THE IMPACT OF ONLINE LEARNING ON LEARNERS' EDUCATION AND HEALTH

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ABSTRACT:
An unexpected outbreak of COVID-19 made everyone perplexed and forced all the stakeholders of the education system to explore the ways to overcome the barrier to compensate for academic losses of learners. The best remedy to resolve this problem was emerged as 'On line teaching-learning mode'. Need has arisen to study the accessibility and effectiveness of this method and also the impact on physical and psychological health of learners. The paper presents the findings of national level online survey in which 138 participants of different age groups participated. Analysis of responses revealed that learners' concentration got distracted due to disturbances like network accessibility and surrounding noise. Long-time handling of E-gadgets, lack of personal interaction with teachers and peers caused severe physical and psychological discomfort. The survey confirmed that though online teaching-learning mode emerged as an option for traditional classroom teaching to keep educational system running during this adverse period of pandemic, it has got several limitations and adverse effects also. So this could be a temporary solution for time being to shoulder and fulfilment of academic responsibilities but would never be a permanent replacement of traditional mode of teaching -learning.
Keywords: COVID-19, on-line learning, learner's education, e-gadgets, physical and psychological health.

INTRODUCTION:
The whole world is experiencing the consequences of COVID-19 pandemic situation. With the outbreak of the novel corona virus, all sectors of the society came to a standstill worldwide [Gonzalez et.al, 2020]. One of the fundamental pillars for society building is strong education system. Education is a process of disseminating knowledge and skill to produce researchers, academicians, professionals and entrepreneurs etc. Education society, also suffered a lot due to an unanticipated interruption in the conduction of prescribed curriculum. Large impact on education is being observed all over the world. The situation has created a challenge in front of Ministry of Education, UGC and even with the stakeholders such as governing bodies of schools, higher education institutes, teachers, students and parents to reframe and adopt the new education system. The reframed system should be more agile, flexible and resistant to such global crisis. Indian government is providing a platform to facilitate learning and also coming up with the solutions like revised academic calendar, new evaluation reforms etc. to make up for the loss of academic hours due to COVID-19 pandemic. Crisis has reinforced the entire education system to recalibrate its actions and delivery channels [Cathy, 2020]. Pandemic situation has enhanced the role of remote working, e-learning, video streaming, etc. on a broad scale [Ebner et.al. 2020]. The learning mode has shifted from offline to online. This transition has impacted not only the teachers who have to adopt this new method but also the students who have to adjust to a new learning environment. Several recommendations have appeared to help teachers in the process of online instruction [Garcı́a-Peñalvo et.al., 2020]. Since last twelve months this new mode has been adopted by educationalist, teachers, learners and parents. But really a need has arisen to study the accessibility and effectiveness of on-line learning methodology.

LITERATURE REVIEW:
Paradigm Shift of Teaching-Learning modes:
The traditional method of teaching is classroom teaching using chalk and black board has been described as a theoretical model for academic progression of South African students' from pre-entry to university level [Jama Mpho et.al.,2008]. Over the years change in the teaching-learning mode is seen due to advancement in the electronic technology. Moreover, stress was given on enhancing academic and social skills of learners.

Experimental, participative and ICT based teaching was emphasized by UGC for senior colleges since last decade. Benefits of integrating multimedia in the classroom, giving learners' the opportunity to communicate and share

information, organize their ideas, and express opinions while preparing a project or conducting research through online experience was reported in[Alismail,2015]. The positive effects on academic performance and creativity was put up in [Banihashem and Kazem,2015; Manya et.al.,2018]. But still these methods were supportive to traditional black-board teaching till last 5-6 years. ICT based teaching was not accepted wholeheartedly as it was assumed that this system lacked the human element required in teaching-learning process [Jena, 2020]. However, with the rapid progress in technology and the advancement in learning systems, since last 5-6 years, it has been embraced by the masses. Major advantage of it is flexibility with respect to time and space. E-learning is a powerful tool which provides direct access to learners to get information and knowledge by themselves and enhance their creativity [Bao, 2020; Somayeh, 2016]. In e-learning, learner can access the content again and again till all their doubts and concepts get cleared.

