

# Life Orientation Test- Revised (LOT-R) Versus Academic Score in Various First Year Health Professional Students

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## ABSTRACT

**Introduction:** Health field per se requires mental, physical and psychological steadiness and wellbeing. In modern times decline in psychological and physical health has been observed in student after admission in health education program. Factors like perfectionism, self-esteem, personal and professional consequence have affected their academic score directly or indirectly. Life Orientation Test-Revised (LOT-R) instrument measures optimism in relation to self-esteem of individual. A better score will show more confidence level of the student.

**Aim:** To find an association of LOT-R with the academic score of health professional students and assess gender variation.

**Materials and Methods:** A total of 350 students enrolled for academic year 2015-16 in health professional program of medicine, dental and physiotherapy institutes of Sumandeep Vidyapeeth University were considered. Non-randomized and purposive study was done by providing LOT-R questionnaire to

students. Average academic score of Anatomy and Physiology course was used for analysis excluding the biochemistry due to non-availability of tangible data at the time of study. Data was collected, analysed statistically using independent t-test, ANOVA with post-hoc and correlation analysis.

**Result:** Statistical significant for one-way ANOVA was assessed for academic score between the group of health professional students. While no statistical correlation of significance was observed for LOT-R score with that of academic score. As per gender distribution there was no statistical significant observation for LOT-R score within the groups.

**Conclusion:** The present study highlighted the need of student's counseling for their approach towards health education; as their career. Psychological self-reliance and optimism improves the academic score. A study needs to be compared with the socio-economic status of the student to have a better understanding of the LOT-R.

**Keywords:** Educational performance, Optimism, Self-esteem

## INTRODUCTION

Worldwide medical schools are ensuring that graduates are knowledgeable, skillful and professional [1,2]. To achieve this outcome every school has a specific curriculum which is as per the statutory norms of the country's Medical Council. The output of curriculum implementation is achieved by didactic lectures, practical and clinical sessions, modeling, supervision by instructor, and various teaching learning tools and techniques.

Researchers have reported international decline in psychological and physical health of a student after joining the health education field [3,4]. Moreover, factors like self-esteem, perfectionism, coping tactics and extroversion play a negative or positive role in the student's response [5]. Over and above these personal and professional consequences and factors related to medical school training directly or indirectly affects the academic performance of the student.

Optimistic people react in a different manner to the situation which arises in life which may go in favor or against. They take everything in stride as part of the whole. However, reverse is true for people who have a negative approach towards life. For them the life never looks up and everything seems to be gloomy. Optimism appears to confer resilience to stressful life events, which are associated with risk for both onset and relapse of psychopathology [6,7].

What an individual expects from future depends upon his approach towards life. Optimist always projects himself to achieve his target. This approach gives him enough impetus to face the vagaries of life. On the other hand pessimistic attitude lacks energy and drive

to fulfill the desired goal and always thinks about failure rather than success.

Optimism is a trait, which is influenced by various parameters like childhood environment, the presence of resources like parental warmth, educational level and financial security, as a predictor of adult optimism [8-11]. Perhaps optimism is more changeable during times of life transition, when there is break from prior experience and outcomes become more uncertain. Level of optimism changes with the time frame as well as conditions or environment while performing those tests. Positive psychology constructs self-efficacy and optimism purpose to motivate the students for constructive outcome.

Widely researchers have assessed various factors that promote or inhibit academic achievements. These efforts have targeted motivational constructs such as self-efficacy [12], optimism [13], goal therapy [14], hope theory [15].

Researchers found that optimism was directly associated with social support during first year of college, even, having larger friendship networks within short time [16]. Some of the researchers also proved that the level of stress among first year medical students in India depends on Socio-Economic Status (SES) level although they have not specified any standard for estimating SES in their study [17].

Life Orientation Test (LOT) is to assess the individual's difference in optimism and pessimism developed by Scheier and Carver [13]. Several studies done using this instrument pointed to controversial results regarding the construct of uni-dimensionality and also for

co-incidences with anxiety trait, self-esteem and self-mastery [18-20].

These criticisms led to modification of LOT to Revised Life Orientation Test (LOT-R) by Scheier, Carver & Bridges in 1994. In this new version, the items measuring positive and negative expectation are more strongly linked [21]. This revised instrument is considered to be good to measure optimism in relation to self-esteem and personality factors [22]. Self-esteem and confidence levels show a better individual score, thus, we expect a better academic score for the individual [23]. The one with less score will have opposite effect.

