

Psychosocial Stressors among School-Age Children and Coping Strategies during Covid-19 Pandemic

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Abstract

Coronavirus disease 2019 (COVID-19) is a novel severe acute respiratory syndrome, which is highly infectious. It spreads quickly and widely throughout the world. The COVID-19 pandemic has a serious psychosocial impact on school-age children. Identifying coping mechanisms during stressful moments can help with early and efficient interventions. **Objective:** To identify the psychosocial stressors among school age children and coping strategies during Covid.19 pandemic. **Setting:** The study was carried out at the Pediatric Outpatient Clinics in Smouha Specialty Hospital and Alexandria University Children Hospital at El- Shatby. **Subjects:** 200 school-age children who fulfilled the criteria, comprised the study. **Tools:** three tools were used for data collection. **Tool I** children socio-demographic characteristics and clinical data questionnaire sheet. **Tool II** interview schedule about psychosocial stressors among school-age children during Covid-19 pandemic. **Tool III** the coping inventory of stressful situation. **Results:** The present study revealed that more than half of studied children had 10-12 years. In addition, more than half of them were male and living in rural areas (56.0% & 58.0% respectively). The majority of studied children were always afraid of losing family members and also afraid family members due to illness. Furthermore, nearly two thirds of them were always afraid of infection. More than half of children were always being socially stressed due to being away from their extended family. The mean percent score of task-oriented coping was high. **Conclusion:** The study concluded the majority of children exhibited severe psychosocial stressors during the COVID-19 crisis. Meanwhile, school-age children used various coping styles to cohabit with the pandemic. **Recommendations:** Implement counseling programs about COVID-19 for both healthy, and quarantined children and their caregivers to improve their awareness about the disease manifestations, complications and proper management approaches.

Key words: Psychosocial Stressors, Coping Strategies, School-age children, Covid19 Pandemic.

Introduction

Coronavirus disease 2019 (COVID-19) is a novel severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) has developed, and caused an infectious disease. The virus was initially detected and reported from Wuhan City of China in December, 2019. The SARS-CoV-2 is highly infectious, spread quickly and widely throughout the world. Since then, this persistent

outbreak has now spread to more than 200 countries (Lone & Ahmad, 2020).

According to WHO, approximately 146,198 people had died after getting the respiratory virus out of nearly 2,164,111 confirmed cases, more than 402,989 people have recovered from the illness. These numbers are shifting quickly (Chakraborty & Maity, 2020). Egypt, became the first African country to register a confirmed case on 14 February 2020, where 94,078 cases

were recorded and 4805 died because of the infection (Gaye et al., 2021).

SARS-CoV-2 virus primarily affects the respiratory system, although other organ systems are also involved. Lower respiratory tract infection related symptoms as fever, dry cough and dyspnea were reported in the initial case from Wuhan, China. In addition, headache, dizziness, generalized weakness, vomiting and diarrhea were observed (Yuki et al., 2020).

The primary therapy modalities for COVID-19 at this time are supportive and symptomatic. Currently there is no specific medicine for the treatment of COVID-19 (Dhochak et al., 2020). Children have been excluded from the vaccination programs due to their lower susceptibility to COVID-19 infection. Nevertheless, the fatal COVID-19 disease is more likely to affect older children than younger ones (Brusa & Barilan, 2021). Currently, scientists are working hard to create such a vaccine with the global collaborations and government initiatives (Shin et al., 2021).

WHO, 2020 has suggested some precautionary measures to reduce the overall risk of transmission of COVID-19, such as avoiding close contact with those who have acute respiratory illnesses, regularly washing hands with soap and water or hand sanitizer, adhering to cough etiquette, and avoiding unprotected contact with farm or wild animals, etc (Chakraborty & Maity, 2020).

According to Piaget, school-age children are in the concrete operational stage that lasts from 7 to 11 years of age. Children can use logical reasoning in dealing with different situations and experiences, so medical experiences may be recognized as a threat in children. Children are vulnerable to the crises of illness that lead to stress due to change from the usual state of health and environmental routine (Carr, 2015).

The COVID-19 pandemic has a serious impact on health and wellbeing of children. Psychosocial Stressors may rise mainly for three different reasons. First, many parents have

lost their jobs due to the pandemic and their economic crisis has worsened than before. This is reflected on children where their needs cannot be met. Second, fear of death due to covid19 pandemic. Third, loss of routines and habits related to lockdown (Dawadi et al., 2020).

