Perceived Instrumental Teacher Support, Student Life-Related Stress, and High School Students' Mental Health

Wataru IMURA[1,2], Michiko ISHIDA[3], Mayumi YAMAGATA[4], Maki DAITOU[5], Miku HASHIMOTO[6] and Tomoko NAMBA[7]

1) Graduate School of Health Science and Technology, Kawasaki University of Medical Welfare
2) Department of Occupational Therapy, Tamano Institute of Health and Human Services
3) Department of Nursing, Kawasaki University of Medical Welfare
4) Department of Nursing, Sanyo Gakuen University,
5) Graduate School of Health Sciences, Okayama University
6) Graduate Health and Sports Science, Kawasaki University of Medical Welfare
7) Department of Health and Sports Science,Kawasaki University of Medical Welfare

Summary

The aim of this study was to gain insight into teachers' support for improving high school students' mental health, and to determine the relationship between perceptions of instrumental teacher support for high school students' mental health (hereafter referred to as perceived teacher support) and perceived student life-related stress (hereafter referred to as perceived stress). The hypothesized model was that perceptions of instrumental teacher support would influence mental health through stress perceptions (friends, academics, teachers, and parents). Data from 344 high school students enrolled in two schools were used in the analysis to examine the fit of the model to the data and the relationships among the variables. The results showed that perceptions of instrumental teacher support influences mental health via perceived stress; the model's fit with the data met the statistically acceptable level. The results showed a negative association between perceptions of instrumental teacher support and perceived stress due to relationships with friends, teachers, and parents. Stress perception was positively related to mental ill health. The contribution of the present analytical model to mental health was 35.5%. The results of this study suggest the need to increase perceptions of instrumental teacher support in order to improve the mental health of high school students and reduce perceived stress caused by their relationships with friends, teachers, and parents.

Wataru IMURA

Tamano Institute of Health and Human Services
1-1-20, Chikko, Tamano-shi, Okayama 7060002,
JAPAN
Email: imura@tamasen.ac.jp

Introduction

High school students are prone to mental disorders such as depression (1)–(3). About 35% of 12–19 years old feel some kind of stress (4), and it is easy to imagine that this kind of stress is related to mental illness.

Currently, the cognitive theory of stress is one of the most frequently used theories in research on stress (5). Stress-cognition theory considers that stress sources induce stress responses via stress cognitions, and one of the environmental factors that influences the perception of stress is social support (5). Social support is support from others with instrumental and expressive functions (6) and consists of perceived support, which is the degree to which support seems to be available when needed, and enacted support, which is the degree to which supportive behavior is actually performed (7). Perceived support has been shown to have a more stable positive psychological impact than enacted support (8). Furthermore, social support is classified into emotional support, such as encouragement and empathy, and instrumental support, such as providing the resources needed to solve the problem or giving information to enable the person to obtain the resources on his/her own (9).

Teachers not only teach knowledge and skills but also play a role as psychological assistants (10). One of the essential roles of schools in Japanese-style education in Reiwa is to ensure the physical and mental health of students (11), and the role of teachers as psychological support providers for students will not diminish in the future. It is now clear that high school students' perceived support from their teachers has a positive impact on their psychological state (12)–(15).

Interestingly, however, high school students perceive their friends and parents as support providers, and not many perceive their teachers as support providers (10)(16).

Currently, researchers examining the relationship between teacher support perception and interpersonal stress perception based on stress cognition theory found a relationship between perceptions of instrumental teacher support and perceived interpersonal stress (12)(13). The Interpersonal Stress Scale (17) used in these studies measures the perception of stress caused by interpersonal relationships in general, without identifying the source of stress. However, findings indicate that for support to be effective, it needs to match the needs of the recipient (18), suggesting that effective support could differ depending on the source of stress. Ishida et al. (19) developed the High School Student Life-Related Stress Scale, which measures students' perceived stress caused by friends, schoolwork, teachers, and parents. They found that students' perceptions of life-related stress was associated with their mental health (19). However, it is not clear how students' perceived life-related stress (whether from friends, academics, teachers, parents, etc.) is associated with the students' perceptions of instrumental support from their teachers. We believe that clarity in this area will lead to suggestions for how teachers can support high school students in responding to their stressors to improve their mental health.

Therefore, the purpose of this study was to determine the relationship between high school students' perceptions of instrumental teacher support and of life-related stress on their mental health to gain insight into how

teacher's support can improve high school students' mental health.

Methods

1. Definition of Terms

We defined perceptions of instrumental teacher support in this study as the high school student's perception that the teacher will provide practical assistance, such as resources needed to solve a problem or information that will enable them to obtain those resources.

2. Research Design

The research design was a cross-sectional survey using a self-administered, unmarked questionnaire.

