

Flourish Despite Distress: Association between Strengths Use and Psychological Well-Being among Adolescents in a Japanese Correspondence High School

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Abstract

Objective: Today, mental health problems among adolescents have increased with the advancement of digital technology and Social Network Sites (SNSes). In this age, special additional care is needed to ensure the psychological well-being of students at correspondence high schools in Japan, since most exhibit futoko - school non-attendance or hikikomori - social withdrawal and are susceptible to psychological distress. The objective of this study is to investigate this relationship in order to identify the possibilities, if any, of building the psychological well-being of such students in the future.

Methods: In this study, we investigated the factors affecting these students' psychological well-being such as their strengths use, strengths knowledge, psychological distress, sleep duration, and screen time - including duration of exposure to SNSes, gaming, and videos - in a cross-sectional manner in order to identify the possibilities for improving their mental health. Simple and multiple regression analyses were performed to examine the association between scores on the Flourishing Scale (FS), Strengths Use Scale (SUS), Strengths Knowledge Scale (SKS) and Kessler Psychological Distress Scale 6-item (K6) as well as other factors.

Results: A total of 80 individuals (82% of all students) participated in this study; their mean age was 16.91 ± 1.08 (range: 14-20) years. The K6 score indicated that participants' psychological distress was critically high. The simple regression analysis revealed that sex, SKS, SUS, and K6 were significantly associated with FS. To determine the most significant factor related to the FS score, we conducted multiple regression analyses using sex, SKS, SUS, and K6 as independent variables. Findings showed that SUS was the most significant factor affecting FS ($P < 0.001$).

Conclusion: Although correspondence high school students experienced relatively higher psychological distress, their psychological well-being was significantly associated with their strengths use, which might function as a buffering effect on their psychological distress. Integrating strengths development into school curricula may have a positive impact on students' psychological well-being at correspondence high schools.

Keywords: Positive psychology • Strengths use • Strengths knowledge • Psychological well-being • Adolescence • Psychological distress

Introduction

Today, mental health among the youth is garnering more attention than in the past. Previous studies have reported that the number of mood and anxiety symptoms among the youth have been dramatically increasing over the last decades [1], while the decrease in psychological well-being among adolescents since 2012 has been linked to excessive screen time during the rise of smartphone technology [2]. Several studies indicate that Social Networking Sites (SNSes) have contributed to this phenomenon. Seabrook, Kern, and Rickard revealed that SNSes were associated with depression and anxiety among adolescents [3], and Riehm et al. indicated that adolescents who spend more than three hours per day using social media may be at heightened risk for mental health problems [4]. Another study also showed that limiting exposure to SNSes decreased loneliness and depression [5]. Although this association remains controversial because findings from other studies have not aligned with this result among adolescents [6], it is of paramount importance to help "digital native" adolescents to build psychological well-being since mental health problems during this crucial period of life could affect the path of personality development and academic achievements, which may result in impaired social functioning during adulthood [7,8].

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In order to enhance the mental health and psychological well-being of the youth in Japan, special attention should be paid to correspondence high school students. Correspondence high schools were originally introduced in the immediate postwar period when they primarily provided education opportunities for young working people and housewives [9]. In recent years, however, most new students have been in their teens, and mainly comprise students exhibiting futoko - a school non-attendance or hikikomori - social withdrawal. These schools act as a receptacle, setting up courses that allow the students to attend up to five days a week and to succeed in report-writing and examinations, so that they can graduate and pursue further studies at a university [10]. Since many futoko/hikikomori students are vulnerable to psychological distress such as depressive symptoms and anxiety [11], building their mental health is crucially important especially in this mental health crisis age.

The main question is how to build psychological well-being among correspondence high school students. One possible way may be related to utilizing their character strengths. In the field of positive psychology, human strengths have been proposed for decades and several studies have revealed the promising association between strengths and psychological well-being [12-14]. Hazer presented an overview of the findings of this relationship, reporting that strengths use is associated with higher level of environmental mastery, personal growth, purpose in life, autonomy, self-acceptance, and positive relationships [12]. Although many studies have been conducted on the association between strengths and psychological well-being, there is no study that has assessed this association among correspondence high school students. Therefore, the aim of this study is to investigate this relationship in order to identify the possibilities, if any, of building the psychological well-being of such students in the future. Our hypothesis is that strengths use will be positively associated with their psychological well-being, but we also seek

to determine how the negative effect of psychological distress, duration of exposure to SNSes, and gaming affect this relationship.

