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Pattern of Internet Usage among Medical Students Studying In a Rural Medical College

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Abstract **Original Research Article**

Internet has become an integral part of our life and internet usage has affected many spheres of our life. Its rapid use for education, research and information along with entertainment, gaming and social networking has become a major concern among students. Considering the potential effects of internet addiction, this study aims to understand the prevalence and pattern of internet addiction among medical students using Internet Addiction Test in a rural medical college of Telangana. ***Aims:*** To study the pattern of internet use, internet addiction and their associated factors in medical students. ***Setting and design:*** This is a cross-sectional study done in a rural medical college of Telangana state. The sample size consisted of 445 medical students'. ***Materials and methods***: The socio-demographic data and details about the pattern of internet use by students were collected using a semi-structured questionnaire. The tendency of addiction to internet was assessed using Young's Internet Addiction Scale (IAT). ***Results***: In the study sample of 445 medical students, 48.3% (n= 215) were average users of internet, 34.4 % (n= 153) students problematic users or over users of internet, 17.3% (n=77) students were marked as severely problematic or internet addicts. The problematic internet users showed a significant association ($p<0.05$) with duration and hours of internet use per day and on weekends of accessing internet. This problematic use was also significantly associated with ($p<0.05$) academic decline, sleep disturbances, mood fluctuations, anxiety disturbances, and a preference for friendships on the internet. ***Conclusion***: People of small villages and towns of India are not far behind cities in the over-usage and addiction to the internet. In recent years, we are witnessing a major switch over from books to the internet as the source in the quest of knowledge among medical professionals and students. While it is fortunate that internet has become such an easily available modality to reach knowledge and much more, it is worrisome that it is shown to cause addiction. In our study, 17% of medical students have admitted to loss of self control over the time spent on the internet, which has adversely affected their life. Undoubtedly, there is a call for measures to prevent such harm done by the internet, heightened awareness of its evils, and more research towards the same.

Key words: Internet, medical students, rural, Telangana.

INTRODUCTION

Internet has become a part of our daily life in modern days. It is being used extensively throughout the world. Internet was originally devised for information sharing and research, but it has percolated into every aspect of human life like social networking, e commerce, shopping, banking, education, health, entertainment and administration. The current generation cannot imagine their day to day lives without internet. Worldwide the internet users have crossed three billion marks [1].

In the year 2000, the internet users were 5 million, but by June 2012 it was increased to 190 million. Currently (2016), there are 462 million active internet users in India. China tops the list, followed by India. Among the 462 million, 371 million people are using mobile internet in India with 262 million in urban and 109 million in rural areas [2].

This progressive usage of internet by common man in India has made lives easy and enriched but also has few deleterious side effects like gaming, on line gambling, chatting, and pornography. This maladaptive internet usage has been labelled and discussed in the current DSM V also [3].

The term "Internet addiction" was proposed by Dr. Ivan Goldberg in 1995 for pathological compulsive internet use [4, 5]. Griffith [28] considered Internet addiction to be a kind of technological addiction and one in a subset of behavioural addiction. Kandell [29] defined Internet addiction as "A psychological dependence on the Internet, regardless of the type of

activity once logged on". He explained that college students have high risk of dependence due to factors like strong drive to develop a firm sense of identity, unstructured time, less parental control and censoring of what they do online, to develop meaningful and intimate relationships, free and easy accessibility and their internet usage being implicitly encouraged [6].

Students start off using the Internet on a casual basis and then progress to using the technology in dysfunctional ways. Being a virtual mode of social interaction, internet allows its users to expand the range of emotions expressed towards others. This internet addiction can lead to various physical, psychological, as well as social disturbances, impaired work and academic performance; sleep disturbances, abnormal dietary habits, strain on the eyes and headache, relationship issues [7, 8]. A meta-analysis [9] done by Ho- RC *et al*. found a significant association of internet addiction with psychiatric disorders like depression, anxiety, alcohol abuse and ADHD.

Internet has been a boon in the lives of medical students as it serves as a means of vast information available on the fingertips which help them in their studies, research work and also help strengthen their concepts by being able to watch and understand things in 3D. It can also be used for social development by being able to connect globally and share ideas. Study by Srijampana *et al*. [10] on medical students in southern India reported a prevalence of internet addiction as 0.4%. Medical students are also a vulnerable group when it comes to internet addiction. It is important to study the pattern of internet usage among this subset of students.