Coping behaviors can be defined as intentional and conscious responses to the demands and emotions of stressful events (Lazarus, 1999; Compas et al., 2001). Parker and Endler (1992) observed that problem-focused coping strategies were associated with task orientation, whereas emotion focused coping reflected an individual-focused orientation. They included a third dimension called avoidance-oriented coping. The ability to cope with stressful events and regulate emotions can play an important role in the explanation of different stressors (Orgilés et al., 2021).

Many challenges are facing the pediatric nursing staff in the face of the novel coronavirus pandemic, the care provided to patients suspected or confirmed to be infected with COVID-19 is considered a challenge. In addition, their role in providing health education, especially in infectious diseases prevention (Góes et al., 2020).

Aim of the study:

The study aimed to identify the psychosocial stressors among school age children and coping strategies during Covid-19 pandemic.

Research questions:

- What are the psychosocial stressors among school age children during Covid19 pandemic?
- What are coping strategies followed by school age children during Covid19 pandemic?

Materials and method:

Materials:

Research design:

A descriptive research design was used to accomplish the study.

Setting:

The study was carried out at the Pediatric Outpatient Clinics in Smouha Specialty Hospital and Alexandria University Children Hospital at El- Shatby.

Subjects:

A convenience sampling of 200 school-age children who fulfilled the following criteria, and comprised the study subjects: age of children ranges from 6 to 12 years, free from Covid19 manifestations and acute diseases, and have awareness about COVID-19 pandemic.

Tools: Three tools were used to collect the data.

Tool 1: Children and Their Mothers' Socio-demographic Characteristics and Children's Clinical Data Questionnaire Sheet. It was developed by the researcher to collect the necessary data. It included three parts: **Part I: Socio-demographic Characteristics of Children;** age, gender, place of residence, level of education, number of siblings, birth order, and type of family. **Part II: Children's Clinical Data;** diagnosis, and previous hospitalization; if yes, how often, reason for hospitalization, and length of stay in hospital. **Part III: Socio-demographic Characteristics of Mothers;** age, marital status, level of education, occupation, number of family members, number of rooms, and family income.

Tool 2: Interview Schedule about Psychosocial Stressors among School-Age Children during Covid19 pandemic. It was developed by the researcher from (Hoffman & Miller 2020) to identify various types of stressors related to Covid19 among school-age children. It categorized into two categories as follows: **Psychological stressors** consisted of eleven questions, and **Social stressors**, also consisted of eleven questions. Responses for each item was

recorded on four point Likert type scale for frequency (not at all = 0, rarely= 1, sometimes =2, always =3). **Scoring system:** The total score of psychosocial stressors ranged from 0-33 for each stressors. Children had severe stressors when their scores were 24 to 33, moderate stressors with 12 to 23 scores, and mild stressors when their scores were 0 to 11.

Tool 3: The Coping Inventory of Stressful Situation (CISS): It was adapted from **Endler and Parker (1990)**. It comprised 48 self-report items, to measure multidimensional coping styles. The scale comprised three subscales, 16- item in each subscale, that empirically assessed three basic dimensions of coping namely; task-oriented, emotion-oriented, and avoidance-oriented coping style. Respondents were asked to rate each of the 48 items on a five-point Likert rating scale ranging from (1) "Not at all" (2) "rarely" (3) "sometimes" (4) "many times" to (5) "very much" for all of these subscales. The total score of each subscale ranged from 1-80 scores. Children were highly coping when their scores were 60 to 80, moderate coping with 38 to 59 scores, and low coping when their scores were 16 to 37.

Method:

- Approval from the Ethical Research Committee of the Faculty of Nursing was obtained.
- Official letters were sent from Faculty of Nursing, Alexandria University, to directors of the Pediatric Outpatient Clinics in Smouha Specialty Hospital and Alexandria University Children Hospital at El- Shatby to obtain their approval to collect the data and facilitate the research implementation.
- Tool I and II were developed by the researcher after a thorough review of recent and relevant literatures. Tool III

was modified and translated by the researcher.

- Tool I, II, III were submitted to a jury of five experts in the pediatric nursing field to test its validity. The validity was 95%, 97.27%, and 99.58% respectively.
- Reliability of tools was confirmed using Cronbach's Alpha; it was 0.896 for tool II & 0.842 for tool III.
- A pilot study was carried out on 20 school-age children to test the clarity and feasibility of the tools. Accordingly, necessary modifications were done. These children were excluded from the study subjects.
- Every child and her mother were interviewed individually in the waiting area to collect the necessary data.
- The duration of each interview lasted from 10-15 minutes.
- Data was collected over a period of six months extending from December 2021 to May 2022.

