RESEARCH ARTICLE

PROBLEMS AND COPING STRATEGIES REGARDING E-LEARNING AND HOME-SCHOOLING OF CHILDREN AMONG THE PARENTS DURING CLOSURE OF SCHOOLS AMIDST COVID-19 PANDEMIC: A CROSS SECTIONAL INDIAN STUDY

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Manuscript Info	*Abstract*
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Introduction: During the closure of schools amidst Covid-19 pandemic, the education system had to switch on to the e-learning/distance learning and home-schooling in order to ensure the continuity of education. It was a big challenge for the parents, children and schools.

Aim: To explore the problems and coping strategies regarding e-learning and home-schooling of children among the parents amidst Covid-19 pandemic.

Methods: Using snow ball technique the parents having school going children and willing to participate in the study were enrolled. Total 138 parents participated and data was collected by google form.

Results: Parents had to face various problems such as financial, technical, personal, health and psychosocial problems during home schooling. To cope up with the situation parents had to purchase a new internet plan for better connectivity, cut-off their expenses, borrowed money and gadgets from others, adjusted their duty hours and also trained their children or grandparents for operating the gadgets to facilitate e-classes. They further reported that to cope-up with the indiscipline among children they used to set time limits to use e-gadgets, sometimes scolded them, cut down their privileges and provided positive reinforcement for the acceptable behavior of the children.

Conclusion: During the Covid-19 pandemic, the parents had to shift to online mode to ensure continuous education for their children which resulted in many problems for them leading to psychological stress.

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Introduction:-

Covid 19 pandemic has affected each and every aspect of human life. In order to contain the spread of COVID-19 pandemic by maintaining social-distancing and self-isolation there was sudden closure of all the educational institutions worldwide impacting around 80% of the world's student population(Wikipedia, 2020) (Jain M, 2021). The education system had to switch on to the e-learning method to ensure the continuity in learning (UNESCO, 2020, Choudhary R, 2020). The parents were asked to facilitate the learning of their children at home for which the working parents had to take leave from their workplace. It was quite stressful especially for the working parents and the ones with limited education and resources. It was rather inexplicable both for the children as well as for the

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parents because of their ill-preparedness to the sudden and overnight change in the education system. It was a big challenge for the teachers who had to create the contents and then to transform it in an online mode, sent the recorded lessons, and to conduct the online tests etc. The role of parents during this pandemic was more critical. They had to act as proctor, to keep up to date with the lesson plans, to ensure the completion of home work of their children and had to provide a conducive environment to their children at home (Jain M, 2021). Apart from these challenges, a negative impact of online classes on the behavior and physical health of the children has been reported in a recently conducted study. The online classes have been documented as less comfortable and less satisfactory for children (Grover S et al, 2020). The technical issues related to internet and availability of computer in the families were the other reported issues and challenges (Bhamani S, 2020).

Schools are the hub of social activity and human interaction. When schools got closed, many children had to miss out the social physical contact which is very importantfor the physical and mental well-being of the children (The Education Hub, 2021). Parents also believe that a proper structured, planned and meticulous routine is followed once the children are going to the school. This helps the children to understand the importance of time, scheduling and doing assignments on a given timeline (Bhamani S, 2020).

During lockdown, even though the parents had more time for their children, they were unable to devote time to parenting as they had to perform multiple domestic roles (India Today, 2020). There was a change in routine activities of parents as well as children. Instead of looking at the negative aspects, certain coping strategies like spending quality time with the children, exercising, focusing on slow and mindful breathing, listening to some music, to connect with friends online, to enjoy some family time etc have been documented in literature (Bayless S and Aznar A, 2020). Apart from this designing a homemade time-tables, engaging the children in arts/crafts, cooking, dancing, singing etc have also been tried by the parents (Bhamani S, 2020)

The current study was carried out with an objective to identify the problems and coping strategies of parents in e-learning and home schooling of their children in an Indian setting.

Research Question
What are the problems and coping strategies of parents regarding e-learning/distance education and home-schooling of children amidst Covid-19 pandemic?

Procedure
Research Design
Cross sectional descriptive study.

Research Setting
Chandigarh, Mohali and Panchkula.

Sample and sampling Technique
The parents having school going children willing to participate in the study were enrolled by snow ball sampling technique. Every parent enrolled was asked to give reference and phone numbers of more parents. By this procedure total 138 parents were enrolled.