Methods

Participants

The target school was one of the major correspondence high schools, where the majority of the students have exhibited futoko/hikikomori, in Tokyo, Japan. The inclusion criteria were students who agreed to participate in this study and those who have exhibited futoko/hikikomori.

Instrumentation

The participants' psychological well-being was evaluated by the Japanese version of the Flourishing Scale (FS), a measure of psychosocial flourishing based on recent theories of psychological and social well-being [15,16]. Some of the items are "I lead a purposeful and meaningful life," "My social relationships are supportive and rewarding," and "I am engaged and interested in my daily activities." The FS is designed to evaluate social-psychological prosperity, such as relationships, self-esteem, competence, purpose, optimism, and prosocial behaviors. The eight items are evaluated on a seven-point Likert scale (ranging from 1-7, total range 7-56), with higher values reflecting higher psychological well-being. The scale had high Cronbach's alpha coefficients (0.95) of internal consistency reliability [16].

Strengths knowledge was assessed by the Japanese version of the Strengths Knowledge Scale (SKS); its eight items such as "I know what I do best," and "I am aware of my strengths" were evaluated on a five-point Likert scale (ranging from 1-5, total range 8-40), with higher values reflecting greater knowledge about one's own strengths [17]. The Japanese scale demonstrated good internal consistency ($\alpha=0.92$) and satisfactory test-retest reliability ($r=0.74$) over four weeks [18].

Strengths use was evaluated by the Japanese version of the Strengths Use Scale (SUS); the 14 SUS items such as "I always play to my strengths," and "I use my strengths everyday" were evaluated on a five-point Likert scale (ranging from 1-5, total range 14-70), with higher values reflecting more frequent strengths use [17]. The Japanese scale demonstrated good internal consistency ($\alpha=0.94$) and satisfactory test-retest reliability ($r=0.67$) over four weeks [18, 19].

Psychological distress was evaluated by the Japanese version of the Kessler Psychological Distress Scale 6-item (K6) [20, 21]. This scale is a nonspecific measure of psychological distress widely used in mental health surveys worldwide. The six items consist of the questions about how often you felt such emotions during the past 30 days as nervousness, hopelessness, restlessness, the feeling that everything takes too much effort, sadness, and worthlessness, rated on a five-point Likert scale (ranging from 1-5, total range 6-30). A total score ≥ 14 was considered indicative of clinically relevant anxiety or depression [20]. This scale demonstrated good internal consistency ($\alpha=0.84$) [21].

In order to examine the confounding factors in investigating the association between their psychological well-being and strengths as well as psychological distress, we also collected information on the participants' sociodemographic characteristics including sex, age, grades, sleep duration, duration of exposure to SNSes, gaming, and video (in hours), and whether they work part-time or not.

Procedure

The study was conducted as a school-based epidemiological survey from September to November, 2019. The students were asked to answer the written self-report questionnaires on their psychological well-being or

flourishing state, strengths knowledge, strengths use, psychological distress, and sociodemographic information.

Data analysis

Data obtained from the participants' questionnaires were statistically analyzed. Simple regression analysis was performed to examine the association between the FS and SUS scores as well as other sociographic factors including the duration of exposure to SNSes. Multiple regression analysis was subsequently conducted to identify the most significant independent predictors of FS score. The significance level was set at $P<0.05$ for all analyses, which were performed using SPSS version 24 for Windows (SPSS Inc., Chicago, IL, USA).

Results

A total of 80 individuals (82% of all students) participated in this study; their mean age was 16.91 ± 1.08 (range: 14-20) years. The participants' sociodemographic and subjective characteristics are shown in Table 1.

The mean scores of the FS, SKS, SUS, and K6 are shown in Table 2.

The K6 score indicated that participants' psychological distress was critically high considering the cut-off score; a total score ≥ 14 was considered indicative of clinically relevant anxiety or depression [20]. Out of 80, 31 students' scores were over 14.

To investigate the associations between the participants' flourishing state and variables that had a significant effect on their FS score, we conducted a simple regression analysis to identify significant factors related to flourishing. The results are shown in Table 3.

Table 1. Participants' sociodemographic and subjective characteristics (N=80).