3. Conceptual Framework and Hypothetical Model

Referring to the stress cognition theory (5), which states that environmental factors influence stress reactions via stress cognitions, we set up an association model in which perceived instrumental teacher support influences mental ill-health via life-related stress cognitions (friends, academics, teachers, and parents).

4. Study Participants

Originally conducted with first-through third-graders enrolled in two regular high schools in two prefectures located in the Chugoku region. However, we targeted regular high school students in this study because teachers' demands and students' sources of stress might differ by subject. Given that 73.3% of high school students are enrolled in regular high schools (20), we believed our results would be easily generalizable to Japanese high school students. In addition, school educational guidance policies could differ from prefecture to prefecture, so we selected high schools in two different prefectures.

5. Survey period and content

We administered the study surveys in September 2020 and June 2021The classrooms were used for the study, in the students' homeroom classrooms. The survey procedure was as follows: teachers distributed glued envelopes to students individually along with the questionnaires, and students sealed the survey forms in the glued envelopes themselves and dropped them into a collection box. The instructions were clearly stated in the questionnaire, but the homeroom teachers also read the instructions aloud in class.

The survey collected basic attributes (gender, grade) and then measured the students' perceptions of instrumental teacher support and of life-related stress and their mental health.

Measurement Perceptions of Instrumental Teacher Support

For this variable, we used the instrumental support subscale of the Teacher Support Scale (12). The scale consists of four items rated on a four-point scale, 1: not applicable, 2: somewhat applicable, 3: quite applicable, and 4: very applicable, with higher scores indicating higher perceptions of instrumental teacher support.

Measurement of Perceived Life-Related Stress

We measured students' perceived stress with the High School Student Life-Related Stress Scale (19). The 16-item scale asks students about their negative perceptions about their lives with four items in each of four categories: relationships with friends, academics, relationships with teachers, and relationships with parents. The response options were 1: never, 2: sometimes, and 3: often, and higher scores indicate greater perceived stress.

Measurement of Mental Health

The "To measure the students' mental

Table 1 Distribution of Respondents' Attributes

n=344 unit：person(%)

	Male			Female		
1st grade	115	(	62.2)	70	(	37.8)
2st grade	47	(	60.3)	31	(	39.7)
3st grade	60	(	74.1)	21	(	25.9)
Total	222	(	64.5)	122	(	35.5)

health, we used the Japanese version of the K6 Questionnaire (21)." The scale consists of six items asking about the degree of depression and anxiety. The answers are given using a five-point scale, with 0: not at all, 1: a little, 2: sometimes, 3: usually, and 4: always, with higher scores indicating worse mental health.

6. Statistical Analysis

Statistical analysis was conducted using structural equation modeling to examine the fit of the assumed model and the associations between variables. Based on previous studies (12)–(14)(22), we determined that gender (male = 0, female = 1) and grade had a high possibility of biasing the model, and therefore, we entered these into the model as control variables.

We tested the fit of the assumed model to the data with the comparative fit index (CFI) and root mean square error of approximation (RMSEA) using ordinal scale estimation, an extension of weighted least squares (23) that can output stable and correct estimates regardless of data size and normality. A CFI of 0.90 or more and an RMSEA of less than 0.1 are considered to indicate good fit of the model to the data (24). We set statistical significance at 5% using Mplus 8 for the above statistical analyses.

7. Ethical Considerations and Conflicts of Interest

We conducted this study after obtaining approval from the Okayama Prefectural University Ethics Committee (Approval No. 19-85). There are no conflicts of interest to report. Permission has been obtained from the principal of the subject high school. The survey form clearly explained the study purpose, contents, procedures, benefits, disadvantages, and anonymity to the participants, and after the teachers gave verbal explanations, we requested the students' cooperation with the survey. We also explained that it would take about 15 minutes to complete the questionnaire. In addition, we explained orally and in writing that the data would be processed statistically, that no disadvantages would be incurred in the case of non-cooperation with the study, that the results would not be related to any grades, and that the collected data would be used only for the purpose of the study. Students indicated their consent by checking the consent box on the survey form. The survey form was not signed, and students were required to enclose the survey form in a glued

Table 2 Basic Statistics for The Three Ccales

Unit: Point

Grade	Gender	The Perceptions of Instrumental Teacher Support	The High School Student Life-Related Stress Scale				The Japanese Version of the K6 Questionnaire
			Relationships with Friends	Academics	Relationships with Teachers	Relationship with Parents	
1st grade	Male	9(7.25-12)	4(4-5)	6(4-8)	4(4-5)	4(4-6)	6(2-11)
	Female	9(7-12)	4(4-6)	6.5(5-8)	4(4-6)	5(4-7.5)	11(5-14)
2st grade	Male	11(7-12)	5(4-5.5)	5(4-7)	4(4-4)	4(4-5)	7(1.5-11.5)
	Female	11(7-12)	4(4-4.5)	6(4-8)	4(4-4.5)	5(4-6)	6(4-11)
3st grade	Male	11(8-12)	4(4-5)	6(4-8)	4(4-5.25)	4(4-5.25)	5.5(1.75-12)
	Female	9(8-12)	4(4-4)	5(4-5)	4(4-4)	4(4-7)	8(1-12)