Research tools and Technique
Data was collected by using google form comprising of two parts. Part A:- was regarding the information profile of participants. In Part B:- Information was obtained regarding the problems and coping strategies of parents on e-learning and home-schooling of their children during closure of schools due to Covid-19 pandemic. The tool was developed by extensive review of literature based on the objectives of the study. Content validity of the tools was done by the experts in the field of Nursing and Community Medicine. Pilot testing of tool was done on 10 participants. The results of pilot study revealed that it was feasible to collect data by using Google form. All the questions were clear and tool was filled in approximately 15 minutes.

Procedure of Data Collection
Data was collected online using the google form with consent affixed to it. The link of google form was shared on the phone of participants. Detailed information regarding the study was given to them in the google form only. After clicking the link, the participants were auto directed to the questionnaire. In the beginning of the questionnaire after

they read about general information about the study, they were asked to tick mark for 'Yes' if they are willing to participate in the study. Following this they were self-directed questions to fill up the questionnaire. They were asked to fill the form and after submitting form each participant was asked to give two to three references of parents having school going children.

Ethical Considerations
There will be indirect benefit to the participants as the study will shed light on the problems of e-learning and home schooling of the children and the coping strategies of the parents can be improved. Prior to commencing this study, ethical clearance was obtained from the Institute Ethics Committee, PGI, Chandigarh(INT/IEC/2020/SPL-1132). The participants were given opportunity to clarify any aspect of research. They were also informed that they can withdraw from the study at any time. The confidentiality/anonymity was maintained throughout the research process.

Data Analysis
Data was analysed using both descriptive and inferential statistics by using SPSS version 20.

Results:-
Around half of the children (47.8%) were in the age group of 3-9 years followed by 39.9% in the age group of 10-16 years. Only 12.3% were in the age group of 17-23years. Females (51%) outnumbered the males (49%). More number of participants was from Chandigarh (44.2%), followed by Mohali (40.6%) and Panchkula (15.2%).

Table 1:- Variables related to e-learning during Lockdown N=138**.**

Sr no.	Variables	n(%)
1.	**Internet access**	
	Mobile data	61(44.2)
	Broadband	30(21.7)
	Portable wifi/ Dongle	10(7.2)
	Combination of above	37(26.9)
2.	**Parents support e-learning**	
	Yes	49(35.5)
3.	**Gadget used**	
	Smart phones	55(39.9)
	Laptop/Tab	24(17.4)
	Desktop	4(2.8)
	Combination of above	55(39.9)
4.	**Supervision during e-learning done by**	
	Mother	50(36.2)
	Father	5(3.6)
	Grand parents/Siblings/ Any of family member	67(48.5)
	No supervision	16(11.5)
5.	**Learning material sent by teacher**	
	PDF/MS Word file/JPG Image/PPT	39(28.3)
	Videos	10(7.2)
	Combination of above	89(64.5)
6.	**Apps used for e-learning**	
	Google meet	27(19.6)
	Zoom	26(18.8)
	Microsoft team	15(10.9)
	Cisco webex	11(8)
	Combination of above	59(42.7)
7.	**Type of Teaching learning activities**	
	Online classes	16(11.6)
	Virtual classroom work/ Assignment	12(8.7)
	Online test	6(4.3)
	Combination of above	104(75.4)

Table-1 depicts the variables related to e-learning. Nearly half (44.2%) of participants had internet access through mobile data. One third of the participants (35.5%) supported e-learning during lockdown. Regarding gadgets used for e-learning, 40% were using smart phones and similar percentage of participants were using more than one gadget that is laptop, tab, desktop, smart phone. Supervision of children during e-learning was facilitated by grandparent/ sibling or any of the family member (48.5%). Majority of the participants (64.5%) reported they were receiving combination of learning materials like videos, Pdf/MS Word file/JPG Image/PPT. Regarding apps used for e-learning, 42.7% reported they were using combination of apps for e-learning like Google meet, Zoom, Microsoft team, Cisco webex. Three fourth of the participants (75.4%) reported they had online classes, virtual classroom work/ assignment, online test as teaching learning activity.

Table-2:- Time duration in teaching learning activities.