The objectives of the present study was to understand the pattern of internet usage, prevalence of addiction, and the associated variables among medical students from a rural teaching hospital.

AIMS AND OBJECTIVES

- To study the internet use pattern among medical college students in a rural area.
- To study the prevalence of Internet Addiction and its associated variables in the study sample.

MATERIALS AND METHODS

A cross-sectional study was conducted among medical students of a rural teaching hospital, in Telangana. The study duration was from October to December 2018. This medical college has a total of 600 students, out of which 445 students participated in the study. Medical students, interns and post graduates were between age groups 18-35 years, of both sexes, students who were using the internet since the last 6 months were included in this study. Informed consent of each participant was taken and those not willing to give valid consent and who were not using internet were excluded.

The sample size was calculated by assuming prevalence of Internet addiction as 50% and for a 95 % confidence level and 5% absolute precision of the estimate. A 30% non-response error was considered [11].

Data collection was done after approval from Institutional Ethics Committee. Data collection was done during college posting hours by using predesigned and pretested questionnaire including details of socio-demographic data such as age, sex, year of study, socio-economic status. Internet usage pattern related items like source, duration per day, and on weekends, parent's usage pattern, cost of internet, addiction test – Young's IAT [Internet Addiction Test] questionnaire was used. IAT is a 20 item 6 point Likert scale that measures the severity of self reported compulsive use of the internet [11]. Total internet addiction scores are calculated with possible scores for the sum of 20 items ranging from 20 to 100. The scale showed very good internal consistency, with an alpha coefficient of (a=0.90-0.93) in the present study.

According to Young's criteria, total IAT scores 0-39 represent average users with complete control of their internet use, scores 40-69 represent over users with frequent problems caused by their internet use and scores 70-100 represent internet addicts with significant problems caused by their internet use.

The data collected was entered in excel sheets. Statistical analysis was done by using SPSS 22.

RESULTS AND DISCUSSION

The study sample included a total of 445 medical students out of a total 600 students. Based on the Young's Internet Addiction Test [IAT] scores, they were divided into three groups indicating their level of Internet use. In the study sample, 215(48.3%) were average users of internet with IAT scores between 0-39. Problematic users or over users had IAT scores between 40-69 and their number was 153 (34.4 %). 77(17.3%) students had scored between 70-100 and these students were labeled as severely problematic or internet addicts [table 1]. The study done on students in Mumbai using the Young's Internet Addiction Test gave the following results- of the total sample, 74.5% were average or moderate users, a 24.8% were over users or potential addicts and 0.7% were internet addicts. Males significantly outnumbered females in potential for internet addiction [12, 13]. Comparing the two studies, we do find much difference in the results. This in a way shows the equalizing effect of Internet on our society- be it a metropolitan city like Mumbai or a small town like Karimnagar -it is spreading its tentacles everywhere.

Table-1

s.no	Number of students N(%)	Y 1[0-39] n (%)	Y 2[40-69] n (%)	Y 3[70-100] n(%)
1	445 (100)	215 (48.3)	153 (34.4)	77 (17.3)

The sample size consists of 172(38.7%) males and 273(61.3%) females. They were between ages 18-35 years. It was observed that 56(32.55%) of males and 97(35.53%) of females were problematic net users. Internet addiction was found in 32 (18.60%) males and 45(16.48%) females. The difference in scores of males and females was not statistically significant (p=0.561). The other parameter on socio demographic data like year of study vs internet addiction was not statistically significant in terms of IAT scores.

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Table-2

s.no	variable	Total n	Y1	Y2	Y3	Chi square	P value
1	GENDER					0.561	0.755
	Male	172	84 (48.83)	56 (32.55)	32 (18.60)		
	Female	273	131 (47.98)	97 (35.53)	45 (16.48)		
2	Education					10.537	0.229
	Second mbbs	186	85 (45.69)	73 (39.24)	28 (15.05)		
	Third mbbs	99	45(45.45)	33 (33.33)	21(21.21)		
	Final mbbs	70	34 (48.57)	21(30.00)	15 (21.42)		
	Interns	37	22(59.45)	13(35.13)	2 (5.40)		
	Post graduates	53	29 (54.71)	13 (24.52)	11 (20.75)		

INTERNET USAGE PATTERN

It was observed in the current study that students who were using Internet for more than two years were prone to harmful net use and may end up with internet addiction. There was statistically significant association between the hours of internet usage per day and on weekends and internet addiction (p=0.0001). The percentage of internet addicts was seen to be progressively increasing with increased hours of net usage.