Present study was conducted to estimate the level of pessimism and optimism in first year of health professional students i.e., medical, dental and physiotherapy once they join the institute and compare it with their first academic performance score. First year students do not typically possess established social network within the campus. In Indian setup, a student before entering into the health professional field has been spoon fed to achieve the desired results. Moreover, in health professional programs they face a different array of teaching style thus are at a loss as to how to pursue their studies without being stressed out. In this new methodology of student centered approach they grow in professional knowledge as well as improve upon their transferrable skills of team learning, group work and sharing. With time they become more confident to take independent decision specifically in Indian setup where students are overprotected by their parents in every phase of life. It will be more appropriate to state that Indian parents decide the course of their child's profession without even asking or seeking their permission. Moreover, child is moulded from the day he/she joins school or may be before that to become a doctor or an engineer or a lawyer etc; depending on parents thought or perception.

## AIM

To find the correlation between LOT-R and academic score in health professional students (medical, dental and physiotherapy) of Sumandeep Vidyapeeth University.

## MATERIALS AND METHODS

A questionnaire based, observational, cross-sectional study was conducted at Smt. BK Shah Medical Institute and Research Center after approval granted by the ethical committee of Sumandeep Vidyapeeth University. All the students enrolled for medical, dental and physiotherapy for 2015-2016 batch were included in the study. Repeater students from previous batch were not included. This study was non-randomized and purposive. Out of 350 students enrolled 333 student's data was taken for statistical analysis. Exclusion was based on filling of incomplete LOT-R test questionnaire. Secondly, students who did not attempt first formative assessment for Anatomy and Physiology were also excluded.

All students were given a set of questionnaire based on LOT-R to analyse their personality type and self-esteem approach. The questionnaire was distributed in Anatomy lecture hall, having their roll numbers written so that each student's academic score could be compared. Aim and objectives of the study were explained to the students and verbal consent was received for the same within the first month of joining respective program. It was assured to the students that their data will be secure with the primary investigator and will be used only for present study.

The mean academic score for first formative assessment for Anatomy and Physiology course were calculated for each student and was used for our analysis. Academic score from Biochemistry course was not included due to non-availability of tangible data at the time of study.

Data collected was compiled and statistically analysed using SPSS-23.0 software.

## RESULTS

Sumandeep Vidyapeeth University has five health professional programs i.e., medical, dental, physiotherapy, pharmacy and nursing which are recognized by their respective councils. In this study, we have included medical, dental and physiotherapy students with a total population of approximately 2000 out of which annual intake for medical (MBBS) students is 150, for dental (BDS) is 100 while for physiotherapy (BPT) is 120.

For the academic session 2015-2016, 350 students were enrolled at the time of initiation of study i.e., within a month after starting of the health professional programs.

[Table/Fig-1] specifies the descriptive statistics for the LOT-R score in medical, dental and physiotherapy students showing mean value of  $15.97 \pm 3.53$  for medical,  $16 \pm 3.47$  for dental and  $15.46 \pm 2.77$  for physiotherapy student with the number for student from each program.

[Table/Fig-2] specifies the descriptive statistics for the academic score in medical, dental and physiotherapy students showing mean value of  $35.71 \pm 23.11$  for medical,  $45.7 \pm 18.84$  for dental and  $41.78 \pm 21.80$  for physiotherapy student with the number for student from each program.

[Table/Fig-3] specifies One-way ANOVA and Post-hoc test for LOT-R score for health professional students showing no statistical significance for LOT-R score for medical (MBBS) with dental (BDS) or with physiotherapy (BPT) students ( $p > 0.05$ ).

[Table/Fig-4] explains One-way ANOVA and Post-hoc test for academic score for health professional students showing statistical significance for academic score for medical (MBBS) with dental (BDS) students ( $p < 0.05$ ) and statistical significance for academic score for dental (BDS) with physiotherapy (BPT) students

	MBBS	BDS	BPT
Number of Students	138	78	117
Mean	15.97	16	15.46
Standard Deviation ( $\pm$ )	3.53	3.47	2.77
Standard Error	0.30	0.39	0.26
Median	16	16	15
Mode	16	16	14
Sample Variance	12.46	12.03	7.65
Range	19	13	13
Minimum	4	9	9
Maximum	23	22	22
Confidence Level(95.0%)	0.6	0.8	0.5

[Table/Fig-1]: Descriptive statistics for LOT-R score for students from health professional programs (medical, dental and physiotherapy).