Sr no.	Time duration in teaching learning activities	Mean $\pm$ SD(Range)
1.	Number of classes per day(in hours)	3.02$\pm$1.35(0.5-6 Hrs)
2.	Number of hours spent by child in teaching learning activity/day	3.36$\pm$1.92(0.5-9 Hrs)
3.	Total screen time of child per day	3.68$\pm$1.82(1-10 Hrs)

Table-2 depicts the time duration in teaching learning activities. Number of classes per day(in hours) ranged from 0.5 to 6 hours with mean+SD3.02$\pm$1.35 hours..Number of hours spent by a child in teaching learning activity/day ranged from 0.5-9 Hours with mean+SD 3.36$\pm$1.92 hours. Mean $\pm$ SD(Range) Total screen time of child per day ranged from 1-10 Hours with mean+SD 3.68$\pm$1.82 hours.

Table 3:-Problems faced by parents in E- learning and home schooling: N=138.

Sr no.	Problems	n(%)
1.	**Technical problems**	
	• Connectivity issues	72(52.2)
	• No problem	30(21.7)
2.	**Financial problems**	
	• Extra financial burden to buy internet plan	27(19.6)
	• Extra financial burden to buy gadget	19(13.7)
	• Both	41(29.7)
	• No problem	51(37.0)
3.	**Personal problems**	
	• Other domestic liabilities	25(18.1)
	• Inability of parent to be present during e-classes	9(6.5)
	• Lack of skill in operating smart phone/laptop/computer	36(26.1)
	• Combination of above	76(55.1)
	• No problem	28(20.3)
4.	**Health problems of Children because of e-Learning**	
	• Irritability and tiredness	27(19.5)
	• Eye problems(straining, watering, itching, blurring)	14(10.1)
	• Stress/Headache	25(18.1)
	• Combination of above	72(52.2)
5.	**Health problems of Parent because of e-Learning**	
	• Irritability and tiredness	17(12.3)
	• Eye problems(straining, watering, itching, blurring)	8(5.8)
	• Stress/Headache	9(6.5)
	• Combination of above	76(55.1)
	• No problem	28(20.3)
6.	**Discipline issues among children**	
	• Frequents distractions during classes	44(31.9)

	• Non-attentiveness during e-class	16(11.6)
	• Both	78(56.5)
7.	**Inappropriate use of Internet among children**	
	• Involving in online gaming	26(18.8)
	• Wasting time on social networking sites	16(11.6)
	• Opening inappropriate internet sites	3(2.2)
	• Combination of above	45(32.6)
	• No problem	48(34.8)
8.	**Psychosocial problems**	
	• Deprivation of activities like sports, drama & other co-curricular activities	12(8.8)
	• Lack of peer group interaction	10(7.2)
	• Lack of real classroom environment	10(7.2)
	• Mood swings	2(1.4)
	• Increased siblings' fights	2(1.4)
	• Combination of above	102(74)

Table-3 depicts the problems faced by parents in e-learning and home-schooling during lockdown. More than half of the parents (55.2%) reported connectivity issues. One third of the parents (29.7%) reported financial burden to buy gadgets and internet plan to facilitate e-learning. More than half of the parents (55.1%) reported multiple personal problems i.e. domestic liabilities, inability to be present during e-classes and lack of skills in operating smart phone/e-gadgets. More than half of the children (52.2%) as well as parents (55.1%) suffered from multiple health problems (irritability, tiredness, eye problems, stress and headache) because of e-classes. More than half (56.5%) reported indiscipline among children during e-classes. One third of parents(32.6%) reported problem of online gaming, use of social networking sites, opening inappropriate internet sites among children. Majority of the parents (74%) reported psychosocial problems during e-learning like deprivation of activities which includes sports, drama and other co-curricular activities, lack of peer group interaction, lack of real classroom environment, mood swings and increased siblings' fights.

Table 4:- Coping mechanisms adopted by parents to manage problems during e-learning N=138.

Sr no	Coping mechanisms	n(%)
1.	**Coping technical issues**	
	• Purchased new internet plan for better connectivity	63(45.6)
	• Taking help from friends/neighbors and family for managing connectivity issues	16(11.6)
	• Both	29(21.1)
	• Helping the child telephonically for operating gadgets	4(2.8)
	• No problem	30(21.7)
2.	**Coping financial issues**	
	• Cut off expenses to buy new gadgets	23(16.6)
	• Borrowed money from others to buy gadgets	14(10.2)
	• Borrowed gadgets from friends and family	11(7.9)
	• Combination of above	39(28.3)
	• No problem	51(37)
3.	**Coping personal issues**	
	• Trained child himself for operating gadgets	30(21.7)
	• Adjustment of duty hours of parent	11(8)
	• Trained grandparents/other members for facilitating e-class	4(2.8)
	• Combination of above	61(44.2)
	• No problem	28(20.5)
4.	• **Coping indiscipline & internet use related issues**	
	• Sets the limits for child on internet use	12(8.7)
	• Positive reinforcement by giving rewards	7(5.1)
	• Scolding	4(2.8)

