Impact of homework stress on children's physical and psychological well-being

S. K. Cheung and Justina M. Y. Leung Ngai

Abstract

A survey was carried out to identify the stressors pertaining to homework among the primary three to six students in Hong Kong. By means of self-administered questionnaire, 1,983 students provided data on the time they needed to finish homework daily, the stressors they experienced, and the somatic, depression and anxiety symptoms they manifested. Workload of homework was found to be heavy among the students. Social pressures, the content and workload of homework, were all predictive of more somatic, depression and anxiety symptoms among the students.

Keywords: Stress; Depression; Anxiety

Introduction

In recent years, the stress phenomenon has captured the attention of both researchers and practitioners in social and clinical fields. Most of the studies adopted the life events approach, which conceptualized stress (or appropriately the stressor) as a class of stimuli or situations to which everyone is exposed to a greater or lesser extent in the nature and course of life. The relevance of life events to clinical psychiatry has been emphasized long ago by Adolph Meyer, who proposed that life events played a part in the aetiology of psychiatric disorder.[1] Research in this tradition has identified certain social adversities that are likely to exert a major adverse psychological effect on the life of children and adolescents.[2] Such major experiences would include bereavements, separations, family additions, house and school moves, etc.

However, there are sources of social adversity other than life events, which may have consequences on a child's well-being. Goodyer listed recent continuing difficulties (e.g. difficulties with friendships over weeks), chronic adversities, and daily hassles as other possible social adversities.[3] These have tended to be overlooked as potential causal factors in psychopathology in adults as well as children and adolescents. In Hong Kong, students' homework may be a continuing difficulty within the lives of the students. From the phenomenological perspective of stress and coping, when homework poses demands on the student, and if the student appraises that his well-being may be threatened and that he does not possess the resources to cope with the demands, stress would occur, which may undermine the physical and psychological well-being of the children and adolescents.[4] Notwithstanding these possible consequences, the stressful effects of homework has been grossly neglected in research on children and adolescents. Overseas studies on homework tended to focus on its effects on academic achievement.[5,6] Thus, a study to address to the stressful side of homework is needed.

Homework plays a very important part in the lives of the children in Hong Kong. On average, students at Primary four to Form three spent two to two and a half hours daily in doing homework.[7] This figure appeared to be higher than the time that children of other cities spent on homework, including Chicago, Minneapolis, Bejing, Taipei, and Sendai.[8] Apart from homework time, the expectations and attitudes of parents, teachers, and classmates may also exert pressure on the children. These social pressures, in combination with the workload, exert demand on the students and may have detrimental effects on children's physical and psychological well-being. The aim of the study is to determine whether stressors related to homework predict somatic symptoms and other symptoms of depression and anxiety in children.

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Subjects and methods

The target population of the study included all students studying at primary three to six in Hong Kong. Stratified proportional cluster sampling method was used to obtain the sample. Fifty six schools were randomly drawn from the school lists according to the different subsidy condition and different districts. For those schools drawn, one class from each grade was randomly selected, and all the students within that class were asked to fill in a self-administered questionnaire. The data were collected in May and June 1989.

Homework stressors consisted of four components, one related to the amount of time the students needed to finish their daily homework, the others related to the workload of homework, the difficulty and monotony of doing homework, and finally the social pressures on the children in doing homework. For the amount of time needed to finish their homework, the students were asked to indicate the range of time (e.g. less than 1/2 hour, 1/2 hour to 1 hour, 1 hour to 1 1/2 hour, etc.) that they spent on homework daily. Another scale consisting of 20 items was used to assess the workload of homework, the difficulty and monotony of homework, and the social pressures on the children in doing homework. On a four point scale, the students indicated whether they always (3), often (2), seldom (1), or never (0) experienced the stressors related to these three dimensions.