During covid-19 pandemic situation, a paradigm shift in teaching-learning mode was observed and now online education has become a new normal. Stakeholders don't have any option other than adopting this new methodology. Online learning is termed as electronically supported learning that uses the Internet for teacher-student interaction and for the delivery of prescribed educational curriculum and related class materials.

Impact of Online Learning:
In recent months, many studies have been performed analysing the advantages and challenges of online learning. Some of them have reported positive impacts of online learning on flipped classroom [Tsai-Fa, 2020]. The necessity of the development of adequate tools is must for evaluation and self-evaluation of learners in order to guarantee good performance in e-learning environments [O¨zyurt & O¨zyurt, 2015]. It has become more essential especially in the COVID-19 pandemic. Different stakeholders have their own experiences and are facing various problems with online learning mode. But most affected stakeholders are learners. Learners have to sit at one place with electronic gadgets working on internet connectivity for hours. They have to be attentive fully to grasp the knowledge delivered by the teachers. Literature survey shows that long-time use of electronic devices such as desktop computers, laptops, mobile phones etc. are harmful to one's physical and mental health [Hunt & Eisenberg, 2008; Vadim et.al, 2013]. Electromagnetic waves emitted during the use of E-gadgets affect the eyesight and damages organ. Internet addiction of teenagers has also been addressed and even suggested remedies to reduce the usage time of internet access [Ramane & Kottapalle, 2016]. However online learning mode have forced the learners to use the E-gadgets for hours irrespective of age. Due to weak interpersonal actions, alienation from real world etc. learners also face many psychological problems [Sahu, 2020]. Sudden change from traditional to digital education mode hassled to a kind of panic situation in stakeholders. In this perspective, the present paper studied the effect of online learning on learners' health and also tried to address the effectiveness of online learning mode.

OBJECTIVE OF THE STUDY:
1. Effectiveness of online teaching learning process
2. Effect of Online learning on learner's physical health
3. Effect of Online learning on learner's psychological health

METHODOLOGY:
The research findings are based on quantitative analysis of an online survey-based study of 138 school and college students studying at various parts of India. The survey was carried out of main stakeholders i.e. parents and learners of various educational level from KG to UG. Focusing on the objectives a questionnaire was prepared for data collection. The parameters focussed were:
- Accessibility and durability of gadgets required for online classes
- Problems encountered during online lectures such as disturbance of surrounding, internet connectivity etc.
- Effect on physical health
- Effect on Psychological health
- Resources used for content delivery
- Grasping of contents delivered

The data was collected from total 138 students and parents from different states of India like Haryana, Madhya Pradesh, Chhattisgarh, Maharashtra, Karnataka and Tamil Nadu. The students of different age groups were selected for the survey. The figure 1 shows the number of wide range of percentage responses from pre-primary classes to degree students of different discipline. The figure 2 represents the gender wise % responses (55% male

while 45% female).Parents having different social back ground were considered. In the data analysis it was observed that 95% parents were from urban area, highly qualified and holding higher position at the workplace.
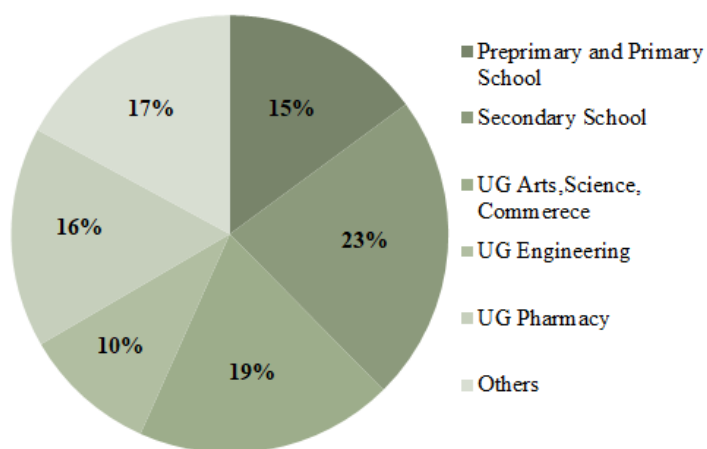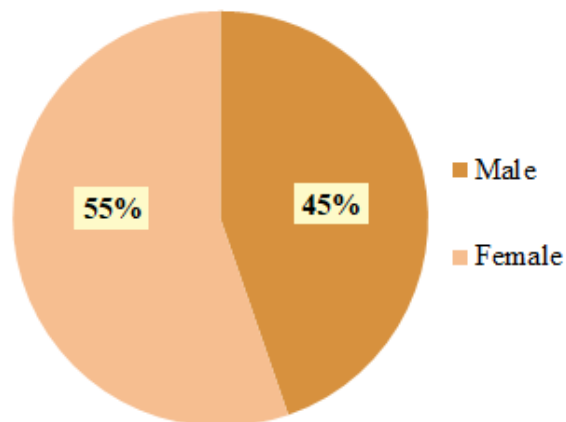