	• Cutting the privilege if child is indiscipline	3(2.2)
	• Being vigilant	8(5.8)
	• Never leaving child unattended	6(4.4)
	• Locking specific sites (e.g You tube, facebook, instagram, twitter and porn sites etc.)	9(6.6)
	• Checking google surfing history	1(0.7)
	• Combination of above	88(63.7)
5.	**Coping Physio-Psychosocial problems**	
	• Involving the child in undertaking Physical activity(walking, running, jogging)	32(23.2)
	• Involving the child in Relaxation techniques (Music/dance/breathing exercises)	31(22.4)
	• Engaging the child in Meditation/yoga	3(2.2)
	• Doctor consultation	2(1.5)
	• Providing Antiglare glasses to child	1(0.8)
	• Giving breaks in between online classes	15(10.8)
	• Having regular telephonic interactions with peers	9(6.5)
	• Combination of above	45(32.6)

Table -4 depicts the coping mechanisms adopted by parents to manage problems during e-learning. Less than half of parents(45.6%) purchased new internet plan for better connectivity. One third of parents (28.3%) reported that they have to cut off expenses as well as borrowed money and gadgets from othersto cope with financial issues. To cope with personal issues less than half of the parents (44.2%) adjusted their duty hours and trained their children and grandparents for operating gadgets to facilitate e-classes. Two third of the parents(63.7%) used multiple coping mechanism to cope with indiscipline and regulated internet use among children. To manage Physio-psychosocial problems, one third of the parents(32.6%) used multiple coping mechanisms.

Table-5:- Comparison of time spent in online classes and age of children.

Teaching learning activities	Age of child		t(df) p-value
	≤10 years n=73	> 10 years n=63	
Total Hours in Online classes/day (Mean $\pm$ SD)	2.4 $\pm$ 1.2	3.6 $\pm$ 1.2	-5.27(134) <0.001
Total daily Hours spent in Teaching learning activity(Mean $\pm$ SD)	2.8 $\pm$ 1.7	3.9 $\pm$ 2.0	-3.41(134) <0.001
Total Screen time in Hours (Mean $\pm$ SD)	3.3 $\pm$ 1.7	3.2 $\pm$ 2.0	0.184(134) 0.85

Table-5 depicts comparison of time spent in online classes, teaching learning activity and screen time with the age of children.A significant difference was observed between the total hours in online classes/day and age of children. There was significant increase in the number of online hours with the increase in the age of the children ($p<0.05$). Similarly, a significant difference was observed between total daily hours spent in teaching learning activity and age of children. There was significant increase in the total daily hours spent in teaching learning activity with the increase in the age of children($p<0.05$). But, there was no significant difference between the total screen time in hours and age of children ($p>0.05$).

Discussion:-
The emergence of Corona Virus disease (COVID-19) has led to an unprecedented public health crisis in the world. In India emergency protocols were implemented to control the spread of the virus which resulted in restrictions on all non-essential public movements. With the closure of educational institutions, the need for a rapid transition from physical learning to the digital sphere of learning emerged. Online learning has been observed as a possible alternative to conventional learning. The closure of schools and colleges which has adversely affected the education sector. It has forced schools and colleges to shift from traditional face-to-face teaching method to completely online mode of teaching (Chaturvedi K, Vishwakarma KD, Singh N, 2021).

In the present 35.5% of the parents supported their children in e-learning and home schooling at home during lockdown which is consistent with the findings of a study which reported that 62.3% of parents devoted more than one hour per day to support their children's learning (Garbe A, 2020). In the current study, various devices used to access online classes were the smart phones (40%), or laptop/ tab/ desktops (40%) through platforms such as Google Meet, Zoom, Microsoft Teams, Cisco Webex etc which are the commonly used platform as has been reported in the literature (Bubb S, Jones MA, 2020) (Bhamani S, 2020) (Parczewska T, 2020). Nearly half of the study participants (48.5%) reported that their children are supervised either by grandparent/ sibling or any other family member in their absence as they have their own commitments to their jobs. Since the grandparent/sibling or other family member lack skill to operate smart devices (26%), the parents had to train them to access the online class of their children (44.2%).