Even the login status using of internet, login logout, occasional login, log off status and permanently log in morning, noon or night was also assessed. 51 (21.07%) of 242 permanently login subjects (54.38%) subjects were having high IAT scores.

In the current study, majority of students (72.58%) reported using internet for networking purposes. Other popular sites visited were those related to academic (49.26%), general information (40.32%) sites and downloading videos (38.3%). Only 9.5% of students reported visited pornographic sites. Gaming and shopping sites were visited by 26.48% and 22.36% of students respectively. Gambling was reported by only 1.5% students. It is quite possible that the use of pornographic, gaming and gambling sites may be under reported by students. The higher percentage of students visiting gaming, gambling or pornography sites as compared to others were found to be net over users. Young has also reported that net dependents are more likely to use two-way communication applications like online games, chatting than non-dependents [8].

In terms of internet access, 83.28 % of students had access to internet through mobile. A total of 13.82% used desktop/ laptop and only 2.90% admitted to visiting cyber café for internet access.

Table-3

s.no	variable	Total n	Y1	Y2	Y3	Chi square	P value
1	Duration of net use in years					7.744	0.257
	a. 0-1 years	47	31(65.95)	12(25.53)	4(8.51)		
	b. 1-5 years	210	97(46.19)	77(36.66)	36(17.14)		
	c. 5-10 years	90	40(44.44)	32(35.55)	18(20)		
	d. >10 years	98	47(47.95)	32(32.65)	19(19.38T)		
2	Hours of use per day					71.454	**0.0001**
	a. 0-2	116	86(74.13)	22(18.96)	8(6.89)		

	b. 2-4	160	69(43.12)	72(45)	19(11.87)		
	c. 4-6	97	41(42.26)	34(35.05)	22(22.68)		
	d. 6-8	71	18(25.35)	25(35.21)	28(39.43)		
	e. > 8	1	1(100)	0	0		
3	Hours of use per weekend					73.137	**0.0001**
	a. 0-2	47	35(74.46)	9(19.15)	3(6.38)		
	b. 2-4	108	73(67.59)	28(25.92)	7(6.48)		
	c. 4-6	119	54(45.37)	50(42.01)	15(12.06)		
	d. 6-8	104	37(35.57)	43(41.34)	24(23.07)		
	e. > 8	67	16(23.88)	23(34.32)	28(41.79)		
4	Login status most time in a day					8.503	0.204
	a. Login logout	89	49(55.05)	30(33.70)	10(11.23)		
	b. occasional log in	72	36(50)	27(37.50)	9(12.50)		
	c. log off status	42	24(57.14)	11(26.19)	7(16.66)		
	d. permanently log in	242	106(43.80)	85(35.12)	51(21.07)		

Internet usage and personal life determinants

Among medical students the pattern of social interactions among the study population is as follows: 107 (24.04%) of students liked spending time with family, 231 (51.91%) with friends and 107(24.04%) prefer to stay alone in their leisure time. Students who were preferring to stay alone were significantly more prone to internet addiction than those medical students who spent time with family and friends [p=0.003]. It could also be due to net over usage; they were not spending quality time with others and living in their own virtual world [table 4].

Preference of making friends on internet than in real life was also found to be significantly related to higher IAT scores [p=0.0001]. Loneliness coupled with social anxiety can lead to over dependence on Internet for socialization. For these individuals, the anonymity afforded by the Internet along with the absence of face to face interactions helps them feel confident and comfortable in their online communication. Internet fulfills their two important needs- the need to disclose feelings and to overcome shyness [14, 15].