	MBBS	BDS	BPT
Number of Students	138	78	117
Mean	35.71	45.7	41.78
Standard Deviation ( $\pm$ )	23.11	18.84	21.80
Standard Error	1.89	1.88	1.98
Median	38	46.5	45
Mode	0	50	60
Sample Variance	534.14	354.84	475.15
Range	88	91	77.5
Minimum	0	0	0
Maximum	88	91	77.5
Confidence Level(95.0%)	3.729	3.738	3.924

[Table/Fig-2]: Descriptive statistics for academic score for students from health professional programs (medical, dental and physiotherapy).

	MBBS	Sum of Squares	df	Mean Square	F	Sig.
LOT-R score	Between Groups	20.218	2	10.109	0.948	0.389
	Within Groups	3519.896	330	10.666		
	Total	3540.114	332			
Dependent Variable	(I) COURSE	(J) COURSE	Mean Difference (I-J)	Std. Error	Sig.	
LOT-R score	MBBS	BDS	-0.0362	0.4626	0.873	
		BPT	0.5022	0.4104	0.666	
	BDS	MBBS	0.0362	0.4626	1.000	
		BPT	0.5385	0.4774	0.781	
	BPT	MBBS	-0.5022	0.4104	0.666	
		BDS	-0.5385	0.4774	0.781	

**[Table/Fig-3]:** One-way ANOVA and Post-hoc for LOT-R score for medical, dental and physiotherapy students.  
\*. The mean difference is significant at the 0.05 level.

	MBBS	Sum of Squares	df	Mean Square	F	Sig.
AS%	Between Groups	25507.078	2	12753.539	25.003	0.000
	Within Groups	168328.567	330	510.087		
	Total	193835.645	332			
Dependent Variable	(I) COURSE	(J) COURSE	Mean Difference (I-J)	Std. Error	Sig.	
AS%	MBBS	BDS	-22.46934*	3.19935	0.000	
		BPT	-5.97362	2.83831	0.108	
	BDS	MBBS	22.46934*	3.19935	0.000	
		BPT	16.49573*	3.30141	0.000	
	BPT	MBBS	5.97362	2.83831	0.108	
		BDS	-16.49573*	3.30141	0.000	

**[Table/Fig-4]:** One-way ANOVA and Post-hoc test for academic score for health professional students.  
\*. The mean difference is significant at the 0.05 level.

		LOT-R score	AS%
LOT-R score	Pearson Correlation	1	.008
	Sig. (2-tailed)		.884
	N	333	333
AS%	Pearson Correlation	0.008	1
	Sig. (2-tailed)	0.884	
	N	333	333
Academic Score	LOT-R score		
	MBBS	BDS	BPT
	MBBS	1	
	BDS	-0.043	1
BPT	-0.029	0.068	1

**[Table/Fig-5]:** Correlation of LOT-R score with that of academic score for health professional students.  
\*. The mean difference is significant at the 0.05 level.

	Sex	N	Mean	Std. Deviation	Std. Error Mean
AS%	Male	99	38.0530	23.90629	2.40267
	Female	234	46.1442	23.91627	1.56346
LOT-R score	Male	99	15.394	3.5046	0.3522
	Female	234	15.966	3.1512	0.2060

**[Table/Fig-6]:** Group Statistics as per gender variation for LOT-R Score and academic score for health professional students.

( $p < 0.05$ ). Although no statistical significance for academic score of medical (MBBS) with physiotherapy (BPT) students was observed  $p = 0.108$ .

[Table/Fig-5] shows no significant Pearson correlation between LOT-R score with that of academic score for health professional

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference
		F	Sig.	t	df			
AS%	Equal variances assumed	.071	.790	-2.822	331	0.005*	-8.09	2.87
	Equal variances not assumed			-2.823	184.639	0.005*	-8.09	2.87
LOT-R score	Equal variances assumed	2.019	.156	-1.463	331	.144	-.5719	.3908
	Equal variances not assumed			-1.402	168.232	.163	-.5719	.4080

**[Table/Fig-7]:** Independent sample t-test for LOT-R score and academic score as per gender variation in health profession students.  
\*. The mean difference is significant at the 0.05 level.

students were value are being close to zero and two tailed significance value is greater than 0.05.