Various teaching e-learning activities (75.4%) provided by schools were online classes, virtual class-work/ assignments and the periodical evaluation. The teacher provided learning material to the students in the form of Pdf , MS Word, jpg , PowerPoint Presentation and videos. The literature also reported that self-developed and pre-recorded learning material has been provided to students (Dong C,) (Bubb S, Jones MA, 2020). Studies have also reported that teachers used to give electronic worksheets and assignments to be completed at home (Bhamani S, 2020) (Dong C,) (Bubb S, Jones MA, 2020).

The total mean time spent by school in teaching – learning activities was 3.02 ± 1.35(0.5-6 Hrs) in the present study. However, the children were reported to spend 3.36 ± 1.92(0.5-9 Hrs) at home including e-learning and completing their homework or assignments. Another study reported that average 4-6 hours per day being spent by the children to complete their homework given by teacher (Parczewska T, 2020).   The total screen time of the children per day was 1-10 hours (3.68 ± 1.82) which was very high. A study reported high usage of electronic devices by children without parental mediation (Lau EYH, Leek, 2020).

The various problems faced by parents in e-learning and home schooling during lockdown were connectivity issues (55.2%), financial burden to buy gadgets and internet plan (29.7%), personal problems including domestic liabilities, inability to be with the children during e-classes and lack of skills in operating smart phone/gadgets (55.1%), health problems such as irritability, tiredness, eye problems, stress and headache (52.2%), indiscipline among children (56.5%), online gaming, social networking and surfing through inappropriate sites (32.6%). Similar findings such as lack of resources such as computers (Garbe A, 2020) (Bhamani 2020) (Putri RS, 2020), connectivity issues (Putri RS, 2020), busy schedules of parents (Garbe A, 2020) (Bhamani 2020) (Lau EYH, Leek, 2020), non-availability of help at home, not-technology friendly (Lau EYH, Leek, 2020) and financial burden (The Education hub, 2020) etc have been reported in other studies. However, one study have reported that 57.2% of the parents reported no fatigue/sleepiness in their children, while 73.3% reported no back pain (Zhao Y, 2020).

The findings of the current study have reported various psychosocial problems (74%) among children. Similarly, a study reported anxiety, boredom and mood swings among children due to their engagement in online learning (Irawan AW, 2020). Various studies have also reported loss of interaction with peers which was suggested to affect social and emotional development of children (Garbe A, 2020) (Bhamani 2020) (Putri RS, 2020).

The study participants had tried to cope up with this difficult situation of e-learning and home schooling of their children through purchasing of new internet plan for better connectivity (45.6%), cutting-off their expenses or borrowing money and gadgets (28.3%) and adjusting their duty hours and training their children or grandparents for operating gadgets to facilitate e-classes (44.2%). They further reported that to cope-up with the indiscipline among children (63.7%), they used to set time limits to use e-gadgets, sometimes scolds them, cut their privileges, provide positive reinforcement for acceptable behavior.

The study participants have also reported that they used multiple coping mechanisms (32.6%) to manage physio-psychosocial problems of the children similarly that have been reported in literature, such as involving their children in physical activity, relaxation techniques, meditation /yoga, provided doctor consultation when required, encouraged the use of anti- glare glasses, giving breaks in between classes and encouraged regular telephonic interactions with their peers (Parczewska T, 2020). A study reported that parents tried to interact in Facebook groups to find out ways to keep children engaged such as with pot painting, indoor gardening, simple games, worksheets and activities and reading books (Bhamani, 2020).

The study relied on only the one-time response of the study participants on a structured questionnaire which has its own limitation. More experiences of the parents could be explored using qualitative approach. Thus, recommendations to conduct research on various difficulties faced by students, parents and teachers in handling this difficult situation are made so that strategies could be planned to train teachers and provide them with equipment to make the educational process more benefitting for the students.

Conclusion:-
The study concluded that the parents had to shift to online mode to ensure continuous education for their children during this Covid-19 pandemic. But this shift had brought many problems for them leading to psychological stress. The parents needed support as they played major role in this educational process during this Pandemic time with least competencies.The Government should take certain initiatives to take the technology and financial burden due to online education especially for the lower-income and vulnerable group for the smooth running of the education process.

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Conflict of Interest
None

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