Statistical analysis:

- Collected data were revised, coded, and transferred into specially designed format to be suitable for computer feeding.
- The data were entered into SPSS system files (SPSS package version 20). Finally, analysis and interpretation of data were conducted.
- Pearson correlation coefficient test was used for the relationship between the categories of two independent samples to reflect a real association between these two variables.
- Cronbach's Alpha test was used to assess reliability Statistics.
- The level of significance selected for this study was P equal or less than 0.05.
- Standard deviation (SD), Minimum and maximum were used.

Ethical considerations:

- Written informed consent was obtained from the mothers who have school-age children after explaining the aim of the study to them and their children. Children and their mother's participation was on voluntary base and they had the right to withdraw from the study at any time.
- Privacy and confidentiality of data were both considered.

Result:

Table (I) describes socio-demographic characteristics of children. It was observed that 56% of the studied children had 10-12 years. More than half of them were male and living in rural areas (56.0% & 58.0% respectively). As regard the level of education, nearly one quarter of children (23.5%) were in the grade 6. Finally, more than half of them were nuclear family (59.5%).

Table II describes percent score of psychological stressors among school-age children during covid19 pandemic. It was observed that the majority of studied children were always afraid of losing family members and illness of family members (88.5% & 84% respectively). Two thirds of children were always afraid of infection (66%).

Table III describes percent score of social stressors among school-age children during covid19 pandemic. It was observed that 51.5% of studied children were always being socially stressed due to distance from their extended family. Furthermore, half of studied children (49.5%) were sometimes being socially stressed due to distance from colleagues.

Table IV describes scoring system of children's coping inventory of stressful situation. It was noted that the mean percent score of task-oriented was 60.47 ± 14.45 .

Table (V) describes the correlation between psychosocial stressors among school-age children during covid19 pandemic and their socio-demographic characteristics. It was found that there was a statistical significant difference between children's age and psychological stressors ($\chi^2 = 11.654$, $P = 0.054$). As regard to their level of education, a statistical significant differences were found between level of education and their psychological and social stressors ($\chi^2 = 40.365$ ($P < 0.001$), 39.515 ($P < 0.001$)).

Discussion

The coronavirus outbreak (COVID-19) was considered a Public Health Emergency of International Concern on January 30, 2020, as a result of the virus' rapid global spread (Delvecchio et al., 2022). Researches revealed that the psychological effects of prolonged stressful situations, such as social isolation and high levels of uncertainty have a negative psychosocial effects in school-age children (Dhochak et al., 2020) (Cianfarani & Pampanini, 2021). Negative coping mechanisms is one of the most frequent predictors of acute post-traumatic stress disorder, chronic post-traumatic stress disorder, and other psychiatric illnesses (Alamri et al., 2021).

Regarding sex-related differences, the results of the present study showed that nearly two thirds of male children have moderately severe overall stressors than female (table V). It could be due to the male children at this stage are very physically active than female and interested in playing, while social isolation restricted their movements. This finding is congruent with Delvecchio et al., (2022), who studied the psychological effects of COVID-19 and coping mechanisms of preschool, school-age children, and adolescent, and mentioned that stress was higher in males at school age, while it peaked in adolescence in females. On the contrary, the study findings of McKune et al., (2021) revealed that the

frequency of those exhibiting psychosocial stress symptoms, were markedly greater among females .

Concerning place of residence, findings of the current study displayed that studied children who lived in rural area had moderately severe psychosocial, and overall stressors (table 1). It could be happen because access to healthcare facilities is difficult and children are worried about contracting COVID-19 or being away from their extended family. Findings of a study conducted by Tchimtchoua Tamo, (2020) in China contradict the results of the present study, where he found that mothers and their school age children who were living in rural areas reported less stress during the pandemic.

In the present study, more than half of studied children, their needs were sometimes met, (table II). This could be related to their parents' low socioeconomic status as a result of the COVID-19 pandemic's consequences. The parents may have fewer job opportunities with lowered wages or even loss of job. This result is correspondent with Ravens-Sieberer et al., (2022), whose online survey was conducted on children and their families to evaluate the pandemic impact on mental health and health related quality of life. They found that the COVID-19 pandemic's impacts children and adolescents with poor socioeconomic level (limited financial resources) are extremely serious .