[Table/Fig-6] shows the descriptive statistical values of LOT-R and academic score variation as per gender of the health professional students.

[Table/Fig-7] shows independent sample t-test for LOT-R score and academic score as per gender variation in health profession students specifying statistical significance (2-tailed) for equal variances for academic score ( $p < 0.005$ ) but no statistical significance for LOT-R score for equal variances assumed.

## DISCUSSION

In present study, researchers could not find any significant variance in Medical, Dental and Physiotherapy students as per their LOT-R score. Although, Medical students had minimum score for LOT-R of 4 while it was 9 in case of dental and physiotherapy students. No significant correlation was observed in the LOT-R score in three different health professional students, however, correlation of dental and physiotherapy students with that of medical students was less than zero r-value, but within themselves was of positive nature although not statistically significant.

In our study, no statistical significant of LOT-R score with that of academic score of health professional students at 95% confidence interval was found. Moreover, independent paired t-test for LOT-R score for gender difference also did not show any statistical significance although, mean value for male and female score was almost similar.

Our findings were consistent with that of Stewart in their longitudinal study for two years were academic performance before and during medical school were negatively related to reported stress level [24]. Schumacher found no significant difference existing between grade level and optimism using GRE scale for assessing optimism and pessimism [25]. Stoecker's in his study indicated no relationship between optimism scores and expected grades [26]. However, we found a correlation between grade expectancies and cumulative grade-point average suggesting LOT-R measured students' expectations of how they would perform in the hypothetical course based on their performance in previous course. Burke used LOT-R with optimism/pessimism scale demonstrating that the two scales were not measuring similar constructs and found only a modest correlation between LOT-R optimism and LOT-R pessimism (-0.30), concluding that the two dimensions were relatively independent [27].

Harju and Bolen found that optimism was only slightly related to Grade Point Average (GPA's) [28]. Chang et al., took an even stronger stance on the fragility of the relationship between optimism and GPA's as they contend that a no significant relationship exist between optimism and pessimism indices and academic performance [18].

Glaesmer confirmed the bi dimensionality of the LOT-R and proposed that optimism and pessimism are two independent constructs rather than a single bipolar trait and confirmed the instrument to be employed for measuring dispositional optimism or pessimism in individual diagnostics as well as in epidemiological research [29].

Present study did not show any statistical significance of optimistic approach with that of academic score although researchers like Hall, Spruill and Webster found higher GPA's in students who felt they had a greater sense of control over their future [30]. Even Tanhamani results showed a significant difference between life orientation with stress, depression and anxiety but no significant difference between optimism with pessimism females and males [31]. Study by Singh and Jha also showed non significance for gender variation for optimistic and pessimist students [32]. Bryant and Cvengros attempted to differentiate optimism from hope and they determined that hope refers to specific goal attainment while optimism is broader and focuses on more general future outcomes [33]. Maatta et al., findings showed that approximately one quarter of adolescents in their study used an optimistic achievement strategy [34]. These students had less depression, better teacher relations, higher student achievement with less norm breaking behaviour and higher self-esteem. These researchers' results were somehow, contrary to that of ours since they used more than one parameter for assessing the optimism or pessimistic score.

There are many possible reasons why the association was not evident in this study. The first possibility is that all of the optimism survey questions were not answered accurately, since the questions was in English language and majority of students had Gujarati as their prior educational background. Test and retest overtime would be a way of assessing the reliability of responses. Students may have answered the LOT-R based on what they wished they were capable of, or they may have under estimated their self- efficacy as a show of modesty [35].

Avoidance may have been a factor in this study, a factor which is well known pessimistic trait [28]. This would naturally contribute to a higher overall optimism score or the optimism bias. As optimism is sometimes known to under estimate difficulties and overestimate probabilities of success [36], it is also possible that they would overestimate their score on LOT-R scale. Seligman mentioned the lack of effort of some students to apply to their goal as a feature of unrealistic optimism [37]. These optimistic individuals have such strong assumption about success that they do not take the appropriate action to achieve the desired successful goal.