The Second Quartile (The First Quartile - The Third Quartile)
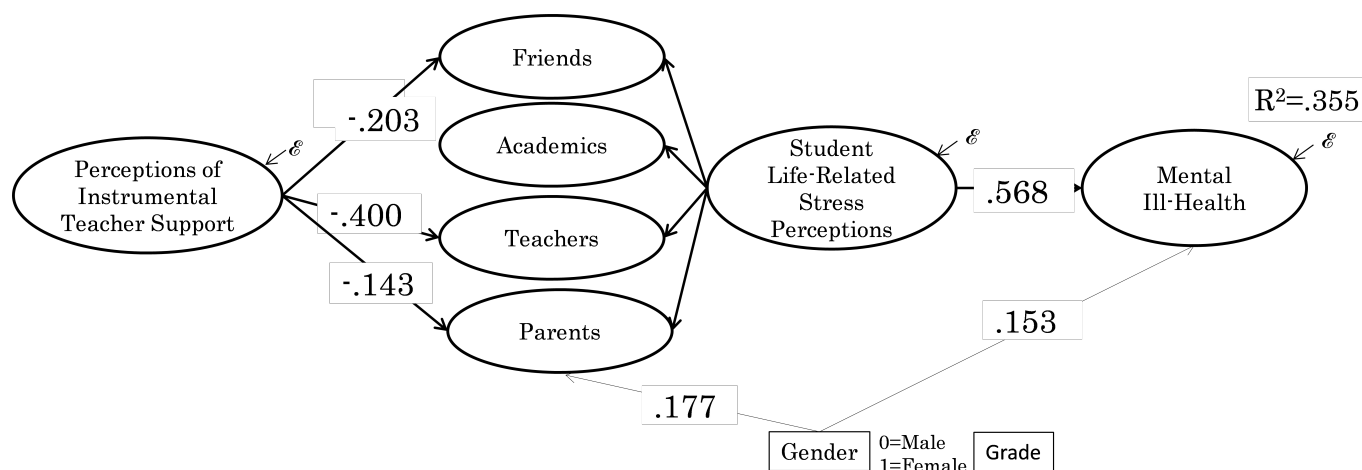
n=344, x²=490.799, df=330, CFI=0.990, RMSEA=0.038 (Estimation Method : WLSMV)

※Solid lines indicate significant associations
※Non-significant paths, correlations between observed and latent variables observed by latent variables, between observed
variables, and between error variables are omitted to avoid complication of the figure

Fig. 1 Perceptions of instrumental teacher support for high school students' mental health and perceptions of student life-related stress.

Results

1. Distribution of respondents' attributes and basic statistics for each scale

We obtained responses from 378 high school students (response rate: 94.97%) from a final total of 392 questionnaires distributed. However, we only used the data from 344 respondents (Effective response rate: 91.01%) who did not have missing values for the survey items necessary for analysis for statistical analysis.

Table 1 presents the statistics of the respondents' attributes, and Table 2 presents the basic statistics for the three study scales used.

2. Perceptions of instrumental teacher support for high school students' mental health and perceptions of student life-related stress

In the association model that perceptions of instrumental teacher support influence mental ill health via student life-related stress perceptions, the fit indices were CFI = 0.990 and RMSEA = 0.038, meeting the statistically acceptable level (Fig 1). The model showed significant negative associations of −.203, −.400, and −143 between stress perceptions attributed to relationships with, respectively, friends, teachers, and parents and the students' perceptions of instrumental teacher support. However, the model also found a significant positive association of .568 between the students' perceived life stress and their mental ill health. There were also statistically significant positive associations between gender and perceived parent-induced stress and gender and mental ill health (.177 and. 153, respectively). The contribution to mental health in this analytical model was 35.5%.

Discussion and Conclusion

To gain insight into the effects of teachers' support on improving the mental health of high school students, we measured the relationships between high school students' perceptions of

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instrumental teacher support and both their mental health and their perceived life-related stress. An overview of the basic statistics for the three scales used in this study shows that the deviations from the results of previous studies (12)~(14)(19)(25) are not large. In addition, 344 samples were secured as aggregate data in this study. It is said that about 200 samples are usually required for analysis using structural equation models (26). These facts are considered to indicate the generalizability of the results of this study.

