their cause for better health in their community effectively.[18] This emphasizes the importance of training programs which leads to the empowerment of the youth in contributing to the improvement of health outcomes in societies.

Our educational program model has shown similar results to other successful overseas interventions.[18,19] Thus, our study could be examined in future research for youth health education programs as an alternative to professional experts through whom health awareness and educational programs are commonly conducted.

Limitations and recommendations

Limitations of our study include the self-reported nature of the questionnaires especially in aspects of the participant's physical and mental health attitudes and perspectives which could have resulted in social desirability bias. In addition, a single difference in means approach was used to compare responses collected from the pre- and postworkshop survey, and there was no control group. Furthermore, a self-reported increase in KAP does not necessarily translate to actual change. Further studies would be needed to ascertain if YHAP has led to lasting behavioral changes in lifestyle. Given that this study was done through the invitation of students from JC and polytechnics and conducted at the height of the COVID-19 pandemic in Singapore, participants in the YHAP program could be more motivated to learn and educate others on health, resulting in a more positive change reported in their KAP in their own health and in

educating their peers. Self-selection bias could also be a factor as youths who choose to participate in the survey may be more inclined to be a young health ambassador. Even though information has been collected on multiple sociodemographic variables, the effects of residual confounding are not eliminated.

Future modifications would include improving our educational program to better address the domains that were found to be lacking in this study. While our educational program brought about a perceived reduction in intrinsic barriers to educating others, barriers in the environmental and receptiveness domains were not reduced postintervention. Future research should explore how to design programs that can lower the barriers to educate their communities among the youths. For future research, we would also like to assess participants' KAP toward physical and mental health over a longer period, to see if our educational intervention has a long-term effect. Furthermore, it would be interesting to investigate the impact of our educational intervention on the KAP of the participants' loved ones, to see if our workshop is effective in nurturing health ambassadors to promote healthy living among their loved ones.

Conclusion

In conclusion, we have presented our YHAP, an educational intervention aimed at teaching youths about physical and mental health, which is effective in improving physical health literacy among Singaporean youths. The program shows promising results in improving youths' attitudes and practices with regard to physical and mental health, allowing them to not only take charge of their own health but also educate their communities to improve the overall health of the people around them. In addition, we developed a locally validated KAP questionnaire on physical and mental health in Singapore.

Ethical consideration

This study was approved by the Institutional Review Board of the National University of Singapore (NUS) S-19-198.

Author's contribution

The authors confirm contribution to the article as follows: study conception and design: S.Y.W.L., R.J.L., Y.H.T., S.D.X.D., A.K.L., Y.P.R., J.C., D.B.T., and F.S.L.; data collection: S.Y.W.L., R.J.L., Y.H.T., S.D.X.D., A.K.L., Y.P.R., and J.C.; analysis and interpretation of results: S.Y.W.L., R.J.L., Y.H.T., E.Y.C., and Z.C.T.; manuscript preparation: S.Y.W.L., R.J.L., Y.H.T., D.B.T., and F.S.L. All authors reviewed the results and approved the final version of the manuscript.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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S1 Table: YHAP Questionnaire

An initiative part of the Young Health Ambassadors' Programme (YHAP), by the Public Health Service (PHS)

Dear students,

We are a group of NUS medical students representing the Public Health Service (PHS). PHS has been organising annual free health screenings for the local community since 2004.

Since 2015, we have expanded our preventive health initiatives beyond health screening by initiating the Young Health Ambassadors Programme (YHAP), to engage youths like you. This questionnaire will be administered for the purpose of evaluating the impact of health education targeting youths in SG, affecting health-seeking behaviour in Knowledge, Attitudes and Practices in health. We seek to identify the barriers or enablers to youths spreading health awareness.

Please be rest assured that all survey results will be kept confidential. As such, we hope you will answer the questions as truthfully as possible.

Thank you very much!

14th Executive Committee

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No.	Question	Options
		Demographics
1	What is your age?	NA
2	What is your ethnic group/race? As listed in IC	Chinese
		Malay
		Indian
		Other
3	What is your housing type?	1 room flat
		2 room flat
		3 room flat
		4 room flat
		5 room flat
		Executive flat
		Condominium
		Landed estate
		Physical Health Knowledge
4	What makes up healthy plate	1/2 Rice, 1/4 Vegetables and fruits, 1/4 Meat
		2/5 Rice, 1/5 Vegetables and fruits, 1/5 Fruits, 1/5 Meat
		1/3 Rice, 1/3 Vegetables and fruits, 1/3 Meat
		1/2 Vegetables and fruits, 1/4 rice, 1/4 Meat
5	Snacking is	Always unhealthy because we unwittingly consume more calories than we are aware of/can track
		Always unhealthy because snacks are all "unhealthy"
		Should be recommended because it provides people with more energy for work
		Is ok if healthy snacks (i.e. fruit, nuts, small amounts of snacks with "Healthier Choice" symbols) are consumed
6	How much exercise should we get a week?	15 minutes of light intensity activities everyday
		150 minutes of medium intensity activities every week
		10 minutes of high intensity activities, thrice a week
		150 minutes of light intensity activities every week
7	Why is exercise important?	Research has shown that exercise can directly reduce LDL ("bad cholesterol") levels
		Exercise will trigger the burning of lipid stores in the body
		Exercise can contribute to a "healthier" blood pressure
		All of the above
8	Which of the following exercises are suitable for most elderly?	Bench press 70 kg
		Full marathon
		Resistance band workouts
		100kg squats
9	Physical activity=exercise?	True because only when there is sustained elevation of heart rate for 15 mins can there be meaningful physical activity
		False because even activities such as standing is considered physical activity but might not be considered exercise

Contd...