Other possible explanation for high optimistic student having low achievement could be the sudden influence of other factors such as home sickness, problems with peer relationship, physical or mental health issues [36]. Learning disabled students also have overly optimistic self-efficacy which may results in reduced academic achievements [38]; although none of such were identified in our study. A factor which could explain low optimism and high achievement could be the mirror opposite of unrealistic optimism i.e., unrealistic pessimism.

## LIMITATION

Researchers were unable to include every enrolled student for the study.

## CONCLUSION

No specific correlation was assessed with the optimistic approach of student with that of their academic score; however we should continue motivating students in our mentorship program for positive approach towards the course. Even we can assess the optimistic or pessimistic approach of students after completion of first term to analysis any specific change in their thought perception. Moreover, we should assess the socio-economic status of the students along with the willingness of student to join the course to further find association of optimistic- pessimistic approach with that of academic score.

## REFERENCES

- [1] Liaison Committee on Medical Education. Functions and Structure of a Medical School: Standards for Accreditation of Medical Education Programs Leading to the M.D. Degree. March 2003. Available at: [www.lcme.org/functions2003march.pdf](http://www.lcme.org/functions2003march.pdf). Accessibility verified October 24, 2005.
- [2] Association of American Medical Colleges. Report I. Learning Objectives for Medical Student Education: Guidelines for Medical Schools. Medical Schools Objectives Project. January 1998. Available at: [www.aamc.org/meded/msop/msop1.pdf](http://www.aamc.org/meded/msop/msop1.pdf). Accessibility verified October 24, 2005.
- [3] Liselotte ND, Matthew RT, Tait DS. Systematic review of depression, anxiety and other indicators of psychological distress among U.S and Canadian medical students. *Acad Med*. 2006;81:354-73.
- [4] Liselotte ND, Matthew RT, Jeffrey LH. Personal life events and medical student burnout: A bipolar disorder. *Acad Med*. 2006;81:374-84.
- [5] Firth J. Levels and sources of stress in medical students. *Br Med J (Clin Res Ed)*. 1986;292:1177-80.
- [6] Ellicott A, Hammen C, Gitlin M, Brown G, Jsmison K. Life events and the course of bipolar disorder. *American Journal of Psychiatry*. 1990;147:1194-98.
- [7] Finlay-Jones R, Brown GW. Types of stressful events and the onset of anxiety and depression disorders. *Psychological Medicine*. 1981;11:803-15.
- [8] Heinonen K, Raikkonen K, Keltikangas-Jarvinen L. Dispositional optimism: development over 21 years from the perspectives of perceived temperament and mothering. *Personality and Individual Differences*. 2005;38:425-35.
- [9] Heinonen K, Raikkonen K, Matthews KA, Scheier MF, Raitakari OT, Pulkki L, et al. Socio-economic status in childhood and adulthood: Associations with dispositional optimism and pessimism over a 21 years follow-up. *Journal of Personality*. 2006;74:111-26.
- [10] SolberNes L, Evans DR, Segerstrom SC. Optimism and college retention: Mediation by motivation, performance and adjustment. *Journal of Applied Social Psychology*. 2009;39:1887-912.
- [11] Segerstrom SC. Optimism and resources: Effects on each other and on health over 10years. *Journal of Research in Personality*. 2007;41:772-86.
- [12] Bandura A. Self efficacy mechanism in human agency. *American Psychologist*. 1982;37:122-47.
- [13] Scheier MF, Carver CS. Optimism, copying, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*. 1985;4:219-47.
- [14] Covington MV. Goal theory, motivation and school achievement: An integrative review. *Annual Review of Psychological Reports*. 2000;83:1035-41.
- [15] Snyder CR, Harris C, Anderson JR, Holleran SA, Irving LM, Sigmon ST, et al. The will and ways: Development and validation of an individual- differences measure of hope. *Journal of Personality and Social Psychology*. 1991;60:570-85.
- [16] Brissette I, Scheier MF. The role of optimism in social network development, coping, and psychological adjustment during a life transition. *Journal of Personality & Social Psychology*. 2002;82(1):102-11.
- [17] Tejas GP, Mehta HB, Gokhale PA, Shah CJ. A study of socio-economic and parental educational background of first year medical student in medical college Bhavnagar. *International Research J of Pharmacy*. 2012;3(9):253-55.
- [18] Chang EC, D'Zurilla TJ, Maydeu-Olivares A. Assessing the dimensionality of optimism and pessimism using a multi measure approach. *Cognitive Therapy & Research*. 1994;18:143-60.
- [19] Dember WN, Brooks J. A new instrument for measuring optimism and pessimism: test-retest reliability and relations with happiness & religious commitment. *Bulletin of Psychometric Society*. 1989;27:365-66.
- [20] Smith TW, Pope MK, Rhodewalt F, Poulton JL. Optimism, neuroticism, coping and symptom reports: an alternative interpretation of the life orientation test. *Journal of Social & Clinical Psychology*. 1989;56:640-48.
- [21] Scheier MF, Carver CS, Bridges MW. Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a re-evaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*. 1994;67:1063-78.
- [22] Carver CS, Scheier MF. Optimism. In: C.R. Snyder (Ed.), *Coping*. The psychology of what works: pp182-204 New York: Oxford University Press.1999.
- [23] Carver CS, Scheier MF. The hopeful optimist. Mahwah NJ: Erlbaum. 2000.
- [24] Stewart SM, Lam TH, Betson CL, Wong CM, Wong AMP. A prospective analysis of stress and academic performance in the first two years of medical school. *Medical Education*. 1999;33:243-50.
- [25] Schumacher B. Assessing the relationship between optimism and academic success. Athabasca University; Master of Arts- Integrated Studieis. 2006 Available from:[http://dtptr.lib.athabascau.ca/action/download.php?filename=mais/Schumacher\\_B%20MAIS701\\_Apr06.pdf](http://dtptr.lib.athabascau.ca/action/download.php?filename=mais/Schumacher_B%20MAIS701_Apr06.pdf)