Variables	N	%
Sex		
Female	42	52.5
Male	34	42.5
Others ^A	4	5
Grades		
Grade 10	20	25
Grade 11	22	27.5
Grade 12	38	47.5
Part-time work		
Yes	28	35
No	52	65
Variables	Mean	SD^B (Range)
Age	16.91	1.08 (14-20)
Sleep duration (hours)	6.58	1.63 (3.00-10.00)
SNS duration (hours)	1.72	2.10 (0.00-13.33)
Gaming duration (hours)	2.64	3.18 (0.00-14.00)
Video duration (hours)	2.63	2.29 (0.00-12.00)
Screen time (hours)	6.98	4.45 (1.00-21.00)

Note: Others^A: Gender dysphoria; SD^B: Standard Deviation;

Table 2. The participants' scores on the flourishing scale, strengths knowledge scale, strengths use scale, and kessler-6 scale.

Variables	Mean	SD	Range
FS	31.56	9.84	8-56
SKS	24.34	7.18	8-39
SUS	41.03	12.25	14-67
K6	11.31	7.08	0-24

Abbreviations: FS: Flourishing Scale; SKS: Strengths Knowledge Scale; SUS: Strengths Use Scale; K6: Kessler-6 Scale; SD: Standard Deviation

The simple regression analysis revealed that sex, SKS, SUS, and K6 were significantly associated with FS. To determine the most significant factor related to the FS score, we conducted multiple regression analysis using sex, SKS, SUS, and K6 as independent variables. The result is shown in Table 4.

We identified a significant positive association between FS and SUS (P<0.001). This association is illustrated in Figure 1.

Table 3. Simple regression analysis to determine the association between the Flourishing Scale and other variables.

Variables	Simple regression	
	β	P
Age	0.02	0.84
Sex ^A	-0.29	0.01*
Grades	0.09	0.44
Sleep duration (hours)	0.16	0.15
Part-time work ^B	-0.05	0.69
SNS duration (hours)	0.003	0.98
Gaming duration (hours)	-0.08	0.47
Video duration (hours)	-0.08	0.49
Screen time (hours)	-0.1	0.39
SKS	0.62	<0.001*
SUS	0.63	<0.001*
K6	-0.32	<0.001*

Sex^A male=1, female=2, others=3; Part-time work^B: No=0, Yes=1.

Note: β : Coefficient value; P: Statistical significant value; SKS: Strengths Knowledge Scale; SUS: Strengths Use Scale; K6: Kessler-6 Scale; *: P<0.05.

Table 4. Multiple regression analysis to determine the association between the Flourishing Scale and other variables.

Variables	Multiple regression	
	β	P
Sex ^A	-0.15	0.08
SKS	0.25	0.05
SUS	0.39	<0.001*
K6	-0.16	0.06

Sex^A male=1, female=2, others=3.

Note: β : Coefficient value; P: Statistical significant value; SKS: Strengths Knowledge Scale; SUS: Strengths Use Scale; K6: Kessler-6 scale; *: P <0.05.

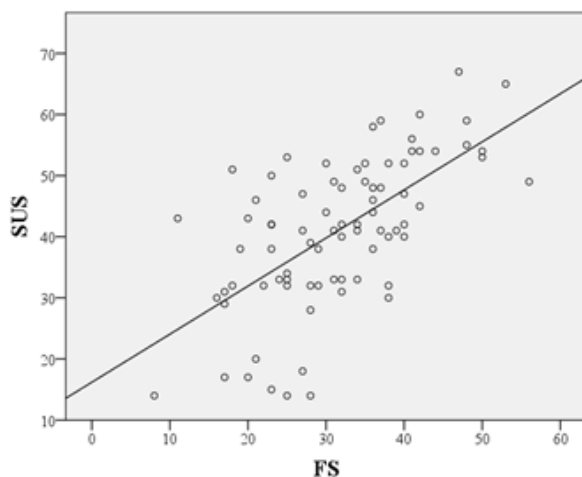


Figure 1: The association between the Flourishing Scale (FS) and the Strengths Use Scale (SUS). The FS was significantly correlated with the SUS. (**Abbreviations:** FS: Flourishing Scale; SUS: Strengths Use Scale).