As to their physical and psychological well-being, the study did not adopt the more well-known measures on children's health for several reasons. First, we did not intend to assess the general health status of the students, but would like to focus on those symptoms manifested around the time when the students were doing their homework, or at other times (e.g. at sleep) but the content was still related to homework. Furthermore, the classical measures on children's health were usually too long for our purposes. Thus, three scales which consisted of the more common symptoms in respective areas were constructed for the study. On three-point scales, the students indicated whether they never (0), sometimes (1), or always (2) had the symptoms. The scale on somatic symptoms included five items: stomachache, headache, breathing problems, loss of appetite and faintness. The scale on depression symptoms included three items: crying, self-derogation, and suicidal thought, and the scale on anxiety symptoms included four items: avoiding homework, insomnia, and two kinds of sleep disturbances. High scale scores were indicative of more symptoms. The reliability of the scales were slightly lower than desired, but were still within acceptable limits. The Cronbach's alpha for these scales were 0.63, 0.51 and 0.56, respectively.[9]

The questionnaire also included measures on the children's perception of parental support, their coping style and their efficacy expectation regarding doing homework. The details of these parts have been published, and would not be reported in this paper.[10]

Results

The sample consisted of a total of 1,983 students: 55.5% were males and 45.5% were females. There were 22.0% of them studying at primary three, 29.7% studying at primary four, 21.7% studying at primary five, and 26.9% studying at primary six. Most of them (84.4%) were studying in subsidized schools, 8.9% in private schools, and 6.7% in government schools.

The median of the number of hours needed to finish homework daily was 1 1/2 hour to 2 hours. The amount of time girls needed to finish their daily homework was significantly greater than those of the boys, chi^2 (10) = 39.2, $P < 0.001$. Students studying at primary five and six also took significantly longer time than the two lower grades to finish their homework, chi^2 (30) = 143.7, $P < 0.001$.

Table 1 shows the frequency of the ten homework stressors that the students more widely experienced in their daily life. The first four items, as well as the fifth and the eighth, were all related to the workload of their homework. The sixth and the ninth referred to the difficulty and monotony of homework. The seventh was

Table 1. Frequency of the top ten homework stressors.

	Always	Sometimes	Seldom	Never
Much homework to do	21.1	60.5	15.8	2.6
Having to do a lot of supplementary exercises	21.8	39.2	29.3	9.6
Having to work hard to prepare for tests	25.4	33.0	25.6	16.0
Exhausted upon finishing homework	21.7	31.2	29.8	17.4
No time to play after finishing homework	15.3	29.1	27.8	27.9
Difficult homework	5.6	33.9	44.9	15.6
Homework grade lower than others	10.0	29.1	40.8	20.1
Having to do homework on Sunday	9.6	29.6	35.9	24.9
Boring homework	11.4	25.9	31.4	31.3
Punished by parents for low grades	10.8	22.8	38.4	27.9

about poor performance, and the tenth one, the critical attitudes of the parents. More than half of the respondents indicated that they always or sometimes experienced the first four stressors. That is to say, workload issues were the more prevalent problems encountered by the primary school students. The content of the homework in terms of difficulty and monotony was also an issue that deserved concern.

Significant differences were found between the frequency of 12 items reported by the boys and the girls. More boys indicated that they experienced pressures from parents: parents' nagging, punishment by the parents for low grades, having to redo homework upon parents' demand; pressures from teachers: punishment by teachers for poor homework, having to do extra assignment owing to misbehaviour, getting low grades because of perceived high teacher expectation; and pressures from peers: ridiculed by peers for low grades. Also, more boys indicated that the homework was monotonous, they had no time to play after completing homework, and they had to work hard to prepare for the tests and examinations. Finally, more boys reported having the experience of forgetting to do some of the homework and forgetting to bring completed homework to school. On the other hand, only in the item 'much homework to do' did more girls indicate that they had the experience than the boys.

On average, the students manifested some symptoms when they did their homework. For somatic symptoms, only 17.5% of the respondents reported not having any symptoms, $X = 2.32$, SD = 1.88. On the other hand, 36.0% of the respondents reported that they did not have any symptoms related to depression, and 35.6% reported that they only sometimes had these symptoms, $X = 1.09$, SD = 1.14. For anxiety symptoms, only 24.2% of the respondents indicated that they did not have any such symptoms, $X = 1.80$, SD = 1.56. The frequency of each symptom manifested was indicated in Table 2. It was found that the more prevalent symptoms were insomnia, headache, and self derogation. There was no significant difference between the extent of somatic and depression symptoms between the boys and the girls, but the girls were found to have significantly more anxiety symptoms than the boys. Differences on these ratings between the classes were not significant.

Table 2. Frequency of the symptom manifestations.