- [26] Stoeker JA. Optimism and grade expectancies. *Psychological Reports*. 1999;84:873-79.
- [27] Burke KL, Joyner AB, Czech DR, Wilson MJ. An investigation of concurrent validity between two optimism/ pessimism questionnaires: The Life Orientation Test- Revised and the Optimism/ Pessimism Scale. *Current Psychology Development, Learning, Personality & Social*. 2000;19(2):129-36
- [28] Harju BL, Bolen LM. The effects of optimism on coping and perceived quality of life of college students. *Journal of Social Behaviour & Personality*. 1998;13(2):185-200.
- [29] Glaesmer H, Rief W, Martin A, Mewes R, Brahler E, Zenger M, et al. Psychometric properties and population- based norms of the Life Orientation Test Revised (LOT-R). *British Journal of Health Psychology*. 2012;17:432-45.
- [30] Hall C, Spruill K, Webster R. Motivational and attitudinal factor in college students with and without learning disabilities. *Learning Disability Quarterly*. 2002;25(2):79-86.
- [31] Tankamani N, Yoosefi N, Kadivar P. The relationship between Life Orientation with stress, depression and anxiety in students' International Imam Khomeini University. *Switzerland Research Park Journal*. 2014;104(1):181-92.
- [32] Singh I, Jha A. Anxiety, optimism and academic achievement among students of private medical and engineering colleges? A comparative study. *J of Educational & developmental Psychology*. 2013;3(1):222-34.
- [33] Bryant FB, Cvengros JA. Distinguishing hope & optimism: two sides of a coin, or two separate coins? *Journal of Social and Clinical Psychology*. 2004;23(2):273-302.
- [34] Maattaa S, Stattin H, Narmi J. Achievement strategies at school: Types and correlates. *Journal of Adolescence*. 2002;25:31-46.
- [35] Koizumi RC. Feelings of optimism and pessimism in Japanese students' transition to junior high school. *Journal of Early Adolescence*. 1992;15:412-28.
- [36] Waller BN. The sad truth: optimism, pessimism and pragmatism. *Ratio*. 2003;16(2):189-97.
- [37] Seligman Martin EP. Learned Optimism. In: How to change your mind and your life. A division of Random House, Inc, New York, Free Press. Edition1; 2006. Available from: [https://duniahartanto.files.wordpress.com/2014/10/ebooksclub-org\\_\\_learned\\_optimism\\_\\_how\\_to\\_change\\_your\\_mind\\_and\\_your\\_life.pdf](https://duniahartanto.files.wordpress.com/2014/10/ebooksclub-org__learned_optimism__how_to_change_your_mind_and_your_life.pdf)
- [38] Klassen R. A question of calibration: A review of the self-efficacy beliefs of students with learning disabilities. *Learning Disability Quarterly*. 2002;25(2):88-103.

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