Stress causes feelings of fear, anger, sadness, worry, and mental health condition disturbance (Centers for Disease Control and Prevention, 2020). The current study findings revealed that nearly two thirds of studied children were always afraid of infection, also the majority of them were afraid of illness of family members (table II). This results may be related to children in this stage may see medical experiences as a threat and feel afraid. In addition, children are particularly susceptible to health emergencies that cause stress because they disrupt their regular

routines for environmental and health conditions. These findings are in harmony with Idoiaga, Berasategi, Eiguren, and Picaza (2020) who mentioned that children between the ages of 3 and 12 were afraid of contracting the virus primarily out of concern for their family members, particularly their grandparents. Delvecchio et al., (2022), also were congruent with this finding and noted that school age children had more difficulty concentrating and were more anxious about contracting COVID-19.

Obesity is described as an unhealthy or excessive fat buildup that poses health hazards to individuals (Jia et al., 2021). The finding of the current study clarified that more than one third of studied children were sometimes afraid of weight gain (table II). It may be due to decreased physical activity and unhealthy food. Mulugeta & Hoque, (2021) who studied children before and after the COVID-19 confinement are congruent with these results and noted that children's Body Mass Index (BMI), obesity, and overweight were elevated during the COVID-19 lockdown .

Sleep disorders in children are a significant pediatrics problem, due to their impact on children's health and their strong relation with behavioral issues (Ustuner Top & Cam, 2022). The current study findings revealed that nearly half of studied children changes in sleeping habit (table II). It could be due to the current stressful environment related to home isolation and routine changes, as well as greater levels of stress and excessive screen use. These findings are in harmony with Ustuner Top & Cam, (2022) who conducted online survey on parents of school age children, and reported that more than half of school age children have experienced sleep disturbances during the COVID-19 pandemic .

Using of the internet in moderation is advantageous, but excessive or uncontrolled use lead to internet addiction (IA) (Dong et al., 2020). It was found that nearly one third

of studied children were always using internet most of the time (table III). This finding could be due to lessen anxiety and stress or a depressed mood. This result is in the same line with Dong et al., (2020) who conducted online questionnaire on school-age children and adolescents, and provided significant evidence of exaggerated internet use among Chinese children and adolescents during this lockdown. In addition, the COVID-19 epidemic has a major impact on how frequently and how long children use the internet for entertainment, as well as how frequently they use it late at night.

Coping strategies are purposeful, conscious actions taken in response to the requirements and feelings generated by stressful situations (Lazarus, 1999; Compas et al., 2001). The current study showed that the median percent score of task-oriented was more than half of studied children (table IV). This finding could be related to their using of concrete operations and reasoning to interpret events and their impacts as well as increasing in their cognitive capacity. This finding was supported by Orgilés et al., (2021), who investigate the coping mechanisms utilized by children and adolescents during the COVID-19 health crisis. They found that task-oriented coping was the most widely reported coping mechanism by school-age children during the pandemic. While, the study finding of Delvecchio et al., (2022) is contradicted with the result of the present study as they found that the school-age children's use of emotion-focused techniques may be linked to their common imitation in play, drawings, and stories of their fears and worries, which are normal activities at this stage.

Conclusion:

In conclusion, this study found that

- COVID-19 pandemic has a negative outcomes on children, and their parent's health and wellbeing. The majority of children exhibited to severe psychosocial stressors during the COVID-19 crisis.

- School-age children used various coping styles to cohabit with the pandemic.

Recommendation:

The following recommendations are suggested to be applied in different settings that serve school-age children:

- Implement counseling programs about COVID-19 for both healthy, and quarantined children and their caregivers to improve their awareness about the disease manifestations, complications and proper management approaches.
- Provide manual booklet involving updated guidelines about COVID-19 ways of transmission, manifestations, and safety issues.
- Conduct continuous training and health education sessions using simplified brochures and leaflets including COVID-19 preventive measures.