Figure 1: Range of responses

Figure 2: Gender wise % response

RESULT AND DISCUSSION:
The following table represents the findings of the survey.

Table 1: Analysis of Responses

Sr. no.	Question	Options	Response (%)	Findings	Interpretation
1	E-gadget used for online learning	Desktop	18.1	Almost ¾ learners i.e.(76%) are using mobiles and ½ learners i.e.(50%) use laptops	Mobile phone has smallest screen size as compared to other E-gadgets. It increases the severity of computer vision syndrome problem.
		Laptop	49.3		
		Mobile phone	76.8		
		Tablet	7.2		
2	Daily exposure duration to the E-gadget	Less than 2 hours	26.3	Mostly daily usage duration is 2 to 4 hours	The time period of the use of E-gadget for teaching -learning is moderate
		2 to 4 hours	41.6		
		4 to 6 hours	19.0		
		6 to 8 hours	8.8		
		More than 8 hours	4.4		
3	Resources used for delivery of online lectures by teachers	PPTs	54.3	Teachers are smartly using all the available resources	In a very short span, the teachers have adopted the new system and effectively preparing own resources, using available resources for delivering the curriculum contents
		Live lecture	62.2		
		Available audio-video content	57.2		
		Other	5.6		
4	Is illustration of the topic clearly delivered by used resources?	Yes	87.7	Teachers are effectively delivering the content	Stakeholders are satisfied with the delivery methods of the teachers
		No	12.3		
5	Are the online lectures more	Yes	29.0	Most of the stakeholders are	As online teaching is implemented suddenly without any prior training or
		No	46.4		

	comfortable and interesting than traditional class-room teaching?	May be	24.6	not comfortable with online teaching	experience, comfort zone of stakeholder's is less as compared to traditional class-room teaching.
6	Is there any teacher-student interaction during online lectures?	Yes	18.8/19	Teacher-student interaction is less	Use of virtual media for conduction of online teaching leads to less interaction.
		Rarely	31.9/36		
		No	49.3/45		
7	Reasons for distractions during online lecture, if any	Poor internet connectivity	78.3	Almost all are facing lot of disturbances during lecture time	Distractions in the online lectures divert the attention of students from learning and affect the concentration.
		Family interactions	52.2		
		Visitors	19.6		
		Intervention by siblings	29.0		
		Social interaction in surrounding	27.5		
		Not at all	7.2		
8	Are learners conversant with handling of E-gadgets?	Yes	50.4	½ learners are used to the gadget while ¼ learners have never used it before.	Further analysis of responses reveals that the college students are conversant with E gadgets while school children are facing the problem.
		No	25.5		
		May be	24.1		
9	Does online learning putting children in isolation?	Strongly Disagree	17.4	Almost ½ respondents are afraid that children will face isolation	Virtual media restricts one-to-one interaction between peers and teachers. As human beings are social animals, lack of face to face interaction may put the learners in isolation.
		Disagree	5.1		
		Neutral	26.1		
		Agree	41.3		
		Strongly agree	10.1		
10	Is online learning helpful in holistic development of children?	Strongly Disagree	5.1	Mixed opinion is observed.	Majority can't comment on holistic development of learners at this early stage.
		Disagree	29.9		
		Neutral	42.3		
		Agree	21.9		
		Strongly agree	0.8		
11	Do learners face any computer vision syndrome?	Tiredness of eyes	55.8	More than 83% of learners are facing some or other ophthalmological problems	The E device emits the electromagnetic light which causes the severe damage to the eyes. Due to continuous staring at screen mostly facing the computer vision syndrome problem.
		Watering of eyes	26.1		
		Redness/ Dryness of eyes	29.7		
		Blurring of vision	21.7		
		Double vision	5.8		
		All of above	21.7		
		Not at all	16.7		
12	Do learners experiencing any physical stress due to online lectures?	Headache	31.2	Physical stress is clearly seen	E devices cause severe effect to learner's health
		Backache	23.9		
		Neck pain	34.8		
		Shoulder pain	13		
		All of above	28		
		Not at all	23.9		