Students who felt that internet usage is causing academic disturbance were significantly more prone to harmful net usage [p=0.0001]. These students have knowledge regarding adverse effects but have less self control over net usage. Internet currently has penetrated medical students life in such a way that all modern updates and medical researchers are available through it. In constant perserverance to update their knowledge, research, work assignments few students are excessively using internet. Latest social networking sites and applications like facebook, whatsapp, Youtube, twitter etc. are distracting the students and they are losing precious time. In a study done by Kubey *et al*. [16] in universities setting it was noted that students in the academically impaired subgroup reported double Internet usage than the whole sample. They also reported staying up late at night, feeling tired the next day and missing classes because of their heavy Internet use.

In the current study it was noted that few medical students experienced sleep disturbances, mood changes and anxiety symptoms [p=0.001] [Table 4]. Internet was used by these students as mood-regulator. These students were more prone to addiction than other medical students. In the current study we did not use any rating scales or diagnostic tools to assess the psychiatric morbidity. Few studies [12, 17, 18] done across the world have found high frequency of co-morbid anxiety, mood disorders, impulse control and substance abuse. Chakravarthi *et al*. [19] had proposed that internet addiction may be a secondary manifestation of underlying Axis I or Axis II disorder [19].

Table-4

s.no	variable	Total n	Y1	Y2	Y3	Chi square	P value
	Free time activities					16.193	0.003
1.	a. Spent alone	107	35 (32.71)	46 (42.99)	26 (24.29)		
	b. With family	107	63 (58.87)	29 (27.10)	15 (14.01)		
	c. With friends	231	117 (50.64)	78 (33.76)	36 (15.58)		
2	Self consideration						
	a. Average	258	119 (46.12)	95 (36.82)	44 (17.05)		
	b. Good	176	93 (52.84)	56 (31.81)	27 (15.34)		
	c. Poor	11	3 (27.27)	2 (18.18)	6 (54.54)		
3	Academic decline					81.471	**0.0001**
	a. Yes	169	44 (26.03)	65 (38.46)	60 (35.50)		
	b. No	276	171 (61.95)	88 (31.88)	17 (6.16)		
4	Sleep disturbances					50.344	**0.0001**
	a. Yes	168	53 (31.54)	61 (36.30)	54 (32.14)		
	b. No	277	162 (58.48)	92 (33.21)	23 (8.30)		
5	Mood fluctuations					36.706	**0.0001**
	a. Yes	177	61 (34.46)	64 (36.15)	52 (29.38)		
	b. No	268	154 (57.46)	89 (33.20)	25 (9.32)		
6	Anxiety issues					10.239	**0.006**
	a. Yes	113	44 (38.94)	39 (34.51)	30 (26.55)		
	b. No	332	171 (51.50)	114 (34.34)	47 (14.15)		
7.	Communication easier on net than real life					16.824	**0.0001**
	a. Yes	114	46 (40.35)	34 (29.82)	34 (29.82)		
	b. No	331	169 (51.05)	119 (35.95)	43 (12.99)		

In the current study pattern of internet usage among mother and father was assessed based on student's information. As per the students few parents were also problematic internet over users and internet addicts. Though the results are not significant, it suggests how the compounding effect of parent's net usage may have impact on student's internet usage. Parents should work like role models and reduce their own internet usage pattern for their children's development [table no5]. It has been found that the expenditure on internet per month and internet addiction pattern was statistically significant (p=0.006).

Table-5

s.no	variable	Total n	Y1	Y2	Y3	Chi square	P value
1	Mother internet usage					13.033	0.011
	a.<2 hours	381	195(51.18)	124(32.54)	62(16.27)		
	b.2- 4 hours	50	19(38)	20(40)	11(22)		
	c.> 4 hours	14	1(7.14)	9 (64.28)	4 (28.57)		
2.	Father internet usage					6.574	0.160
	a.<2 hours	372	188 (50.53)	122 (32.79)	62 (16.66)		
	b.2- 4 hours	49	21(42.85)	19 (38.77)	9 (18.36)		
	c.> 4 hours	24	6 (25)	12 (50)	6 (25)		
3.	expenditure on internet per month					21.502	**0.006**
	a.<300 rs	320	167 (52.18)	106 (33.12)	47 (14.68)		
	b.300-600 rs	110	46 (41.81)	42 (38.18)	22 (20)		
	C. >600 rs	15	2 (13.33)	5 (33.33)	8 (53.33)		

Mechanisms explained and classification status

Internet addiction is a cognitive behavioural problem. Davis in 2001 used the term 'Pathological Internet Use' (PIU) [20]. He explained that pre-existing psychopathology like negative self appraisal or self doubts can lead to PIU which may be 'specific' to certain online activities or 'generalised'.