Table I Socio-demographic Characteristics of Children

Socio-demographic characteristics of children	Total (n = 200)	
	No.	%
Age (years)		
6 – <8	28	14.0
8 – <10	60	30.0
10 – 12	112	56.0
Min. – Max.	6.0 – 12.0	
Mean ± SD.	9.73 ± 1.77	
Median	10.0	
Gender		
Male	112	56.0
Female	88	44.0
Place of residence		
Rural	116	58.0
Urban	84	42.0
Level of education		
Grade 1	23	11.5
Grade 2	33	16.5
Grade 3	32	16.0
Grade 4	36	18.0
Grade 5	29	14.5
Grade 6	47	23.5
Number of sibling		
<2	46	23.0
2 – <4	119	59.5
≥4	35	17.5
Min. – Max.	0.0 – 6.0	
Mean ± SD.	2.38 ± 1.17	
Median	2.0	
Birth order		
First	66	33.0
Second	73	36.5
Third	36	18.0
More than third	25	12.5
Type of family		
Nuclear family	119	59.5
Extended family	81	40.5

Table II Percent Score of Psychological Stressors among School-Age Children during Covid19 Pandemic (n=200)

Q	Psychological stressors among school-age children during covid19 pandemic	Not at all		Rarely		Sometimes		Always	
		No.	%	No.	%	No.	%	No.	%
1	Are you afraid of infection?	10	5.0	13	6.5	45	22.5	132	66.0
2	Are you afraid of dying?	18	9.0	9	4.5	42	21.0	131	65.5
3	Are you afraid of illness of family members?	1	0.5	4	2.0	27	13.5	168	84.0
4	Are you afraid of losing family members?	3	1.5	2	1.0	18	9.0	177	88.5
5	Are you afraid of losing peers?	10	5.0	13	6.5	81	40.5	96	48.0
6	Are you afraid of exposure to frightening news information?	9	4.5	23	11.5	79	39.5	89	44.5
7	Are you afraid of consequences of corona viruses?	9	4.5	19	9.5	76	38.0	96	48.0
8	Are you afraid of being physically distanced from loved ones and peers?	9	4.5	17	8.5	77	38.5	97	48.5
9	Are you afraid of weight gain caused by being constantly at home?	72	36.0	12	6.0	71	35.5	45	22.5
10	Does sleep habit change?	30	15.0	25	12.5	63	31.5	82	41.0
11	Are all your needs being met?	2	1.0	19	9.5	110	55.0	69	34.5

Table III Percent Score of Social Stressors among School-Age Children during Covid19 Pandemic (n=200)

Q	Social Stressors among School-Age Children during Covid19 pandemic	Not at all		Rarely		Sometimes		Always	
		No.	%	No.	%	No.	%	No.	%
1	Is being away from friends consider a social stress?	11	5.5	24	12.0	89	44.5	76	38.0
2	Is being away from extended family consider a social stress?	7	3.5	11	5.5	79	39.5	103	51.5
3	Is being away from teachers consider a social stress?	44	22.0	48	24.0	67	33.5	41	20.5
4	Is being away from colleagues consider a social stress?	17	8.5	26	13.0	99	49.5	58	29.0
5	Does disrupting education affect your life?	40	20.0	39	19.5	53	26.5	68	34.0
6	Does lack of physical activity affect your life?	30	15.0	48	24.0	73	36.5	49	24.5
7	Does lack of leisure activity affect social life?	16	8.0	12	6.0	83	41.5	89	44.5
8	Do you face any problems in access to school-based health care services?	46	23.0	17	8.5	50	25.0	87	43.5
9	Is using the internet an obstacle to e-learning at home?	75	37.5	43	21.5	47	23.5	35	17.5
10	Are you experiencing boredom?	21	10.5	46	23.0	74	37.0	59	29.5
11	Do you use internet most of the time?	29	14.5	48	24.0	59	29.5	64	32.0

Table IV Scoring System of Children’s Coping Inventory of Stressful Situation (CISS)

Tool III: The Coping Inventory of Stressful Situation (CISS)	Total Score	% Score
First: Task-oriented	(16–80)	
Min. – Max.	31.0 – 76.0	23.44 – 93.75
Mean ± SD.	54.70 ± 9.25	60.47 ± 14.45
Median	54.0	59.38
Second: Emotional-oriented	(16–80)	
Min. – Max.	21.0 – 68.0	7.81 – 81.25
Mean ± SD.	43.95 ± 9.52	43.67 ± 14.88
Median	42.0	40.63
Third: Avoidance-oriented	(16–80)	
Min. – Max.	30.0 – 69.0	21.88 – 82.81
Mean ± SD.	48.42 ± 7.86	50.66 ± 12.29
Median	47.0	48.44
Overall CISS	(48–240)	
Min. – Max.	105.0 – 198.0	29.69 – 78.13
Mean ± SD.	147.08 ± 19.51	51.60 ± 10.16
Median	144.5	50.26