S1 Table: Contd...

	Physical Health Knowledge	
10	All of the following are complications of Diabetes except:	Blindness Amputation Frequent Urination Craving Sweet Food
11	Diabetes is caused (indirectly or directly) by?	Eating too much high GI foods Poor management of lipid profile Sedentary lifestyle Genetic Influence All of the above
12	A blood pressure of more than ___ is considered as hypertension.	140/90mmHg 120/80mmHg 90/60mmHg 70/50mmHg
13	What are the modifiable risk factors for hypertension?	Smoking, Physical inactivity, Diet Smoking, Age, Diet Smoking, Family history, Physical inactivity Age, Gender, Physical inactivity
14	What is the measurement used to diagnose obesity?	Waist circumference Size of face Food portion Height Weight
15	Which is the “good lipid” that we have in the body?	LDL HDL-C Triglycerides VLDL
	Physical Health Attitudes	
16	On a scale of 1 (not willing at all) to 5 (very willing), how likely are you to encourage your parents to eat healthily?	1 2 3 4 5
17	On a scale of 1 (not willing at all to 5 (very willing), how likely are you to encourage your parents to exercise regularly?	1 2 3 4 5
18	On a scale of 1 (not willing at all) to 5 (very willing), how likely are you to encourage your parents to go for health screenings?	1 2 3 4 5
19	On a scale of 1 (not willing at all) to 5 (very willing), how likely are you to encourage your parents to go for follow ups for existing health conditions?	1 2 3 4 5
	Physical Health Practices	
20	How often do you encourage your family/friends to eat more healthily?	Almost never Rarely Sometimes Often Very often

Contd...

S1 Table: Contd...

	Physical Health Practices	
21	How often do you encourage your family/friends to exercise regularly?	Almost never Rarely Sometimes Often Very often
	Mental Health Knowledge	
22	Depression manifests itself as?	Changes in mood Changes in attitudes Changes in behavior Physical symptoms All of the above
23	How can you help someone with depression?	Just leave them alone Reason with them Seek professional help Tell them to get over this phase
24	Stress is	Always a negative thing A body's response to pressure Something you cannot do anything about Good even in the long run
25	Which of the following is true pertaining to stress management?	Alcohol poses no long term risk as a coping method Smoking is beneficial if done in moderation Exercise will take up too much time and hence is not a good method Taking time off to do hobbies can be beneficial
26	Which of the following is true of caregiver burnout?	Not everyone can suffer from caregiver burnout Caregiver burnout is preventable Caregiver burnout is depression All of the above
27	Which of the following is true of depression in the elderly?	It is normal to be depressed as you age Poor health and isolation contributes to geriatric depression Depression in the young and old manifests the same way Depression is a mental issue and will not have negative impacts physically
28	Which of the following best describes dementia?	Dementia is a mental illness Dementia is a chronic, non-progressive end-stage illness Dementia is a set of conditions affecting memory and cognition All the above
	Mental Health Attitudes	
29	On a scale of 1 (not likely at all) to 5 (very likely), how likely are you to offer support to a friend or family member who shows signs of caregiver burnout?	1 2 3 4 5
30	On a scale of 1 (not likely at all) to 5 (very likely), how likely are you to look out for signs of burnout in a caregiver you know?	1 2 3 4 5
	Mental Health Practices	
31	On a scale of 1 (not likely at all) to 5 (very likely), how likely are you to encourage the elderly in your community (including grandparents) to stay mentally active?	1 2 3 4 5

Contd...

S1 Table: Contd...

	Mental Health Practices	
32	On a scale of 1 (not likely at all) to 5 (very likely), how likely are you to encourage the elderly in your community (including grandparents) to stay socially connected?	1 2 3 4 5
	Barriers to Educating Others	
	On a scale of 1 (strongly disagree) to 5 (strongly agree), how much do you agree with the following statements in educating health issues to people around you (loved ones, family, friends)?	
	Environmental	
33	There is a lack of time to properly educate them	1 2 3 4 5
34	There is a lack of support from health professionals or significant others	1 2 3 4 5
35	I find it hard to share on health issues as the environment is not suitable i.e., not fitting for the sharing	1 2 3 4 5
	Receptiveness	
36	They are not ready to learn about health issues i.e., not able to absorb and apply the knowledge	1 2 3 4 5
37	They deny the need to learn about health issues	1 2 3 4 5
	Intrinsic	
38	I feel that I am not competent and able to share about health issues i.e., lack of knowledge	1 2 3 4 5
39	I feel that I lack the willingness and motivation to educate others i.e., why me? There are more qualified people to do so and I am too busy etc	1 2 3 4 5
40	I find it hard to share on health issues due to differences in literacy levels	1 2 3 4 5

Contd...

S1 Table: Contd...

			Barriers to Educating Others
4	I find it hard to share on health issues due to the language barrier	1 2 3 4 5	
42	I find it hard to share on health issues as I do not understand the learning styles and needs of my loved ones	1 2 3 4 5	