	Always	Sometimes	Never
Somatic symptoms			
Headache	12.9	52.6	34.5
Faintness	6.9	34.3	58.8
Loss of appetite	6.1	31.8	62.1
Stomachache	5.1	32.3	62.6
Breathing problem	3.2	12.8	84.0
Depression symptoms			
Self derogation	10.4	44.8	44.8
Crying	2.7	23.5	73.8
Suicidal thought	2.2	9.9	87.9
Anxiety symptoms			
Insomnia	14.7	42.8	42.5
Having dreams about forgetting to hand in homework	8.0	37.2	54.8
Having dreams about being punished for not doing homework well	5.8	30.5	63.7
Thinking of truancy to avoid homework	2.1	7.7	90.2

The relations between the homework stressors and the symptoms were examined by means of correlation analysis. The number of hours which the students needed to finish their daily homework were a significant predictor of the symptoms, though the effect sizes were not great. The correlations with the sets of symptoms were, with somatic symptoms, $r = .10$, $P < 0.01$, with depression symptoms, $r = .15$, $P < 0.01$, and with anxiety symptoms, $r = .10$, $P < 0.01$. The more time the students needed to finish their daily homework, the more symptoms they would likely manifest when they did their homework.

When the items on the other homework stressors were summed, a score which included the contribution of the workload of homework, the difficulty and monotony of homework and the social pressures on the students was obtained. This score was also found to be significantly related to the three sets of the symptoms, for somatic symptoms, $r = .42$, $P < 0.001$, for depression symptoms, $r = .41$, $P < 0.001$, and for anxiety symptoms, $r = .42$, $P < 0.001$. That is to say, when all the stressful aspects of homework were taken into account, homework stressors accounted for a significant proportion (16%) of the variance of the symptoms. This also highlighted the significance of other stressors related to homework apart from the time the students needed to finish their homework.

In order to identify the more significant predictors among the various homework stressors, stepwise multiple regressions of the three sets of symptoms on the twenty homework stressors were performed. The results were listed in Tables 3 to 5. It can be observed that a wide variety of stressors contributed to the variance of the symptoms.

For somatic symptoms, the full model included 11 variables, and it accounted for 0.19 of the variance, $F = 39.03$, $P < 0.001$ (Table 3). The most significant factor was being exhausted upon finishing homework. Parents' nagging was another significant factor, which was related to social pressures on the students. Difficulty and monotony of homework, heavy workload, teacher's high expectations, and peer's ridicule all had additional significant contribution to the prediction of students' somatic symptoms.

Table 3. Stepwise multiple regression on somatic symptoms.

Variable	Coeff.	Beta	T
Exhausted upon finishing homework	.24	.13***	5.96
Parents nagging	.23	.11***	4.60
Homework difficult but without help	.23	.11***	5.10
Unable to finish homework at night	.23	.10***	4.58
High teacher expectation	.18	.08***	3.51
Homework boring	.13	.07**	2.95
Having to do homework on Sunday	.12	.06**	2.67
Ridiculed for low scores	.13	.06*	2.39
Much homework to do	.13	.06*	2.37
Punished by parents for low grades	.11	.06*	2.35
Forget to bring homework	.12	.05*	2.10

$R^2 = 0.19^{***}$, adjusted $R^2 = 0.19$, $R = 0.44$.
$^*P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

Table 4. Stepwise regression on depression symptoms.

Variable	Coeff.	Beta	T
Homework grade lower than others	.25	.20***	8.78
Ridiculed for poor grade	.19	.14***	6.00
Punished by parents for low grades	.11	.09***	3.80
Homework difficult but without help	.10	.08***	3.72
Unable to finish homework at night	.10	.07***	3.25
Forget to do some homework	.09	.07**	2.96
Much homework to do	.08	.05*	2.44
High teacher expectation	.07	.05*	2.23
Parents' nagging	.07	.05*	2.22

$R^2 = 0.20^{***}$, adjusted $R^2 = 0.20$, $R = 0.45$.
$^*P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

Table 5. Stepwise regression on anxiety symptoms.