13	Is learner experiencing any psychological pressure?	Discomfort	26.1	Most are facing Psychological issues	The sudden unexpected stressful situation and changed delivery mode created psychological pressure amongst the stakeholders.
		Irritation	22.5		
		Fatigue	18.1		
		Sleeplessness	23.2		
		All of above	16.7		
		Not at all	27.5		
14	Is respondent happy with online learning system?	Yes	25.6	Only ¼ i.e. (25%) learners are happy with online learning system	Traditional classroom teaching accelerates the student's physical as well as mental progress. Online teaching-learning exactly lags here so stakeholders are not happy with this method.
		No	43.2		
		May be	31.2		
15	Should traditional class room learning be replaced by online teaching?	Yes	18.1	Stakeholders prefer class room teaching over online mode	Due to shortcomings of online learning, stakeholders prefer this method as a temporary solution. and not as a permanent replace classroom teaching
		No	64.5		
		May be	17.4		

FINDINGS:

A] Effectiveness of E learning:

One of the fundamental objectives of the study was to study the effectiveness of online teaching-learning methodology.
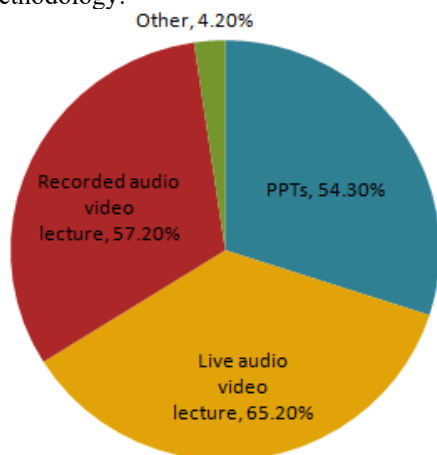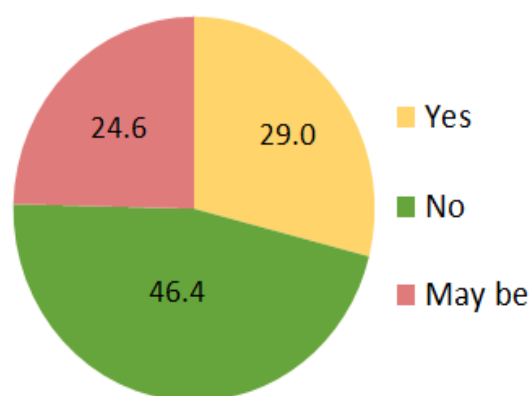

Figure 3: Proper illustration of topic

Figure 4: Effectiveness of E-lectures

In the era of technology, a lot of good quality e-resources are available easily. Teachers are trying their level best to deliver the curriculum in an effective manner either by using these resources or creating their own. Though stakeholders are satisfied with the illustrations of content, they are not willing to have it as a permanent teaching methodology. Major stakeholders of education system i.e. teachers, students and parents would like to continue with the conventional classroom teaching.
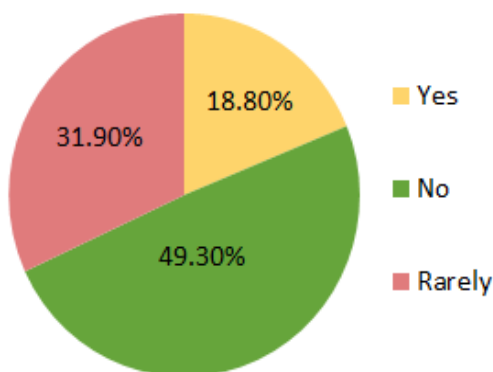