Discussion

In the present study, we first demonstrated the significant positive correlation between psychological flourishing and strengths use among Japanese correspondence high school students. Even though their mean score of psychological distress was critically high (11.31 ± 7.08) compared to a previous study, where the mean score was 5.76 ± 4.67 among adolescents [22], a significant positive association between the students' flourishing state and their strengths use was clearly identified. This is noteworthy since it clearly illustrates the importance of strengths use in considering mental health among such students. For an in-depth understanding of this finding, we propose several important topics for future research underlining this result.

First, using strengths may improve psychological well-being irrespective of conditions such as age, sex, sleep, and duration of exposure to SNSes. Previous studies indicate that using strengths is associated with increased happiness/positive emotions [23,24], engagement [25], positive relationships [26], meaning [27], and accomplishments [28], while others claim that character strengths are pathways to psychological well-being [12,13,29]. Moreover, strengths use is also positively associated with psychological well-being among various populations such as college students [24,29], patients with depression [30], and students with special education needs [31]. Considering these findings, the present study shows a significant association between strengths use and flourishing irrespective of whether students are from correspondence high school students or not.

Second, strengths use may function in adversity as a protective factor against the negative effects of depressive and anxiety states on students' flourishing. Niemiec claims that character strengths can prevent problems or buffer individuals from adversities [32]. In the meta-analysis for the effectiveness of strengths intervention on mental disorders, strengths intervention is reported to have a significant effect on depression [33]. Similarly, Huta and Hawley revealed that character strengths protect against psychological vulnerabilities that can result in depression and anxiety, such as perfectionism and the need for admiration [34]. Therefore, strengths use may prevent the participants from developing psychological disorders even though their psychological distress is high.

Third, in terms of building psychological well-being, using one's strengths is more important than being aware of one's strengths. We identified a significant association between flourishing and strengths use ($\beta=0.39$, P<0.001), not strengths knowledge ($\beta=0.25$, P=0.05) (see Table 4). This finding corresponds to that of a previous study [24] and reinforces the importance of strengths use in building well-being among adolescents with higher psychological distress.

It is also noteworthy that students flourishing state was not correlated with their duration of exposure to SNSes in this study. While several previous studies claimed that smartphone use and duration of exposure to SNSes and/or screen time was correlated with psychological distress [2-5], a recent study reported only minor associations between the amount of daily digital technology usage and well-being among the youth, showing that they were unlikely to be of clinical or practical significance [6]; the findings of this study revealed similar results. Further research is needed to uncover the relationship between psychological well-being and duration of exposure to SNSes among adolescents. Flourishing state was not correlated with their duration of exposure to SNSes in this study.

Limitations

The limitations of this study include the small sample size considering that the estimated total number of correspondence high school students in Japan is approximately 182,515 [35]. In addition, since we used a cross-sectional design, we cannot identify a causal relationship between strengths use and psychological well-being. Further research should include an intervention study to confirm the causality. Moreover, since correspondence high schools have a unique characteristic as a receptacle for futoko/hikomori students, valuable insights can be gained through a comparative study with those who attend high school regularly. Further studies should also include a comparison between correspondence and traditional high school students. Lastly, in this study, we did not identify the cause of the high mean score of psychological

distress among the students since our main aim was to determine the most significant factor related to psychological flourishing among them. Their high mean score of psychological distress may be related to the duration of SNSes, but further investigation is needed since it may be related to other factors such as peer pressures, higher levels of parental expectation concerning academic achievements, and interpersonal relationship issues [36-41].

Conclusion

In summary, even though correspondence high school students experienced relatively higher psychological distress, their psychological well-being was significantly associated with their strengths use, which might function as a buffering effect on their psychological distress. There are possible benefits of integrating positive psychology factors into the educational system in Japan in order to improve students' psychological well-being and prevent them from becoming psychologically ill. Integrating positive psychological aspects with the field of education for well-being has attained much success over the last few decades as the new field of positive education has been developed globally. Matsuguma, Kawashima, and Tsubota also presented a case report of the successful strengths intervention for hikikomori youth, helping the client to not only improve his self-esteem and subjective vitality, but also reintegrate into society. Since many adolescents are at risk in Japanese correspondence high schools, a strengths-based curriculum might equip them with the knowledge and skills to bounce back from adversities while improving their psychological well-being. Future research should include a positive psychology intervention in the Japanese correspondence high school context.

Human Subjects Approval Statement

The institutional review board of Keio University School of Medicine approved the research protocol, which followed the tenets of the Declaration of Helsinki. Informed consent was obtained from all individual participants included in the study.

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