In accordance with the stress perception theory (5), which states that social support influences stress reactions via stress perception, we developed a relational model in which perceptions of instrumental teacher support influences mental health via student life-related stress perceptions (friends, academics, teachers, and parents), and examined the model's the goodness of fit to the data. The results showed statistical support for the model after eliminating the effects of gender and grade. The contribution of this analytical model to mental health was 35.5%, which means that the model is influential enough to support the theoretical basis and predictions. Focusing on the relationships among the variables, the students' perceptions of instrumental teacher support reduced their perceived stress caused by relationships with friends, teachers, and parents, and may indirectly have a positive effect on mental health. Teachers' perceived instrumental support did not have an impact on students' stress related to academics.

Stress cognitions attributable to relationships with friends, teachers, and parents, which were found to be associated with perceptions of instrumental support for teachers in the present study, were all stress cognitions attributable to interpersonal relationships. In a previous study, high school students' perceptions of strong interpersonal stress were significantly related to their perceptions of instrumental support for their teachers (12)(13). In other words, if the results of the present study and the results of previous studies are included, it can be suggested that perceptions of instrumental support for teachers in high school students may contribute to reducing stress cognitions caused by interpersonal relationships.

Social Findings show that social support is less effective for high than low stress cognitions compared to low stress cognitions (27) and that instrumental support is less effective when the source of stress cannot be controlled (28). Currently, 75.5% of high school students report problems with their studies and career paths (2), and here, we found higher perceived stress related to schoolwork among both boys and girls irrespective of grade than stress caused by relationships with friends, teachers, or parents. These results indicate that academics are a major source of stress for high school students, and because it cannot be avoided as a source of stress; this likely explains the lack of a significant relationship between students' perceptions of teachers' instrumental support and perceived stress related to schoolwork. Notably, approximately 38% of high school students use cram school (29), and it is possible that cram school teachers' perceived instrumental support is more effective for reducing students' academic stress than that from regular high school teachers. However, we did not confirm this in the present study. Researchers

also found that emotional support was effective for reducing stress perception when the source of stress cannot be controlled (28). Therefore, we believe that the perceptions of teachers' emotional support could help reduce students' unavoidable stress related to schoolwork.

Past experiences of receiving support from providers (9) and the quality of daily interactions between providers and recipients (30) are important for enhancing support recipients' perceptions of that support. With respect to this study, students who have received past support from teachers should perceive that support will be there in the future, it is important for teachers to provide daily support to high school students to increase their perceptions of instrumental support from their teachers and potentially reduce their perceived stress caused by their relationships with their friends, teachers, and parents.

Finally, we discuss the limitations of this study. The subjects of this study were students attending a regular high school, and the male-to-female ratio was different from that of the population of Japanese high school students (31), with a large proportion of male students. In addition, we conducted the survey in June and September, and we cannot deny the possibility that the first-year students in the June survey were just not yet accustomed to high school life; therefore, we could not eliminate any bias caused by the timing of the survey. Further studies are needed that account for such variables as survey period, school department, or gender ratio.

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高校生の精神的健康に対する道具的な教師サポート期待と学生生活関連ストレス認知の関連

井村亘 [1,2]、石田実知子 [3]、山形真由美 [4]、大東真紀 [5]、橋本未来 [6]、難波知子 [7]

1）川崎医療福祉大学大学院　医療技術学研究科　健康科学専攻　博士後期課程
2）玉野総合医療専門学校　作業療法学科
3）川崎医療福祉大学　保健看護学部　保健看護学科
4）山陽学園大学　看護学部　看護学科
5）岡山大学大学院　保健学研究科　博士後期課程
6）川崎医療福祉大学大学院　医療技術学研究科　健康体育学専攻　修士課程
7）川崎医療福祉大学　医療技術学部　健康体育学専攻

要旨

　本研究は，高校生の精神的健康の向上に向けた教師の支援における知見を得ることをねらいとして，高校生の精神的健康に対する道具的な教師へのサポート期待（以下：教師サポート期待）と学生生活関連ストレス認知（以下：ストレス認知）の関連を明らかにした．仮説モデルは，道具的な教師サポート期待がストレス認知（友人・学業・教師・親）を介して精神的健康に影響を与えるとしたモデルを設定した．解析には，2校に在籍する高校生 344 人分のデータを使用し，モデルのデータに対する適合性と変数間の関連性を検討した．その結果，道具的な教師サポート期待がストレス認知を介して精神的健康に影響を与えるとしたモデルのデータへの適合度は，統計学的許容水準を満たしていた．変数間の関連性は，道具的な教師サポート期待と友人，教師，親との関係に起因するストレス認知とは負の関連を示していた．また，ストレス認知と精神的不健康とは正の関連を示していた．なお，本分析モデルにおける精神的健康に対する寄与率は 35.5 ％であった．本研究結果は，高校生の精神的健康の向上および友人，教師，親との関係に起因するストレス認知の低減に向けて，道具的な教師サポート期待を高める必要性を示唆している．

キーワード：高校生、道具的な教師サポート期、ストレス認知、精神的健康