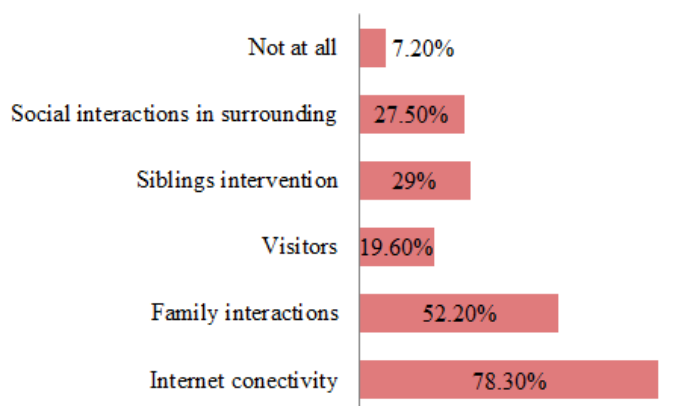Figure 5: Interaction of teacher with students

Figure 6: Occurrence of distractions

Online mode of teaching and learning is not as much effective as traditional teaching because of following reasons:

- Online learning demands E-gadgets and internet connectivity. Availability, accessibility, handling and affordability of these are the major issues of concern.
- Disturbances due to surroundings/loss of connectivity distract the learners' concentration.
- Lack of face to face communication between teacher and student.
- Lack of peer to peer communication.
- Education is more fruitful under the guidance and supervision of teachers for growing children and teenagers.
- Schools/Colleges are the miniature of our society which focuses on overall development of students through different academic, research, cultural and social outreach activities under the guidance/supervision of teachers.
- Teachers got short span for preparation and lack in online teaching experience.
- In traditional classroom learning important teaching tools are teachers' facial expressions, body language and voice. However, in online teaching, voice modulation becomes an important tool which should be used appropriately to slow down their speech to allow learners to capture key knowledge points.

B] Effect of Online learning on physical and psychological health of the students:

Another objective of effectiveness of online-learning was to study the effect of online learning on learner's health.
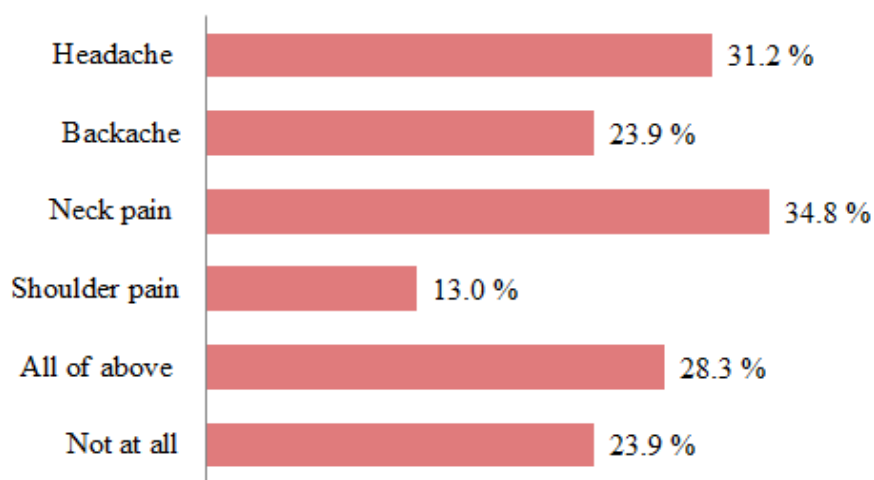
Figure 7: Physical stress during E-lectures

Figure 8: Psychological pressure experienced

It was found that in online mode prominent physical health issues like computer eye syndrome, headache, backache, shoulder pain and neck pain etc. were prominent. At the same time psychological pressures like discomfort, irritation, fatigue and sleeplessness were also experienced by the learners. As human beings are social animals, for the overall physical and mental growth social acquaintance is necessary. Thus health related issues

along with isolation fear associated with online learning merely helpful to the holistic development of the learner. If it continues for a long, increased physical and psychological pressure is surely going to cause severe harm to the learner's health in near future.