Caplan gave 'deficient social skills' as an explanatory theory for addiction. Internet acts a medium of communication for individuals who are lonely and depressed and they feel that they lack in face to face social competence [21].

An attempt was made to find a neurobiological basis or genetic links. A study found lower grey matter density in left cingulate cortex and left insula regions of the brain in adolescent internet addicts as compared to non-addicts [22]. Links have also been found between Genetic polymorphisms of the serotonin transporter gene (SS-5HTTLPR) and excessive internet [23, 24]. Individuals with this predisposition do not have an adequate number of dopamine receptors or have an insufficient amount of serotonin/dopamine [25].

Internet use leads specifically to dopamine release in the nucleus accumbens, one of the reward structures of the brain specifically involved in other addictions. The theory is that digital technology users experience multiple layers of reward when they use various computer applications. The Internet functions on a variable ratio reinforcement schedule (VRRS) [26], as does gambling. Whatever the application (general surfing, pornography, chat rooms, message boards, social networking sites, video games, email, texting, cloud applications and games, etc.), these activities support unpredictable and variable reward structures. The reward experienced is intensified when combined with mood enhancing/stimulating content [27].

The current DSM V had labeled it as INTERNET GAMING DISORDER.
ICD 10–HABIT AND IMPULSE DISORDERS unspecified (F63.9)
ICD 11-DISORDERS DUE TO ADDICTIVE BEHAVIOUR (block L2-6C5)
-gambling disorder predominantly online (6C50.1)
-gaming disorder predominantly online (6C51.0)

Limitations of the study

We could not do a one to one interview to understand in more indepth about the students. Also the chances of students under reporting their Internet use or the use of certain applications cannot be ruled out.

CONCLUSION

Internet overuse or addiction is as prevalent in small towns as it is in metropolitan cities in India. It has been shown in our study that 17% of medical students are addicted to the internet, and 51% are using it in a way that at least harms them. Internet addiction has been proven to have a causal link with social anxiety and depression, thus awareness must be raised to consult a psychiatrist when faced with such illnesses. There is a call for more social activities in the general society for people of an introverted nature (eg. book/photography/music clubs) as this seems to be a factor favoring internet addiction.

More facilities for outdoor physical activities in medical institutions would help to discourage more internet time. Students must be advised to spend more quality time with family and friends, which would reduce the risk of internet addiction. Though it has not been labelled as a clinical disorder as per DSM-5, its association to low self-esteem, mood and sleep disturbances and substance use is evident. The effect it has on the academic performance and socialisation pattern of students also merits further studies. Also, students should be educated to recognise these signs of internet abuse. They should be taught effective methods to control their internet usage or to seek help if necessary.

Bandwidth usage from IP addresses of educational institutions and hostels or even from particular devices could be regulated such that students would be allowed enough time only to use the internet in a productive way. Since internet is an integral part of student life, it is important that they are able to differentiate between its use and misuse.

REFFERENCE

1. Neha Alawadhi, IAMAI report. ET Bureau Sep 3, 2015. Available form: http:// articles.economictimes.indiatimes.com/2015-09-03/news/66178659-1-user-base-iamaiinternet-and-mobile-association.
2. Available at: http://www.internetlivestats.com/internet-users-by-country/. Accessed on 27 April 2019.
3. Diagnostic and statistical manual of mental disorders DSM-5^{TM} American Psychiatric Association. 2013.
4. Mishra S, Rout R, Jayakrishnan K. Medical undergraduates and pathological internet use: Interplay of stressful life events and resilience. IOSR J Nursing Health Sci. 2015; 4(1):66-9.
5. Nalwa K, Anand AP. Internet addiction in students: A cause of concern. Cyber Psychol Behavior. 2003; 6(6):653-6.
6. Chou C, Hsiao M-C. Internet addiction, usage, gratification, and pleasure experience: the Taiwan college student's case. Comput Educ. 2000;35(1):65-80.
7. Guan SS, Subrahmanyam K. Youth internet use: risks and oppurtunities. Curr Opin Psychiatry.2009; 22:351-6.