Variable	Coeff.	Beta	T
Ridiculed for low grade	.32	.16***	7.19
Punished by parents for low grades	.21	.13***	5.20
Unable to finish homework at night	.20	.11***	4.87
Punished by teachers for poor homework	.15	.08***	3.64
Homework difficult but without help	.11	.06**	2.88
Forget to bring homework	.13	.06**	2.82
Parents demand to redo poor homework	.09	.06*	2.55
High teacher expectation	.09	.06*	2.49
Having to work hard to prepare for tests	.09	.06*	2.48
Much homework to do	.12	.05*	2.35

$R^2 = 0.19^{***}$, adjusted $R^2 = 0.19$, $R = 0.44$.
$^*P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

For depression symptoms, the full model included eight variables and it accounted for 0.20 of the variance, $F = 52.34$, $P < 0.001$ (Table 4). Low homework grade was the most significant factor. Social attitudes in terms of peers' ridicule and parents' critical attitudes were the other variables that added significant contribution. The problems involved in completing their homework, including unable to finish homework at night, homework difficult but help was not available, and forgetting to do some homework, were also significant factors. Finally, high teacher expectations, heavy work load, and parents' nagging also contributed to the variance.

For anxiety symptoms, the full model accounted for 0.19 of the variance, $F = 43.94$, $P < 0.001$ (Table 5). The more significant variables were those pertaining to social attitudes, namely, peers' ridicule, critical attitudes of parents, and punishment by teachers. The problems encountered when doing homework, including unable to finish homework at night, homework being difficult but help was not available, and forgetting to bring homework were also significant predictors. Finally, heavy workload, parents' demand, and high teacher expectation also added significant variance in the symptoms.

Discussion

The results of the study supported that students' homework, being an ongoing demand and difficulty for the students, is predictive of their well-being status in both physical and psychological aspects. It shows that social adversities apart from life events may make a substantial contribution to the psychopathological symptoms of children and adolescents.

Being exhausted upon finishing homework made the greatest contribution to the variance in somatic symptoms. This is understandable, since headaches, stomachache etc. are the usual accompaniment of tension and exhaustion. The study found that such physical exhaustion was common within the student population in Hong Kong. Such exhaustion is most likely caused by the heavy workload of homework, which is reflected by the great amount of time on which the students have to spend daily. Measures must be taken to ensure that the workload should be appropriate to the level of the students. The Education

Department has already formulated a guideline on homework and requested the schools to abide by the principles. It is hoped that the educators and teachers would closely monitor the volume of homework assigned to the students. Furthermore, homework that are too difficult for the students, or too repetitive or monotonous, are shown to be detrimental to the students' health. This indicates that the content of the homework apart from the workload also needs to be carefully designed. If these different aspects are well attended, the health of the students can be better assured.

For depression symptoms, poor homework grade was the most significant factor, and the situation was aggravated when there was ridicule by the peers or reprimand and punishment by the parents. In Hong Kong, people place high value on the academic achievements. In the eyes of many people, poor grades may reflect lower ability or even less worth of the child. Such belief is not only held by the adults; the children themselves may also use grades as the yardsticks to assess themselves. Thus, poor homework grades may affect the students' self-esteem, which in turn generate symptoms of depression. Certainly, the attitudes of the friends and the parents would reinforce this idea in the students. In recent years, the teachers are more inclined to accord higher grades to the students, but the students may still feel dissatisfied because they gauge their achievement in comparison with others. Thus, a basic change of attitudes is important. The students as well as the parents need to be helped to appreciate their own effort instead of the grade outcomes. They should also be helped to understand the rationale for homework—for practice and application—so that poor homework grade is not an indication of personal inadequacy, but just a feedback to reveal the need for improvement.

Anxiety is an affective reaction in response to anticipated threat or harm. The study found that the experience of being ridiculed and punished by others would lead to anxiety symptoms among the students. Ridicule and punishment reflect the underlying attitudes as discussed in the previous paragraph. When the peers and the parents used homework performance as a yardstick to measure a child's ability or worth, they would react negatively when they found that the child had poor homework grade. The anticipation of such negative reactions would generate anxiety in the children. Therefore, it is important that the parents learn to adopt a supportive attitude towards their children's learning, and accept their homework performance. Frequent reprimand or rigidly asking the children to redo their homework until a high standard is achieved would make the them anxious when they do their homework. Similarly, the teachers need to take a supportive attitude towards their students' homework. On the other hand, a cooperative attitude needs to be implanted in the minds of the students, so that they would be more eager to help those who have problems with their homework. These measures would surely help to build up school and family environments that are conductive to the students' growth.

In conclusion, the relevance of homework as a stressor deserve the attention of those who are concerned about the health of the students. Monitoring the workload and a change in attitude towards homework are the keys to alleviate the stressful impact of homework, and make the use of it for children's learning.

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