CONCLUSION:
The unexpected outbreak of COVID-19 has made massive disruptive shift from traditional classroom learning to online learning in short span. Findings of survey showed that in spite of being flexible and comfortable methodology, online learning is less interesting and not much appreciated by stakeholders for various reasons. Moreover, the issues related to E-gadgets and internet connectivity interrupts the teaching-learning and thus productive time is wasted in resolving the related issues. Thus if online learning is to be continued for a long time then there is a need for revised standard SOP for conduction of online lectures. An elaborate teaching plan of complete online course along with teaching materials such as audio and video contents must be ready. The most important is learners' attitude towards learning should be changed. Online learning should be combined with the offline self-learning effectively. When learners are self-isolated at home, they must have self-discipline, suitable learning materials and good learning environments. Before COVID 19 pandemic, the role of parents in students learning had been minimal. But pandemic crisis has put the onus on parents to ensure that learning continues at home. More efforts are required to create passion for learning, way of thinking and study habits among the learner which would help them to grow with a better aptitude.

REFERENCES:
Alismail, H. A.(2015). 21st Century Standards and Curriculum: Current Research and Practice. Journal of Education and Practice, 6(6), 150-155.

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. Human Behaviour & Emerging Tech. 2020(2), 113–115. Available: **https://doi.org/10.1002/hbe2.191**.

Banihashem & Seyyed, K. (2015). The effect of E-learning on student's creativity. Scientific Information Data-base, 5(4), 53-61.

Cathy Mae Toquero (2020). Challenges and Opportunities for Higher Education amid the COVID-19 Pandemic: The Philippine Context. Pedagogical Research, 5(4). e-ISSN: 2468-4929.

Ebner, M., Scho¨n, S., Braun, C., Ebner, M., Grigoriadis, Y.& Haas, M . (2020). COVID-19 Epidemic as E-Learning Boost? Chronological Development and Effects at an Austrian University against the Background of the Concept of "E-Learning Readiness". Future Internet,12(6).

Garcı´a-Peñalvo, F.J., Corell, A., Abella-Garcı´a, V. & Grande, M.(2020). Online Assessment in Higher Education in the Time of COVID-19. Education in the Knowledge Society. https://doi.org/10.14201/eks.23013.

Gonzalez, T., de la Rubia, MA., Hincz, K.P., Comas-Lopez, M., Subirats, L., & Fort, S.   (2020). Influence of COVID-19 confinement on students' performance in higher education. PLoS One,15, (10),1-23.

Hunt, J. & Eisenberg, D. (2009). Mental Health Problems and Help-Seeking Behaviour among College Students. Journal of Adolescent Health, 46, 3-10. https://doi.org/10.1016/j.jadohealth.2009.08.008.

Jama Mpho P, Mabokang LE Mapesela, & Adriana A. Beylefeld, (2008). Theoretical perspectives on factors affecting the academic performance of students. South African Journal of Higher Education, 22(5) 992-1005.

Jena, P. K. (2020). Impact of pandemic COVID-19 on education in India. International Journal of Current Research 12(7), 12582-12586. ISSN: 0975-833X.

Manya Suresh, V., Vishnu Priya, & Gayathri R.(2018). Effect of e-learning on academic performance of undergraduate students, Drug Invention Today, Vol. 10, Issue 9, pp 1797-1800.

O¨ zyurt O¨& O¨ zyurt H.(2015). Learning style based individualized adaptive e-learning environments: Content analysis of the articles published from 2005 to 2014. Computers in Human Behaviour, 52, 349–358. Available: https://doi.org/10.1016/j.chb.2015.06.020.

Ramane, D.V.& Kottapalle, S. (2016).Internet Addiction In Teenagers Of India: Analysis Using Fishbone Methodology**.** International Journal of Advances in Engineering & Technology, 9(6), 696-704. ISSN: 22311963.

Sahu, P. (2020). Closure of Universities Due to Corona virus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. Cureus, 12 (4), e7541.

Somayeh M., Dehghani M., Mozaffari F., Ghasemnegad S. M., Hakimi H. & Samaneh, B. (2016). The effectiveness of E- learning in learning: A review of the literature. International Journal of Medical Research Health Science, 5 (2), 86-91.

Tsai-Fa Yen. (2020). The performance of Online Teaching for Flipped Classroom based on COVID-19 Aspect. Asian Journal of Education and Social Studies, 8(3),57-64. ISSN: 2581-6268.

Vadim Emelin, Alexander Tkhostov & Elena Rasskazova (2013). Excessive Use of Internet, Mobile Phones and Computers: The Role of Technology-related Changes in Needs and Psychological Boundaries. Procedia-Social and Behavioural Sciences. 86, (10), 530–535.