8. Young KS. Internet addiction: the emergence of a new clinical disorder. Cyberpsychol Behav. 1998; 1; 237-44.
9. Ho RC, Zhang MW, Tsang TY, Toh AH, Pan F, Lu Y, Cheng C, Yip PS, Lam LT, Lai CM, Watanabe H. The association between internet addiction and psychiatric co-morbidity: a meta-analysis. BMC psychiatry. 2014 Dec;14(1):183.
10. Raju Srijampana VG, Endreddy AR, Prabhath K, Rajana B. Prevalence and patterns of internet addiction among medical students. Med J DY Patil Unive. 2014; 7:709-13.
11. Krishnamurthy S, Chetlapalli S. Internet addiction: Prevalence and risk factors: A cross-sectional study among college students in Bengaluru, the Silicon Valley of India. Indian J Public Health. 2015; 59(2):115-21.
12. Deepak Goel, Alka Subramanyam, Ravindra Kamath. A study on the prevalence of internet addiction and its association with psychopathology in Indian adolescents. Indian J Psychiatry. 2013 Apr-Jun; 55(2): 140–143.
13. Chaudhari B, Menon P, Saldanha D, Tewari A, Bhattacharya L. Internet addiction and its determinants among medical students. Industrial psychiatry journal. 2015 Jul;24(2):158.
14. Janet Morahan-Martin, Phyllis Schumacher. Loneliness and social uses of the internet. Computers in Human Behavior. Nov 2003;19(6):659-67.
15. Bonetti L, Campbell MA, Gilmore L. The relationship of loneliness and social anxiety with children's and adolescents' online communication. Cyberpsychology, behavior, and social networking. 2010 Jun 1;13(3):279-85.
16. Kubey, Robert W, Michael J. Lavin, and John R. Barrows. "Internet use and collegiate academic performance decrements: Early findings." *Journal of Communication.* 51.2 (2001): 366-382.
17. Black DW, Belsare G, Schlosser S. Clinical features, psychiatric comorbidity, and health-related quality of life in persons reporting compulsive computer use behavior. J Clin Psychiatry. 1999;60:839-44
18. Kubey RW, Lavin MJ, Barrows JR. Internet use and collegiate academic performance decrements: Early findings. Journal of communication. 2001 Jun;51(2):366-82.
19. Chakraborty K, Basu D, Kumar KG. Internet addiction: Consensus, controversies, and the way ahead. East Asian Archives of Psychiatry. 2010;20(3):123.
20. Davis RA. A cognitive-behavioral model of pathological Internet use. Computers in human behavior. 2001 Mar 1;17(2):187-95.
21. Caplan SE. Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. Communication research. 2003 Dec;30(6):625-48.
22. Zhou Y, Lin FC, Du YS, Zhao ZM, Xu JR, Lei H. Gray matter abnormalities in Internet addiction: a voxel-based morphometry study. European journal of radiology. 2011 Jul 1;79(1):92-5.
23. Lee YS, Han DH, Yang KC, Daniels MA, Na C, Kee BS, Renshaw PF. Depression like characteristics of 5HTTLPR polymorphism and temperament in excessive internet users. Journal of affective disorders. 2008 Jul 1;109(1-2):165-9.
24. Ravneet Kaur. Study of internet use and net addiction in small town college students in India. IJPP. 8(1). 2014:44-51.
25. Beard KW. Internet addiction: a review of current assessment techniques and potential assessment questions. Cyber Psychology & Behavior. 2005 Feb; 8(1): 7-14
26. Young KS, Nabuco de Abreu C. Internet Addiction: A handbook and guide to evaluation and treatment. New Jersey: John Wiley & Sons, Inc. 2011.
27. Cash H, D Rae C, H Steel A, Winkler A. Internet addiction: A brief summary of research and practice. Current psychiatry reviews. 2012 Nov 1;8(4):292-8.
28. Devereux MP, Griffith R. Taxes and the Location of Production: Evidence from a Panel of US Multinationals. Journal of public Economics. 1998 Jun 1;68(3):335-67.
29. Kandell JJ. Internet addiction on campus: The vulnerability of college students. Cyberpsychology & behavior. 1998;1(1):11-7.