Table (V) Comparison between Psychosocial Stressors among School-Age Children during Covid19 Pandemic and their Socio-demographic Characteristics

Socio-demographic characteristics of children	Psychological stressors										Social stressors										Overall stressors									
	No stressor (n = 0)		Mild stressor (n = 7)		Moderate stressor (n = 22)		Moderately sever Stressor (n = 32)		Sever Stressor (n = 139)		No stressor (n = 0)		Mild stressor (n = 5)		Moderate stressor (n = 49)		Moderately sever Stressor (n = 106)		Sever Stressor (n = 40)		No stressor (n = 0)		Mild stressor (n = 4)		Moderate stressor (n = 38)		Moderately sever Stressor (n = 128)		Sever Stressor (n = 30)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Age (years)																														
6 – <8	0	0.0	0	0.0	0	0.0	3	9.4	25	18.0	0	0.0	0	0.0	6	12.2	15	14.2	7	17.5	0	0.0	0	0.0	2	5.3	19	14.8	7	23.3
8 – <10	0	0.0	4	57.1	4	18.2	12	37.5	40	28.8	0	0.0	4	80.0	14	28.6	30	28.3	12	30.0	0	0.0	2	50.0	13	34.2	37	28.9	8	26.7
10 – 12	0	0.0	3	42.9	18	81.8	17	53.1	74	53.2	0	0.0	1	20.0	29	59.2	61	57.5	21	52.5	0	0.0	2	50.0	23	60.5	72	56.3	15	50.0
$\chi^2(MCp)$	11.654 (0.054)*										5.328 (0.474)										5.604 (0.431)									
Gender																														
Male	0	0.0	4	57.1	10	45.5	17	53.1	81	58.3	0	0.0	3	60.0	24	49.0	63	59.4	22	55.0	0	0.0	2	50.0	17	44.7	79	61.7	14	46.7
Female	0	0.0	3	42.9	12	54.5	15	46.9	58	41.7	0	0.0	2	40.0	25	51.0	43	40.6	18	45.0	0	0.0	2	50.0	21	55.3	49	38.3	16	53.3
$\chi^2(MCp)$	1.497 (0.697)										1.632 (0.652)										4.907 (0.177)									
Place of residence																														
Rural	0	0.0	5	71.4	15	68.2	24	75.0	72	51.8	0	0.0	5	100	33	67.3	59	55.7	19	47.5	0	0.0	3	75.0	27	71.1	71	55.5	15	50.0
Urban	0	0.0	2	28.6	7	31.8	8	25.0	67	48.2	0	0.0	0	0.0	16	32.7	47	44.3	21	52.5	0	0.0	1	25.0	11	28.9	57	44.5	15	50.0
$\chi^2(MCp)$	7.328 (0.057)										7.199 (0.062)										4.210 (0.222)									
Level of education																														
Grade 1	0	0.0	0	0.0	0	0.0	2	6.3	21	15.1	0	0.0	0	0.0	5	10.2	12	11.3	6	15.0	0	0.0	0	0.0	2	5.3	15	11.7	6	20.0
Grade 2	0	0.0	4	57.1	2	9.1	12	37.5	15	10.8	0	0.0	3	60.0	12	24.5	10	9.4	8	20.0	0	0.0	2	50.0	10	26.3	17	13.3	4	13.3
Grade 3	0	0.0	0	0.0	1	4.5	1	3.1	30	21.6	0	0.0	0	0.0	3	6.1	24	22.6	5	12.5	0	0.0	0	0.0	2	5.3	26	20.3	4	13.3
Grade 4	0	0.0	0	0.0	4	18.2	7	21.9	25	18.0	0	0.0	1	20.0	5	10.2	26	24.5	4	10.0	0	0.0	0	0.0	6	15.8	26	20.3	4	13.3
Grade 5	0	0.0	0	0.0	4	18.2	2	6.3	23	16.5	0	0.0	0	0.0	4	8.2	21	19.8	4	10.0	0	0.0	0	0.0	5	13.2	21	16.4	3	10.0
Grade 6	0	0.0	3	42.9	11	50.0	8	25.0	25	18.0	0	0.0	1	20.0	20	40.8	13	12.3	13	32.5	0	0.0	2	50.0	13	34.2	23	18.0	9	30.0
$\chi^2(MCp)$	40.365* (<0.001*)										39.515* (<0.001*)										20.093 (0.088)									

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